

Nomination for inscription on
The UNESCO World Heritage List



CULTURAL LANDSCAPE OF BALI PROVINCE

The Ministry of Culture and Tourism of the Republic of Indonesia
The Government of Bali Province
2011

NOMINATION FORM



WORLD HERITAGE LIST

Nomination Form

Under the terms of the Convention concerning the Protection of the World Cultural and Natural Heritage, adopted by the General Conference of UNESCO in 1972, the Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, called “the World Heritage Committee” shall establish, under the title of “World Heritage List”, a list of properties forming part of the cultural and natural heritage which it considers as having outstanding universal value in terms of such criteria it shall have established.

The purpose of this form is to enable States Parties to submit to the World Heritage Committee nominations of properties situated in their territory and suitable for inclusion in the World Heritage List.

The form, completed in English, is sent in four copies to:

*The Secretariat
World Heritage Committee
Division of Cultural Heritage
UNESCO
7 Place de Fontenoy
75352 Paris 07 SP*

UNITED NATIONAL EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANISATION



**Address by
The Minister for Culture and Tourism of the Republic of Indonesia**



Let us praise to God, Almighty and because of His Permission, the revised Nomination “The Cultural Landscape of Bali Province” for inscription to World Heritage List could be accomplished. It is quite ambitious to submit this dossier to UNESCO WHC after being deferred. Nevertheless, commitment to continue preserving cultural significance of Bali which have been rooted from ancient tradition, in facing rapid development, increasing pressure of modernization, tourism and globalization is an effort to protect and safeguarding the heritage.

The island of Bali has often been referred to be a “paradise” on earth, a traditional society whose inhabitants have preserved unique cultural traditions, heritage and value systems. It is indeed a living culture of people who has grown in harmony with its natural environment, strong interaction between the human-built monuments, the social and religious life. Therefore, we are glad ICOMOS agrees that the ancient and persistent subak system of Bali, with its associated temples, rice terraces and philosophy of Tri Hita Karana, are of outstanding universal value. In connection to this revised version, we took account of to chose sites of subaks and water temples that havemostly are under threat from development (loss of agricultural land).

The preparation of this nomination has involved many stakeholders. Therefore, allow me to outset Department of Culture and Tourism’s sincere thanks to the Government of Bali Province, the many experts and, of course, the local people who worked together in partnership to formulate this dossier. My special thanks go to Prof. Stephen Lansing and students for his assistance in harmonizing and finalizing the nomination dossier.

In conclusion, we hope this nomination will be considered by the UNESCO – World Heritage Center. Thank you very much.

Minister of Culture and Tourism

Jero Wacik





Address by the Governor of Bali Province



The nomination of the Cultural Landscape of Bali Province to be inscribed in the World Heritage List has been a long process of works and being revised for quite amount of times. We should acknowledge that it is a learning process of how to manage Bali's heritage which have been known worldwide in an universal perspective. Nearly 7 years of effort and finally the nomination was accepted by UNESCO WHC as a complete document in 2007, but then following to ICOMOS evaluation, the nomination has been deferred for several reason. The recommendation allow us to seek deeper understanding that nominating such sites to be inscribed in the World Heritage List should met not just criteria as described in the UNESCO Operational Guidelines, but also how well the conception being implemented in the field and manage it for future generation.

As we aware, concept of sites preservation is not only architectural and monuments remain but expanded to the living culture that still exist within the Balinese. We realized that ICOMOS evaluation gave wider view of how to conserve and preserve the Culture Landscape of Bali Province. In facing this situation, the Government of Bali Province is still committed to proceed the nomination as it is in accordance with the local government's campaign of *Ajag Bali* to preserve Balinese culture, society, and politics from the effects of globalization. Although globalization has its advantages for our nation's progress from the benefits of the rapid transformation and development of science, globalization also causes a different effect when people cannot absorb and take advantage of these changes because of lack of culture and educational background.

In the process of finalizing the dossier, stakeholders meeting involving whole elements of community were held to gain harmonious agreement, specially among owners and foundation of newly nominated sites and work together to develop future management plan.

Therefore, I fully support the process of this nomination and do hope that with a short limit of time, we put all our effort, bringing local, national and also international experts to work with the dossier, and UNESCO WHC to consider it

And finally, to the team that has done the revision for the fifth time, I would like to say thank you. I hope for continuing cooperation from all the related stakeholders.

Governor

Made Mangku Pastika





ACKNOWLEDGEMENT



Aurora Tambunan
Director General of History and

This World Heritage Nomination dossier is the result of a very rewarding collaboration among various institutions, universities, experts, and the local communities of Bali. The long preparation of this dossier since year 2000 and until recently ICOMOS examination has been adopted in the 32nd Session UNESCO WHC meeting in Quebec – Canada (2008) to defer the nomination. Strong commitment and initiatives from the Government of Bali, immediately established Technical Working Group and provide support from national and international experts to continue and submit the dossier to UNESCO on the following year. Since then, new revised have been submitted to UNESCO WHC, but still need to complete spatial information and management on the proposed sites. In this occasion, Directorate General for History and Archaeology as National Focal Point for Cultural Heritage would express our grateful thanks to the following experts who still consistence to made contributions and comments that have helped with the preparation of the nomination. We are particularly thankful to:

Member of Technical Working Group:

International Experts

Prof. Dr. J Stephen Lansing (University of Arizona, USA and Stockholm Resilience Center)

National Experts

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Prof. Dr. I Gde Parimartha (University of Udayana)

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ANNEXES



CHAPTER ONE

IDENTIFICATION OF THE PROPERTY



CHAPTER ONE

IDENTIFICATION OF THE PROPERTY

1.a. Country (and State Party if Different) :

INDONESIA

1.b. State, Province or Region :

BALI PROVINCE

1.c. Name of Property :

**THE CULTURAL LANDSCAPE OF BALI PROVINCE:
THE SUBAK SYSTEM AS A MANIFESTATION OF THE TRI HITA
KARANA PHILOSOPHY**

The Sites of the Cultural Landscape of Bali Province

- A. Supreme Water Temple Pura Ulun Danu Batur and Lake Batur**
District of Kintamani, Bangli Regency
- B. Subak Landscape of Pakerisan Watershed**
District of Tampaksiring, Gianyar Regency
- C. Subak Landscape of Catur Angga Batukaru**
District of Penebel, Tabanan Regency
and District of Sukasada, Buleleng Regency
- D. Royal Water Temple Pura Taman Ayun**

1.d Geographical Coordinates to the Nearest second, with Area of Nominated Property (ha) and Proposed Buffer Zone (ha)

ID No	Name of the Component Part	District/Regency	Coordinates of the Central Point UTM Zone 50 South	Core Zone (ha)	Buffer Zone (ha)	Main Map/ Scale
001	Supreme Water Temple Pura Ulun Danu Batur	Kintamani/Bangli	x316740 y9087170	1.4	31.1	001.2 1:15,000
002	Lake Batur	Kintamani/Bangli	x324560 y9086690	1,606.4	210	001.3 1:4,000
003	Subak Landscape of Pakerisan Watershed	Tampaksiring/Gianyar	x314180 y9067910	529.1	188.0	002.2 1:15,000
004	Subak Landscape of Catur Angga Batukaru	Sukasada and Penebel/ Tabanan and Buleleng	x292130 y9076440	17,376.1	974.4	003.1 & 003.2 1:20,000
005	Royal Water Temple Pura Taman Ayun	Mengwi/Badung	x298850 y9055300	6.9	51.3	004.2 1:15,000
			Total →	19,519.9	1,454.8	





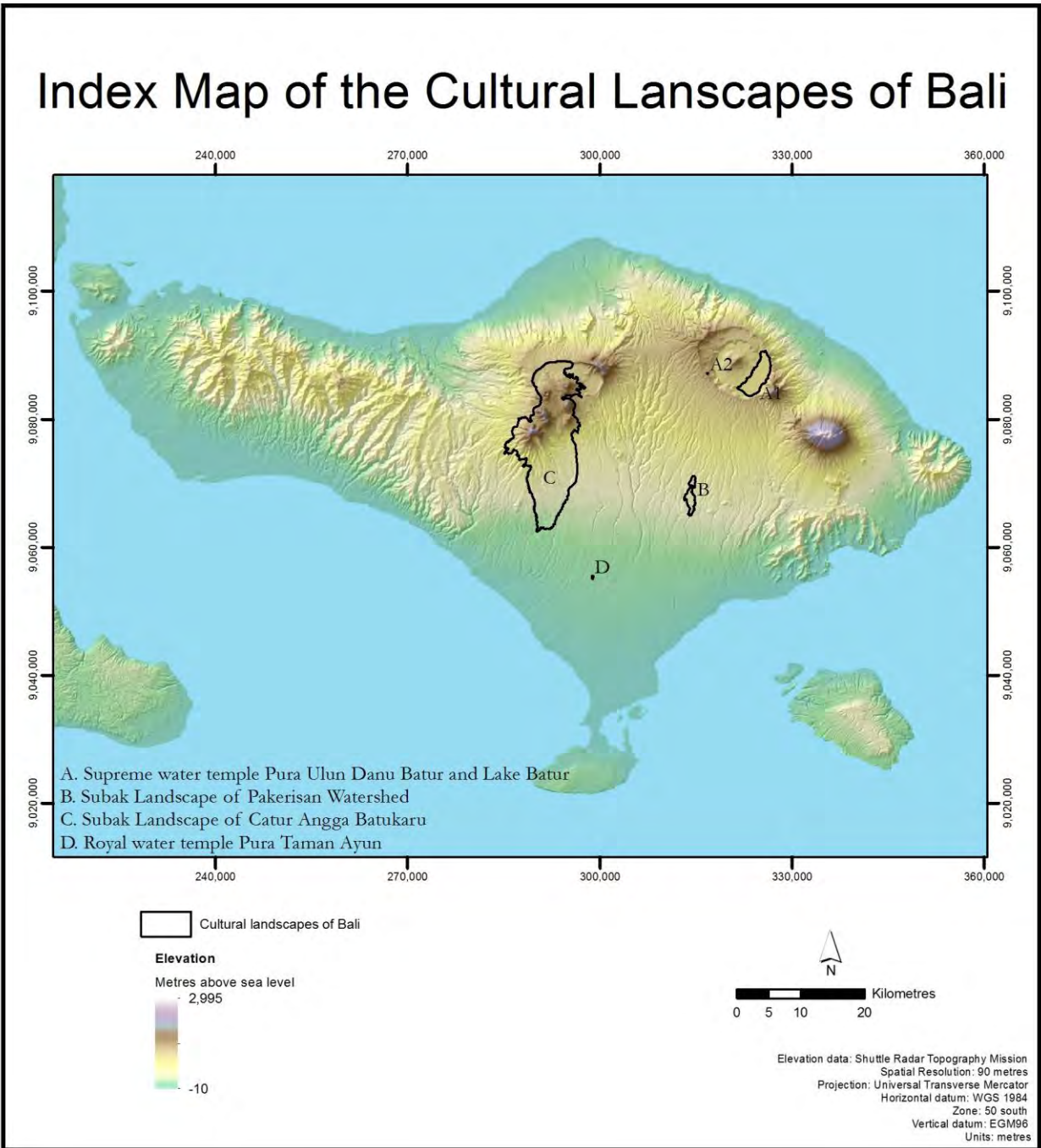
1.e. Maps and Plans Showing the Boundaries of the Nominated Property and Buffer Zones

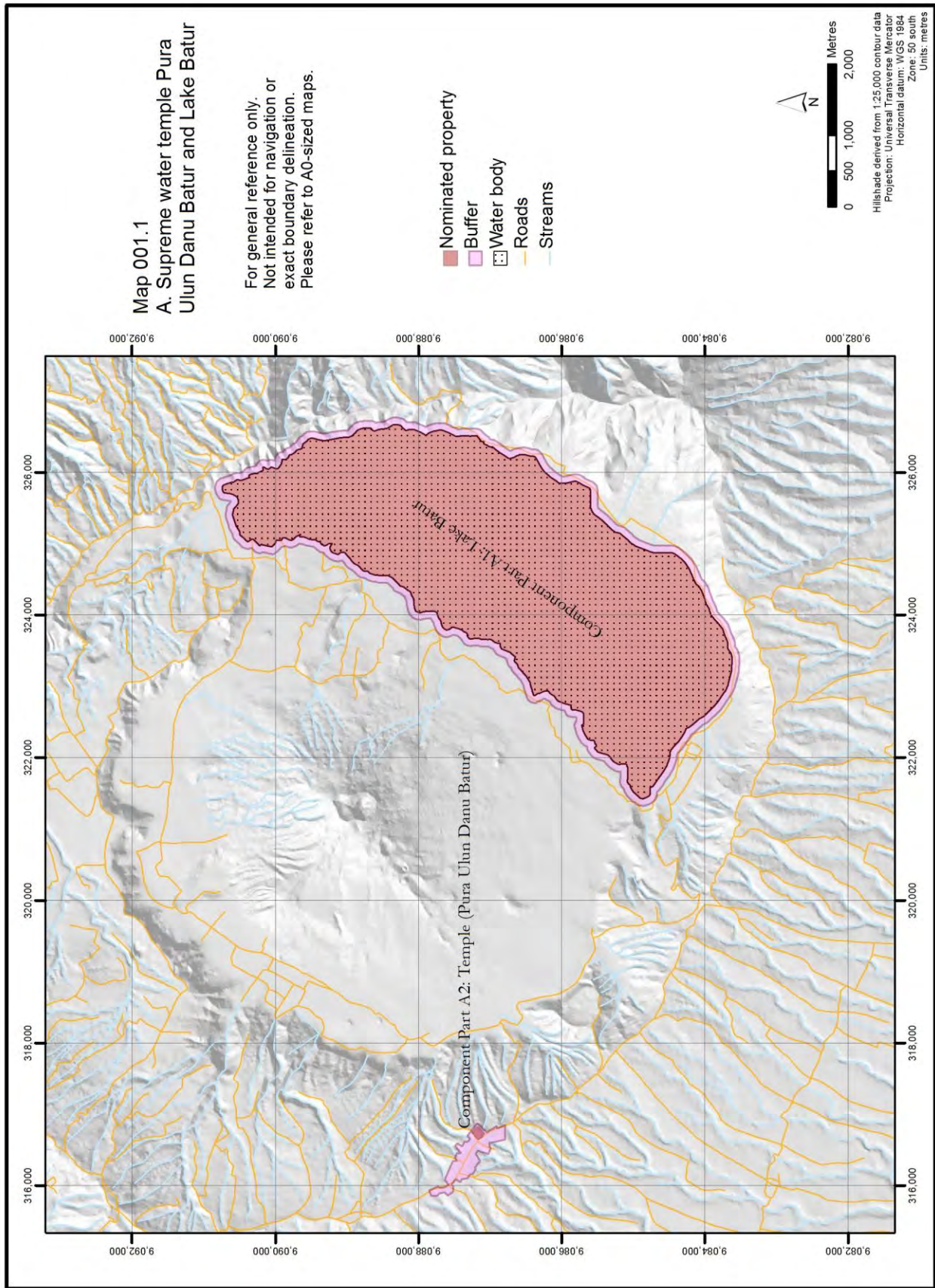
Due to the variation in the sizes of different nominated properties, different maps are presented to give an idea of the overall location (mostly size A4 maps), as well as more detailed maps useful for exact boundary delineation (primarily A0 and A1 maps). **Maps intended for boundary delineation are noted in BOLD.** Scales are only accurate when maps are embedded in a document and/or printed at 100% of their original size. A4 maps are 6" x 9.5" to allow for page margins when embedding in word processing software.

Map Location	Description	Map Number	Map Scale	Printed Map Size
Bali, Indonesia	Overview		1:25,000,000	A4
A,B,C,D	Index Map		1:1,000,000	A4
A	General Location	001.1	1:80,000	A4
A	Component Part A1: Lake Batur	001.2	1:15,000	A0
A	Component Part A2: Pura Ulun Danu Batur	001.3	1:4,000	A4
A	Site Plan of Temple Ulun Danu Batur	001.4		
B	General Location	002.1	1:50,000	A4
B	Component Part B1: Subak Landscape of Pakerisan Watershed	002.2	1:15,000	A1
B	Site Plan of Temple Pura Tirtha Empul	002.3		
B	Site Plan of Temple Pura Magening	002.4		
B	Site Plan of Temple Pura Pegulingan	002.5		
B	Site Plan of Temple Pura Gunung Kawi	002.6		
C	General Location	003.1	1:150,000	A4



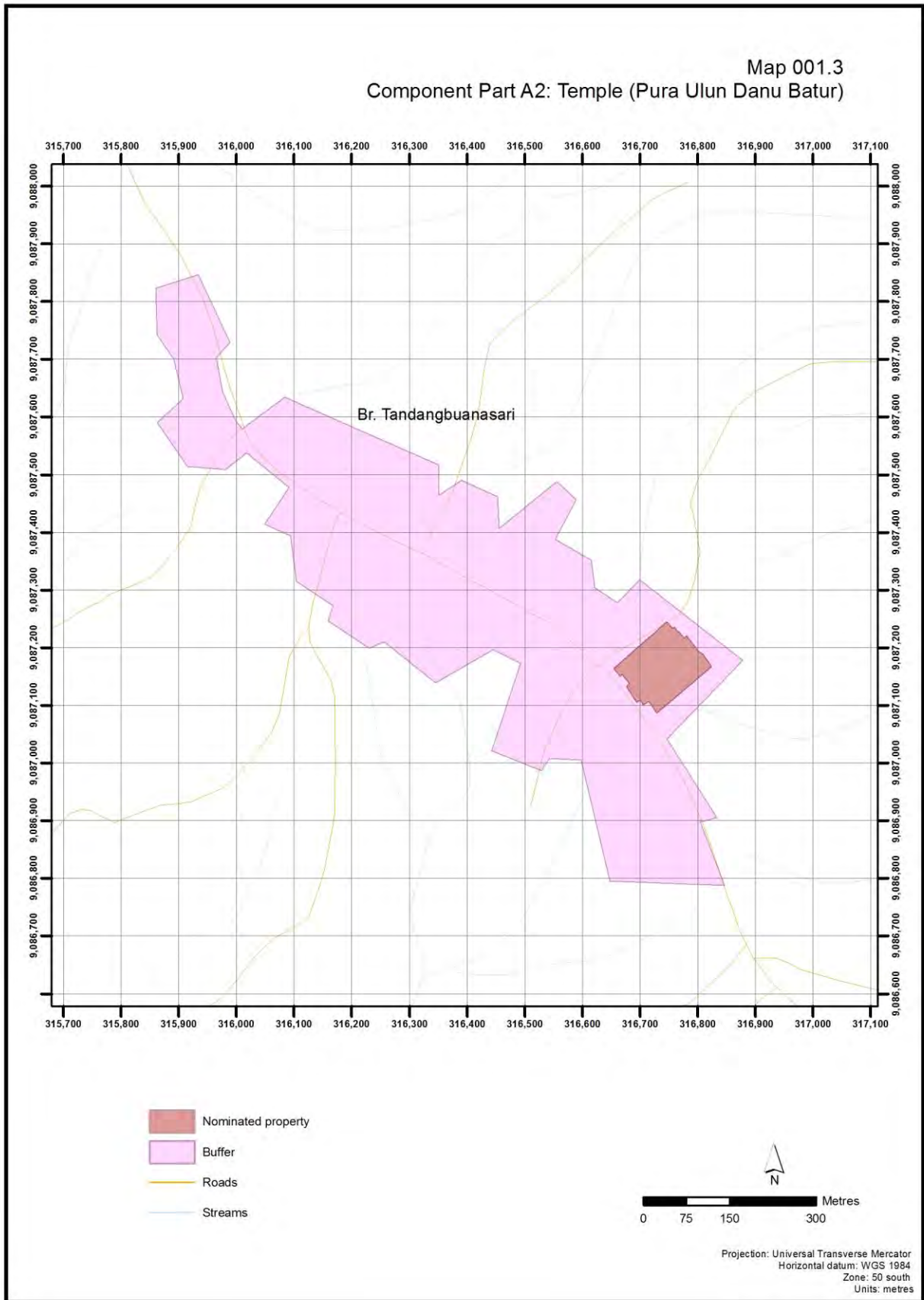
C north	Component Part C1: Subak Landscape of Catur Angga Batukaru (North)	003.2	1:20,000	A0
C south	Component Part C1: Subak Landscape of Catur Angga Batukaru (South)	003.3	1:20,000	A0
C	Site Plan of Temple Pura Petali	003.4		
C	Site Plan of Temple Pura Besikalung	003.5		
C	Site Plan of Temple Pura Batukaru	003.6		
C	Site Plan of Temple Pura Tambawaras	003.7		
C	Site Plan of Temple Pura Muncaksari	003.8		
D	General Location	004.1	1:80,000	A4
D	Component Part D1: Pura Taman Ayun	004.2	1:15,000	A1
D	Temple Site Map	004.3		





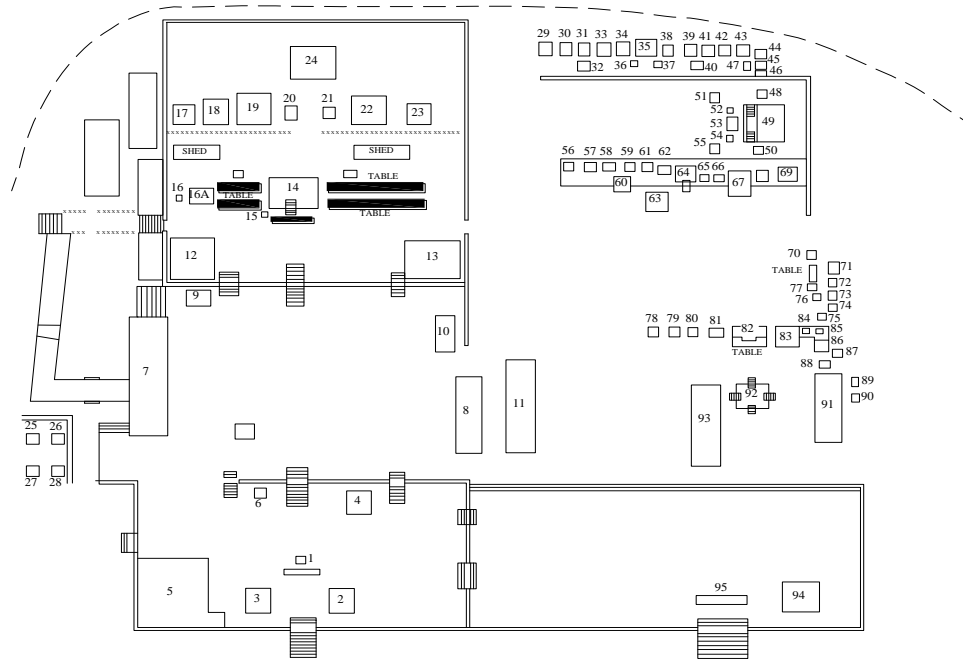
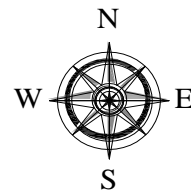


NOTE: Map 001.2 is printed in A0 format only





Map 001.4 Site Plan of Temple Pura Ulun Danu Batur



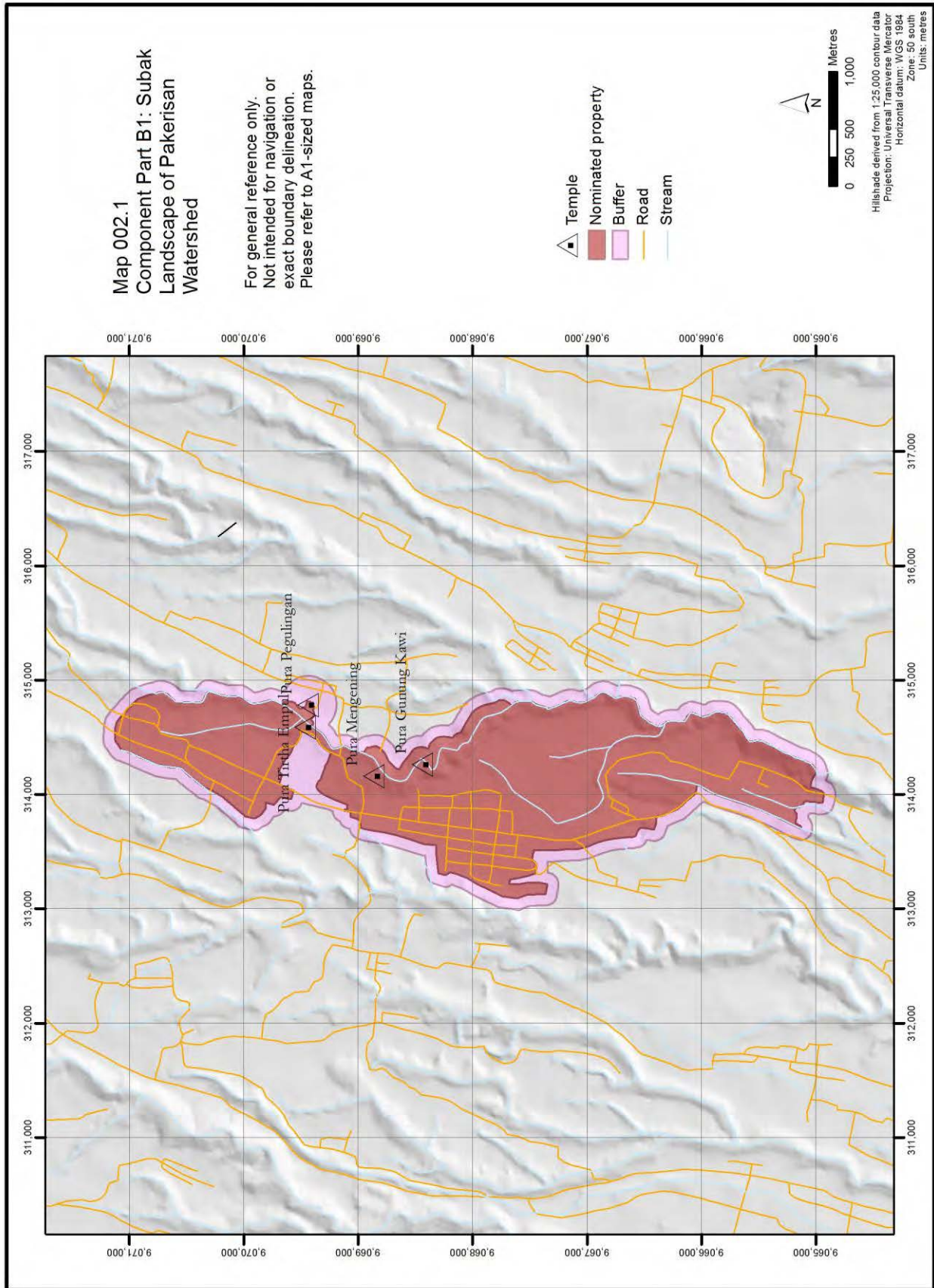
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- | | | |
|---|--|---|
| <ul style="list-style-type: none"> 1. Anantabogha 2. Bale Kulkul 3. Bale Kulkul 4. Bale Pekajah 5. Bale Gong Gde 6. Kertayasa 7. Bale Pengeraosan 8. Bale Gajah 9. Pesepilan 10. Bale Angklung 11. Dapur Suci 12. Bale Badung 13. Bale Pemujan 14. Peparuman Agung 15. Jajan Gumi 16. Pelinggih I Ratu Gde Subandar 16.a. Peparuman Ratu Gde Subandar 17. Meru Tumpang Tiga 18. Meru Tumpang Lima 19. Meru Tumpang Sembilan 20. Pelinggih Penyarikan 21. Pelinggih Penyarikan 22. Meru Tumpang Sembilan 23. Meru Tumpang Tiga 24. Meru Tumpang Sebelas 25. Bebali Courtyard 26. Nawa-Sangha 27. Wali 28. Temporary Bale for Panca Wali Krama 28.a. Temporary Plat For Bale for Pries 29. Temple for Ratu Ayu Pecatu 30. Temple for Ratu Ayu Pinget 31. Temple for Ratu Ayu Kling 32. Temple for Ratu Ayu Shri Penpen 33. Temple for Ratu Ayu Kebek Sai | <ul style="list-style-type: none"> 34. Temple for Ratu Ayu Teka Sai 35. Temple for offering Ratu Gde Pasek 36. Pepelik 37. Pepelik 38. Ratu Gde Manik Blabur 39. Temple for Ratu Gde Manik Melele 40. Pepelik 41. Temple for Ratu Manik Senjata 42. Temple for Ratu Gde Malegadan 43. Temple for Ratu Ngurah Runcing 44-47 No longer exist 48. Temple for Ratu Gde Perahu 49. Meru Tumpang Tiga 50. Temple for ratu Magening 51-55. Offerings shrines and statue 56. Temple for Ratu Sumampat 57. Temple for Ratu Bunut 58. Temple for Ratu Manukan 59. Temple for Ratu Ayu Mas Magelung 60. Temple Ratu Ayu Tusan 61. Temple for Ratu Mas Sakti 62. Temple for Ratu Bangun Sakti 63. Temple for Ratu Ayu Kentel Bumi 64. Pesamuan | <ul style="list-style-type: none"> 65. Temple for Ratu Pekiisan 66. Temple for Ratu Ayu Jelung 67. Temple for Ratu Gde Makolem 68. Temple for Ratu Gulem 69. Temple for Baturrenggong 78. Temple for Ida Iratu Majapahit 79. Temple for Ida Iratu Tambang Layar 80. Temple for Ida Iratu Dalem Mesim 81. Temple for Ida Iratu Gde Dalam Mekah 82. Sanggar Agung: Surya, Chandra, Bayu 83. Bale Kulkul Tengeran Ida Batara 84. Pretiwi Ulung Bale Agung 85. Divider 86. Temple for I Ratu Rambut Sedana 87. Temple for I Ratu Bhatari Chi 88. Pepelik Batari Chi 89. Temple for Ratu Paumbungkang 90. Pepelik 91. Bale Agung Pedagangan Solas Lobang 92. Bale Pesamuan Agung 93. Bale Agung Pedauhan Siu Lubang 94. Bale Perabuan 95. Apit Lawang |
|---|--|---|



THE ARCHAEOLOGICAL
HERITAGE CONSERVATION OFFICE FOR
BALI-WEST NUSA TENGGARA AND
EAST NUSA TENGGARA PROVINCES

PURA ULUN DANAU BATUR

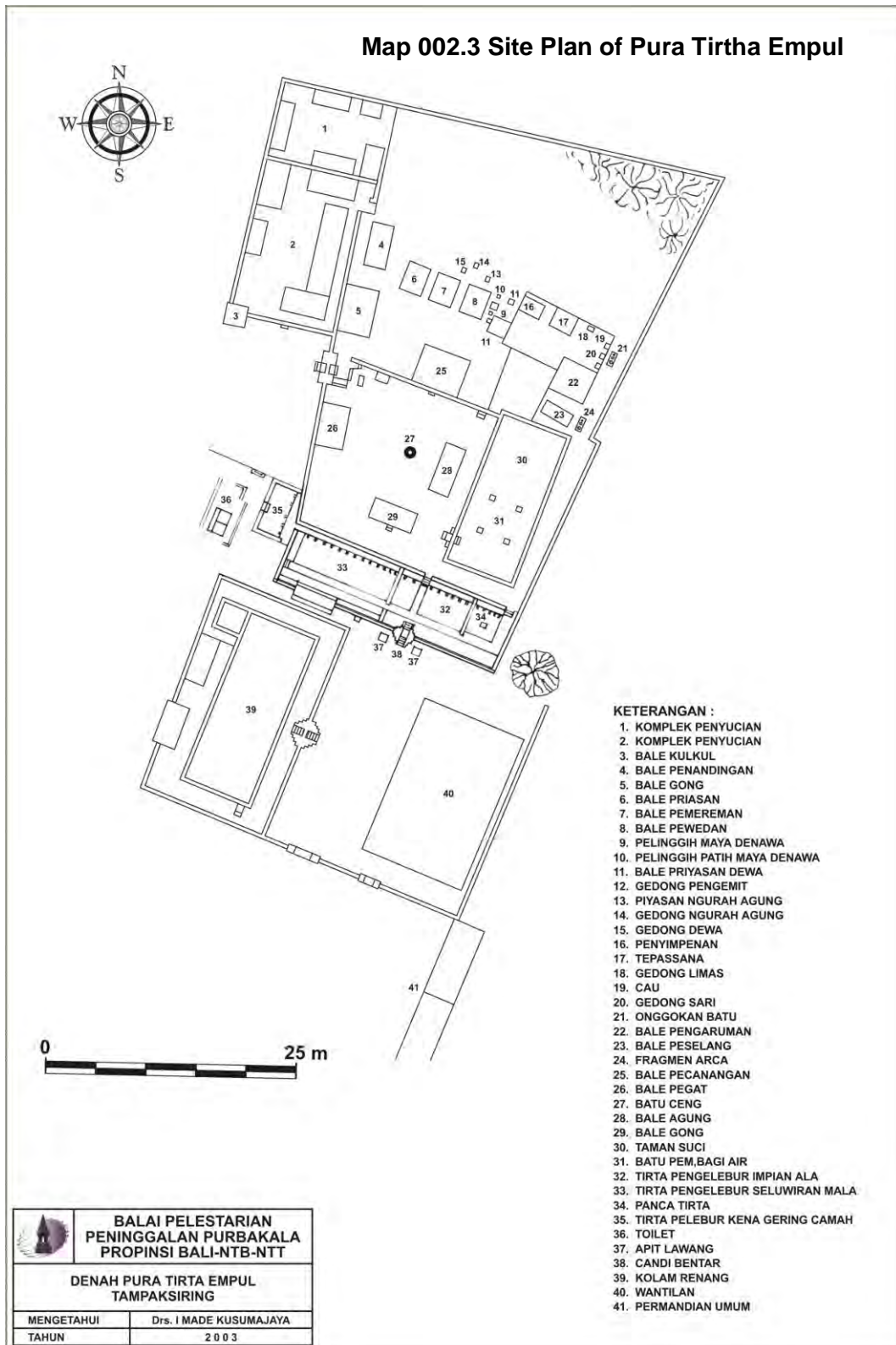




NOTE: Map 002.2 is printed in A1 format only

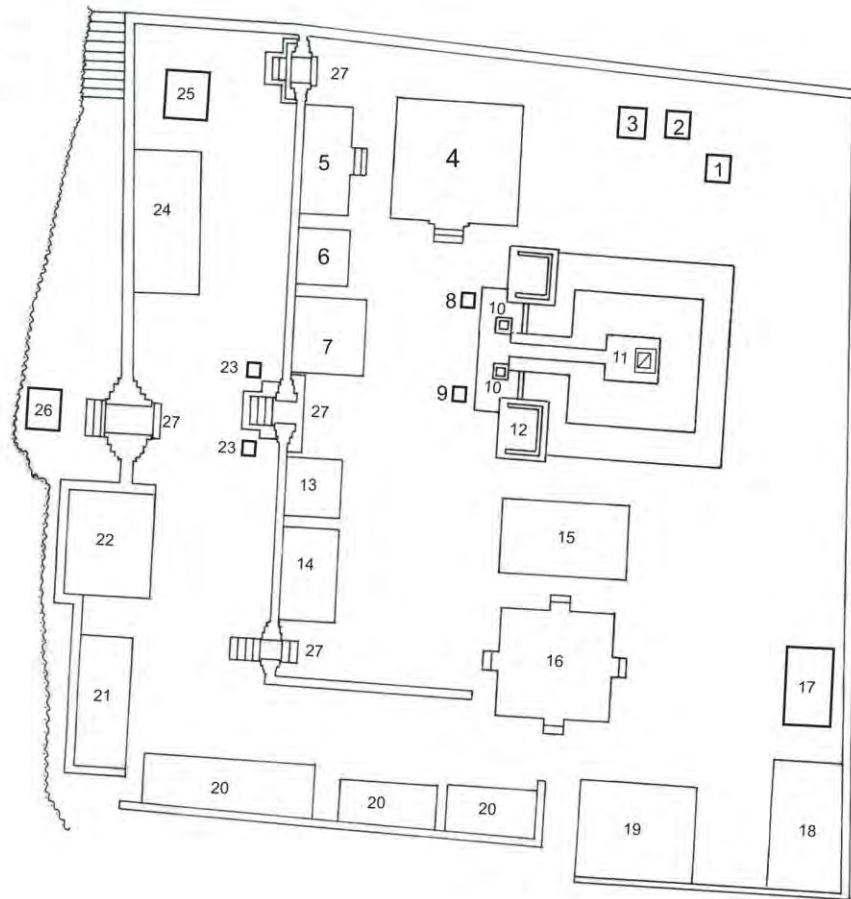


Map 002.3 Site Plan of Pura Tirtha Empul





Map 002.4 Site Plan of Pura Mengening

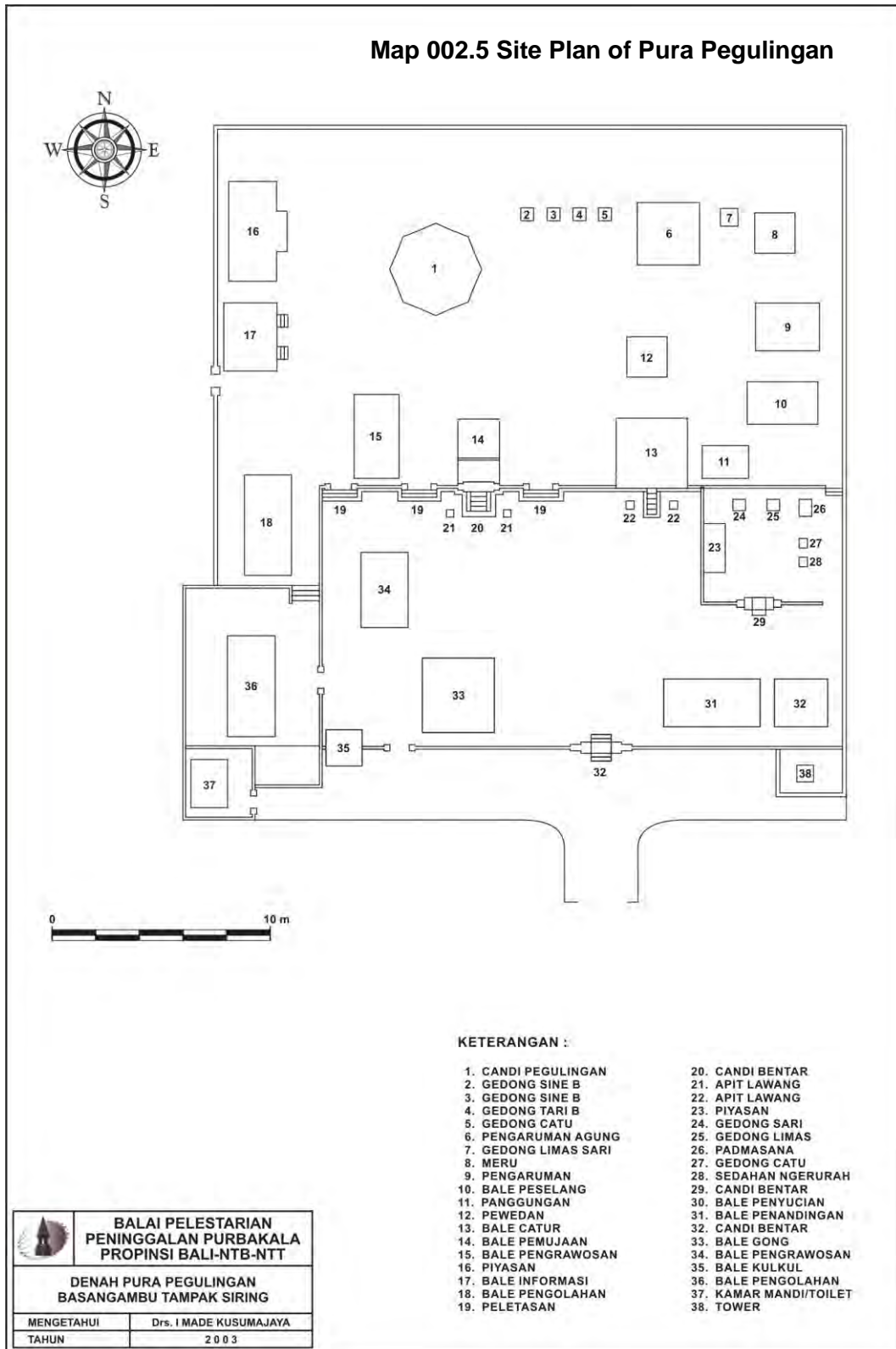


- KETERANGAN :**
1. GEDONG LIMAS
 2. GEDONG CATU
 3. GEDONG SINEB
 4. PENGARUMAN
 5. PIASAN
 6. PANGGUNGAN
 7. BALE PEWEDAN
 8. BATU BERDIRI
 9. PESIMPANGAN BETARA TIRTA EMPUL
 10. BALE PELIK
 11. PRASADA AGUNG
 12. PESIMPANGAN BETARA GUNUNG KAWI
 13. BALE PENGANTEB
 14. BALE PEWAYANGAN
 15. PECANANGAN
 16. PESELANG
 17. PENEGTEGAN
 18. PENYUCIAN
 19. BALE PEGIAN
 20. BALE PAEBATAN
 21. BALE PEGAT
 22. BALE GONG
 23. SEDAHAN NGURAH AGUNG
 24. BALE PEGAMBUHAN
 25. BALE KULKUL
 26. PANGGUNGAN
 27. CANDI BENTAR

	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT
	DENAH PURA MENGENING TAMPAKSIRING - GIANYAR
MENGETAHUI	Drs. I MADE KUSUMAJAYA
TAHUN	2003

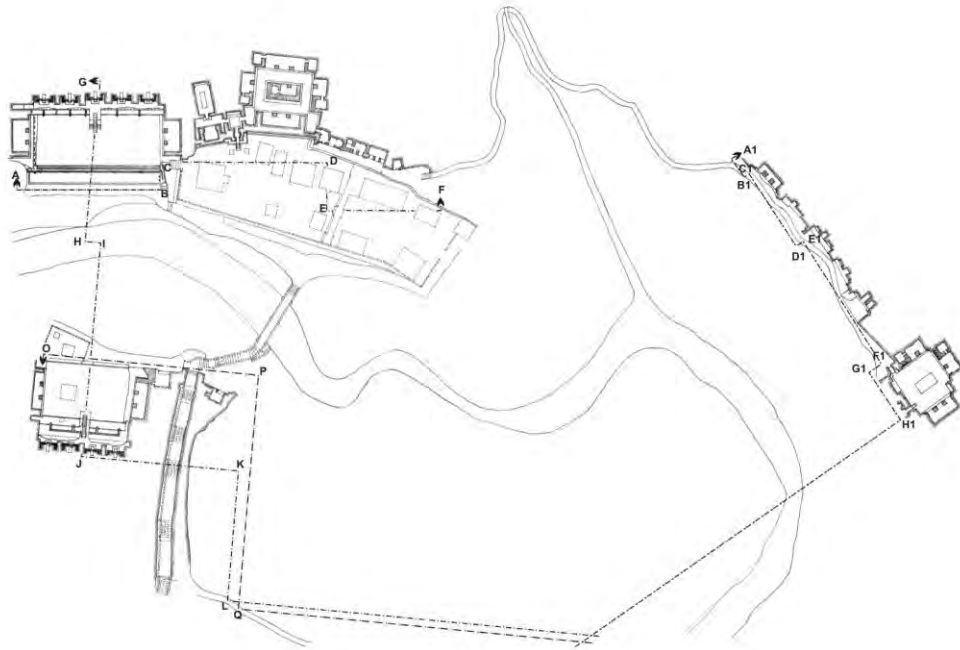



Map 002.5 Site Plan of Pura Pegulingan

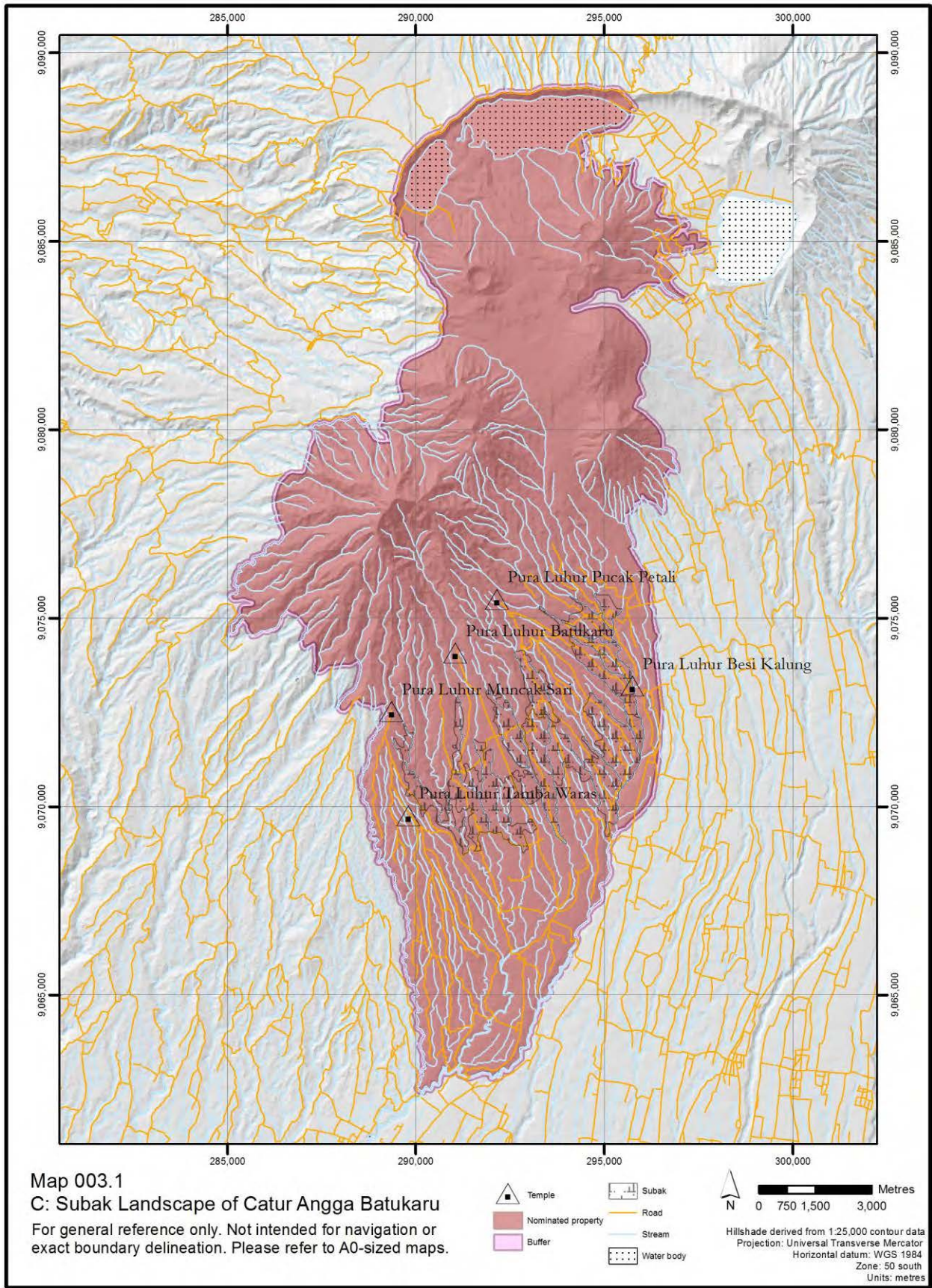




Map 002.6 Site Plan of Pura Gunung Kawi



	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT
DENAH PURA PURA GUNUNG KAWI	
MENGETAHUI	Drs. I MADE KUSUMAJAYA
TAHUN	2003

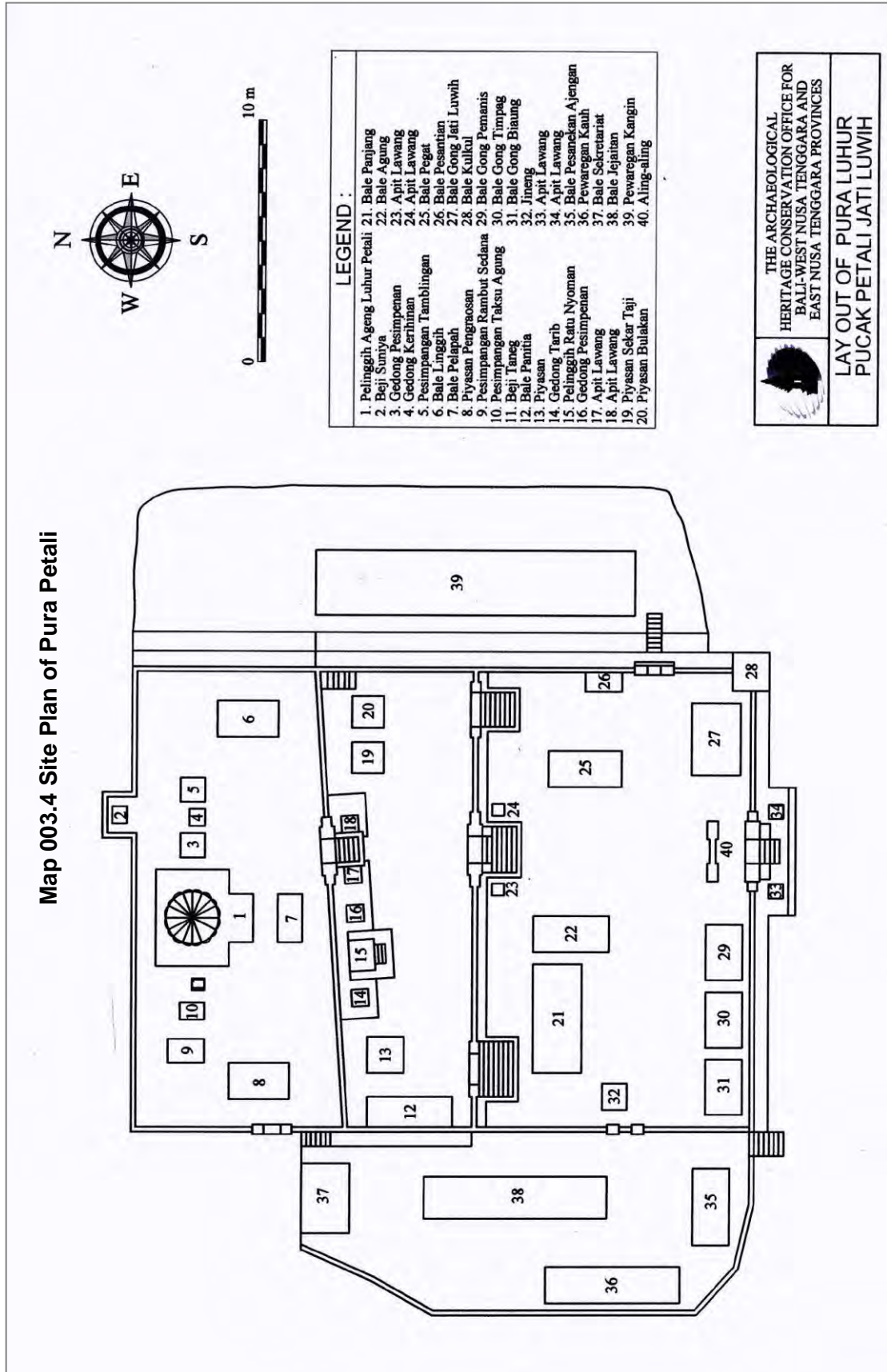




NOTE: Maps 003.2 and 003.3 are printed in A0 format only

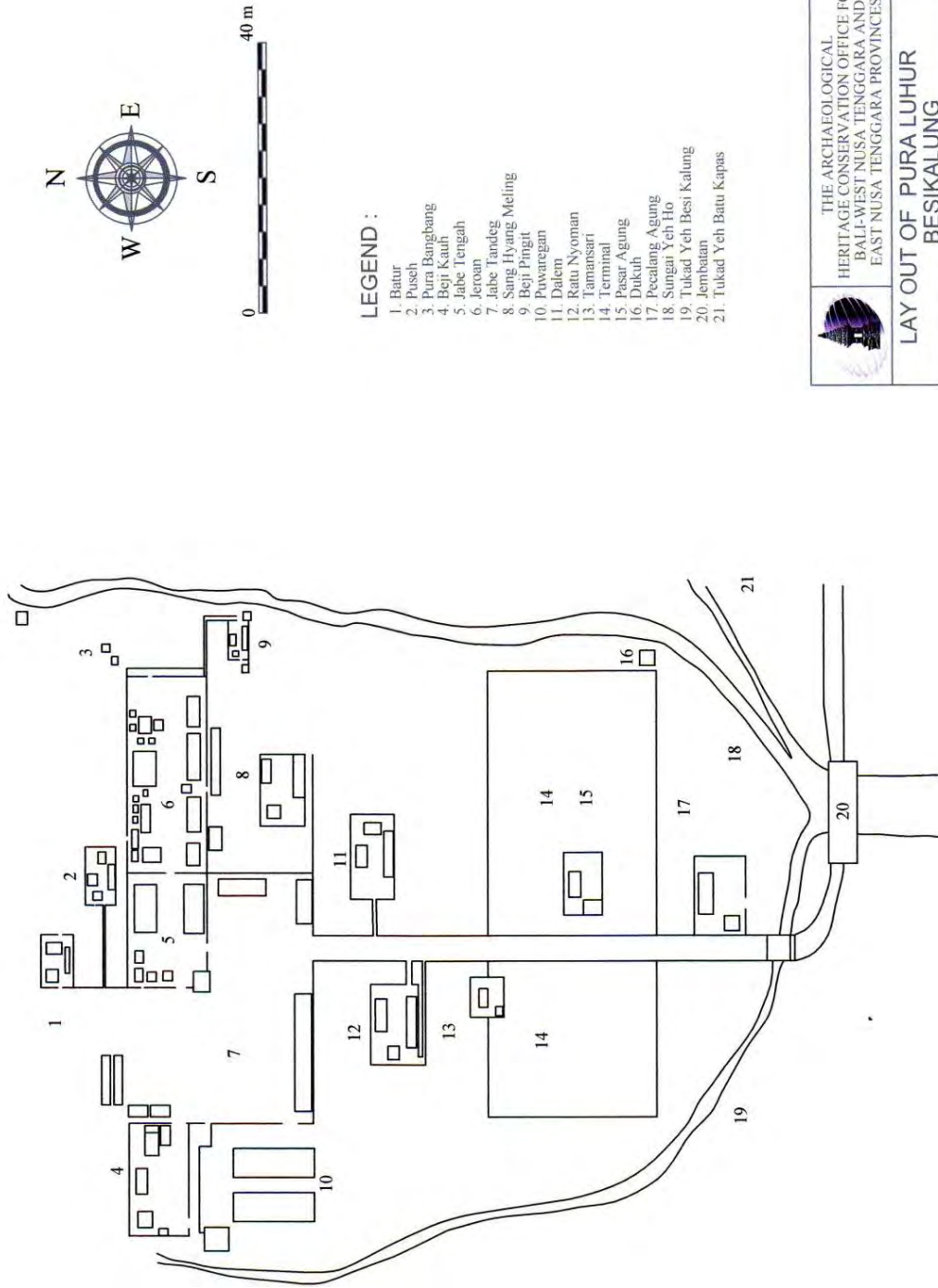


Map 003.4 Site Plan of Pura Petali





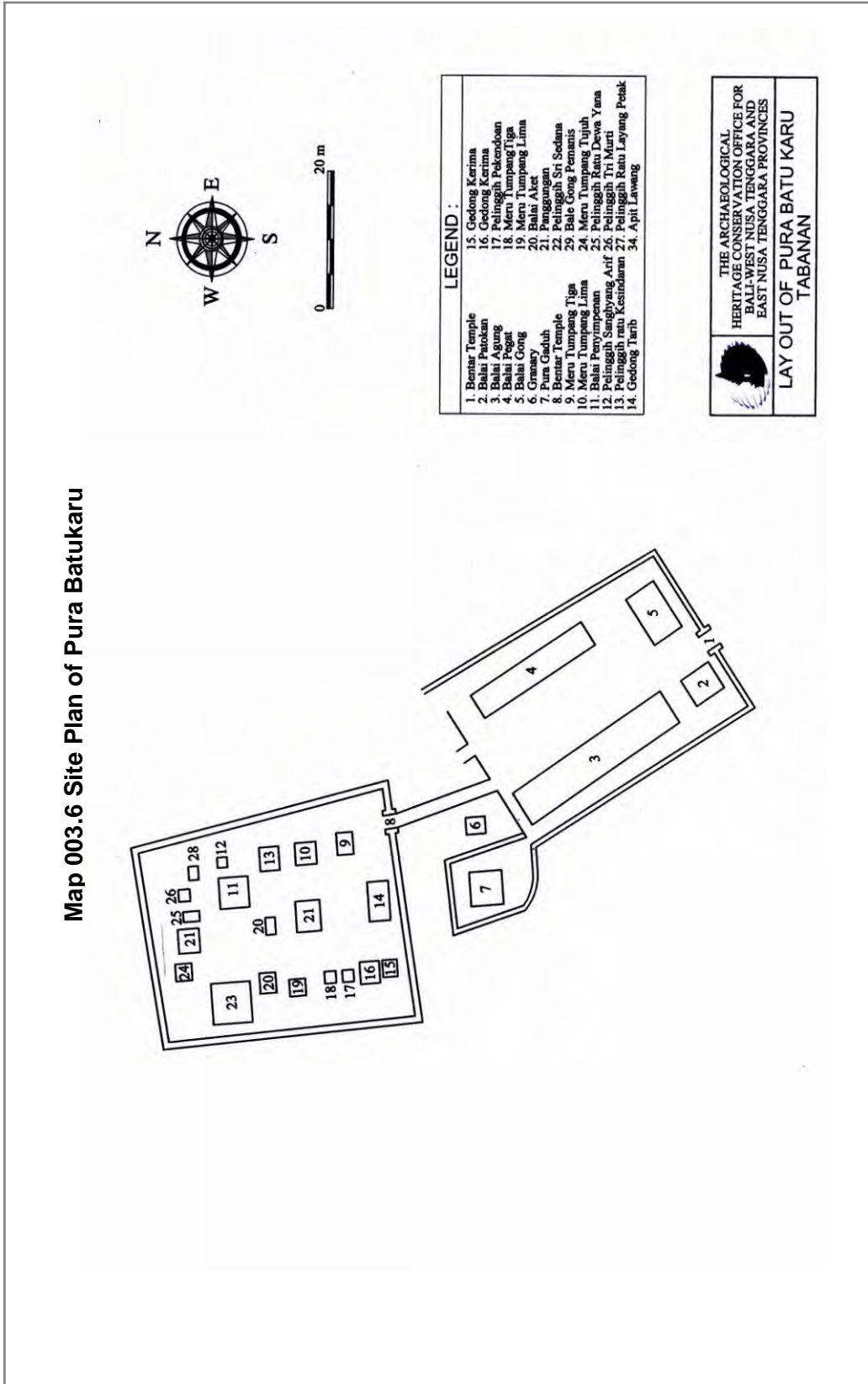
Map 003.5 Site Plan of Temple Pura Besikalung



	THE ARCHAEOLOGICAL HERITAGE CONSERVATION OFFICE FOR BALI-WEST NUSA TENGGARA AND EAST NUSA TENGGARA PROVINCES
	LAY OUT OF PURA LUHUR BESIKALUNG

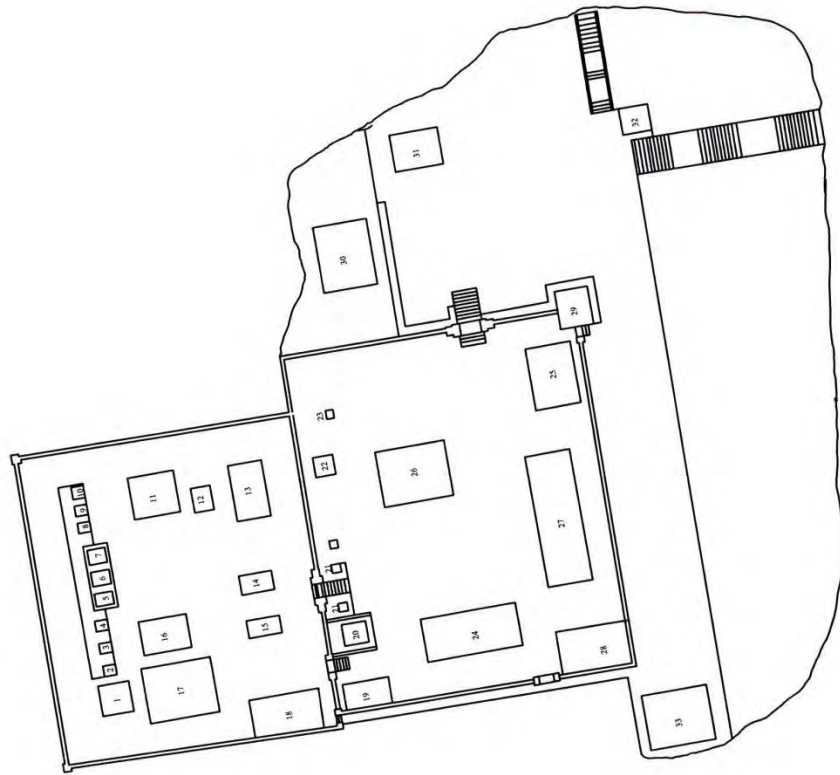
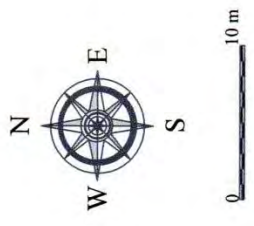


Map 003.6 Site Plan of Pura Batukaru





Map 003.7 Site Plan of Pura Tambawaras



LEGEND :

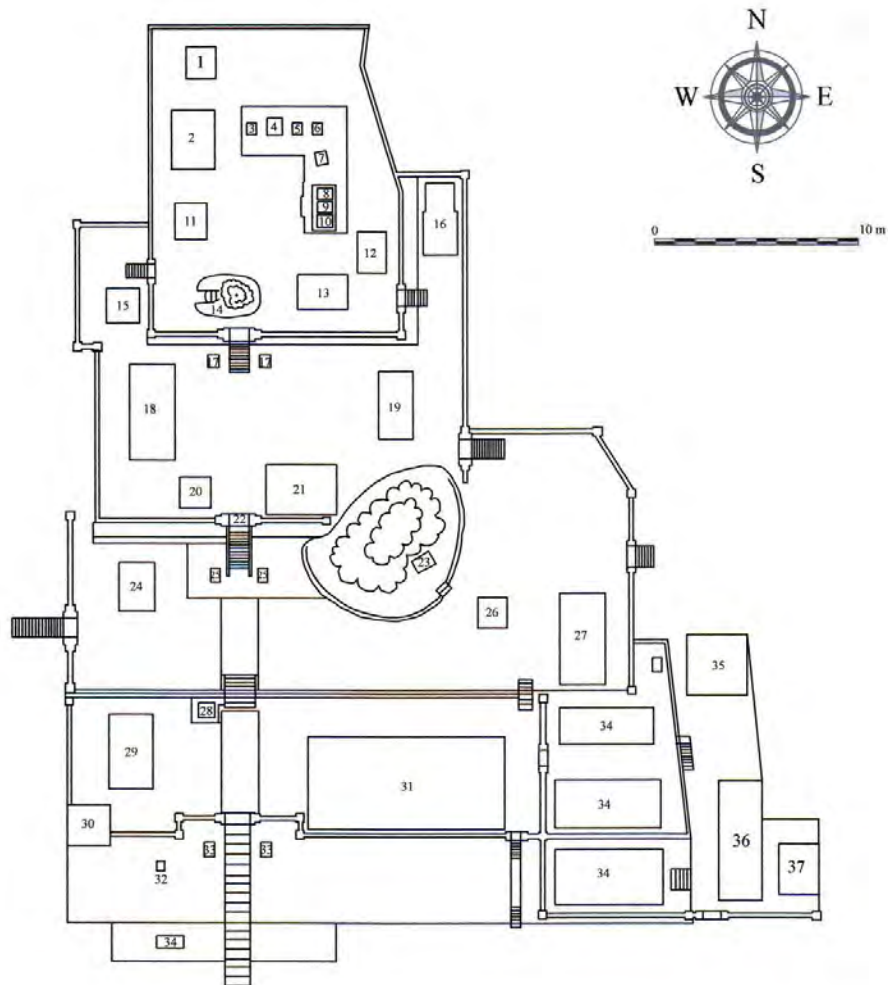
- 1. Pelinggih Bojola
- 2. Pengayatan Jati Luwih
- 3. Pucak Kedaton
- 4. Pengayatan
- 5. Brahma
- 6. Wisnu
- 7. Iswara
- 8. Taksu Agung
- 9. Rambut Sedana
- 10. Sri Medandan
- 11. Gedong Pesimpunan
- 12. Menjangan Seluang
- 13. Bale Alit
- 14. Ratu Wayan
- 15. Ratu Nyoman
- 16. Bale Pemangku
- 17. Bale Pemayasan
- 18. Bale Panitia
- 19. Bale Ayengan
- 20. Gedong Dewa
- 21. Apit Lawang
- 22. Keryina Pasek
- 23. Periyangan
- 24. Bale Sirigasari
- 25. Bale Gong
- 26. Bale Pegat
- 27. Bale Gong
- 28. Bale Gong
- 29. Bale Kuluk
- 30. Bale Pengobatan
- 31. Pos Kesehatan
- 32. Bale Peirtaan
- 33. Peranteran

THE ARCHAEOLOGICAL
HERITAGE CONSERVATION OFFICE FOR
BALI-WEST NUSA TENGGARA AND
EAST NUSA TENGGARA PROVINCES

**LAY OUT OF PURA
TAMBAWAS**



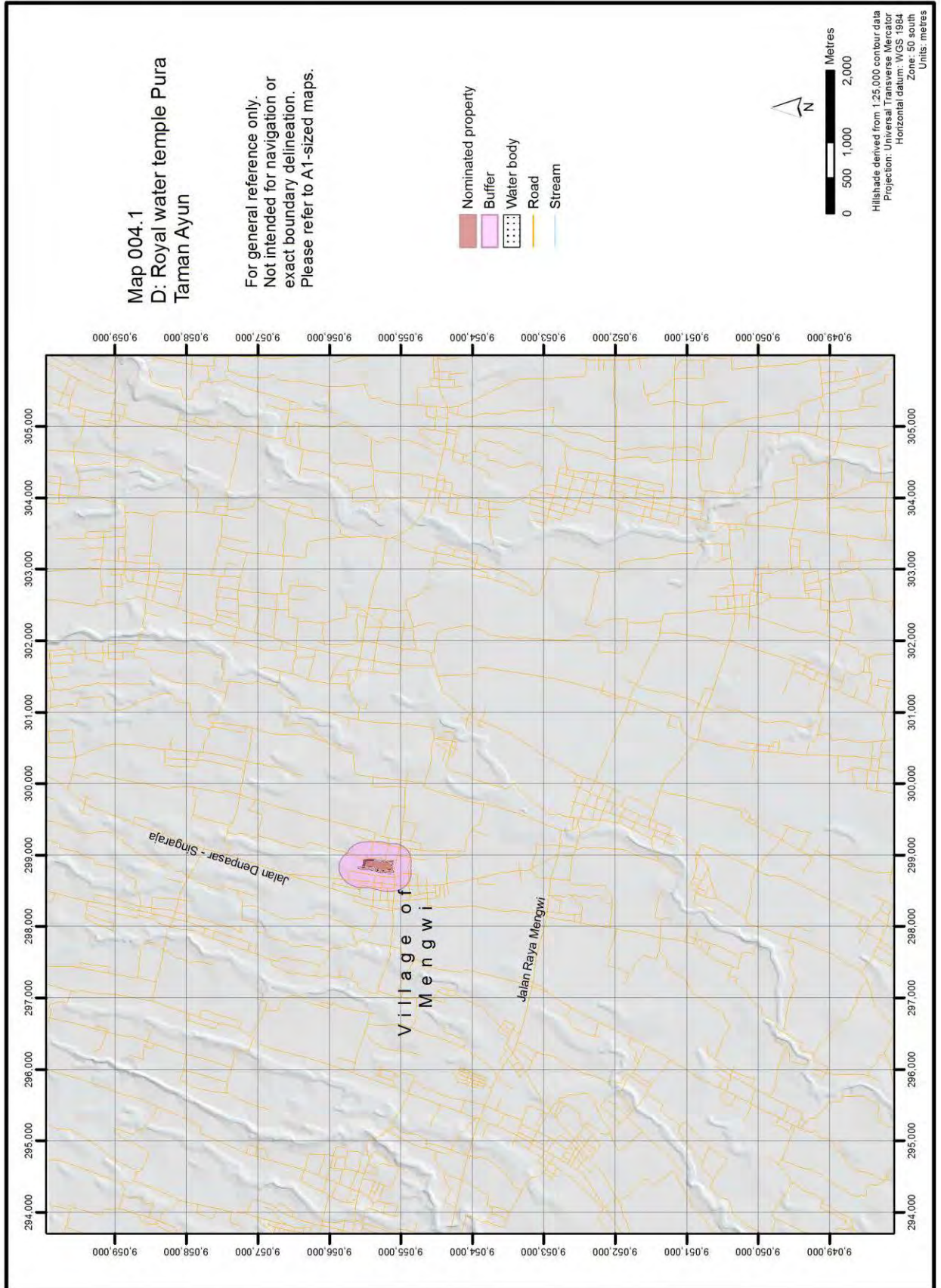
Map 003.8 Site Plan of Pura Luhur Muncaksari



LEGEND :

- | | |
|-------------------------|-------------------------|
| 1. Gedong Pesimpenan | 20. Bale Gong |
| 2. Piyasan | 21. Bale Gong |
| 3. Pelinggih Leluhur | 22. Candi Bentar |
| 4. Pelinggih Kedaton | 23. Amerta Sebuana |
| 5. Pelinggih Jatiluwih | 24. Bale Pedanan |
| 6. Pelinggih Suralaya | 25. Arca Singa |
| 7. Pelinggih Sri Sedana | 26. Bale Penangkilan |
| 8. Pelinggih Wisnu | 27. Bale Pasayuban |
| 9. Pelinggih Iswara | 28. Bale Penangkilan |
| 10. Pelinggih Brahma | 29. Bale Pesanian |
| 11. Bale Peninangkilan | 30. Bale Kulkul |
| 12. Bale Ajengan | 31. Wantilan |
| 13. Bale Aket | 32. Pedukuhan |
| 14. Taman Beji | 33. Arca Singa |
| 15. Jlneng | 34. Bale Pewaregan Suci |
| 16. Gudang | 35. Pesraman Pemangku |
| 17. Apat Lawang | 36. Pesanekan |
| 18. Bale Agung | 37. Perantenan |
| 19. Bale Pegat | 38. Papan Nama |

	THE ARCHAEOLOGICAL HERITAGE CONSERVATION OFFICE FOR BALI-WEST NUSA TENGGARA AND EAST NUSA TENGGARA PROVINCES
	LAY OUT OF PURA LUHUR MUNCAK SARI





Note: Map 004.2 is printed in A1 format only



Map 004.3 Site Plan of Pura Taman Ayun



KETERANGAN :

1. PERSIMPANGAN PUNCAK PADANG DAWA
2. PERSIMPANGAN GUNUNG BATUKARU
3. PELINGGIH RATU NYOMAN SAKTI
4. CANDI PENGHAYAT SARU GADING
5. PERSIMPANGAN PEDANDA SAKTI WAWU RAWUH
6. PELINGGIH RATU NGURAH SAKTI
7. PERSIMPANGAN ULUNSUWI / ULUWATU
8. PERSIMPANGAN PURA SAKENAN
9. PERSIMPANGAN PURA SADA
10. PAIBON
11. PERSIMPANGAN GUNUNG BATUR
12. PERSIMPANGAN GUNUNG AGUNG
13. PERSIMPANGAN GUNUNG BRATAN
14. PADMA TIGA
15. PERSIMPANGAN MASPAHIT
16. PERSIMPANGAN BATU NGAUS
17. PERSIMPANGAN PASURUHAN
18. PELINGGIH RATU PASEK
19. BALE PANCA RESI
20. BALE MURDA
21. GEDONG PENGANGGE
22. BALE SAKA KUTUS
23. BALE SAKA ENAM
24. BALE PEWEDAN
25. PENGARJUMAN
26. PANGGUNGAN
27. TEMPAT CUCI TANGAN
28. SAMBYANGAN
29. PANGGUNGAN
30. SUMUR
31. PELINGGIH RATU ALIT
32. PIYASAN
33. KORI AGUNG
34. PEPELIK
35. GEDONG
36. PANGGUNGAN
37. BALE GONG
38. BALE SAKA PAT
39. PENGUBENGAN
40. BALE KULKUL
41. BALE PASANEKAN
42. KORI AGUNG
43. PELINGGIH BETARA DILUWUR
44. PADMASANA
45. PELINGGIH BETARA DALEM TUNGKUB
46. PELINGGIH BETARA DESA PUSEH
47. PELINGGIH RATU GEDE NUSA
48. PELINGGIH RATU NYOMAN SAKTI
49. PIYASAN
50. TEMPAT SESAJEN
51. TEMPAT SESAJEN
52. CANDI BENTAR
53. WANTILAN
54. WC
55. KOLAM AIR MANCUR
56. BALE BUNDAK
57. SAMBYANGAN
58. PELINGGIH SILUH RESI
59. CANDI BENTAR
60. TEMPAT KARCIS MASUK
61. PANGGUNGAN
62. PEPELIK
63. PELINGGIH BETARA TENGAH SEGARA

	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTT
	DENAH PURA TAMAN AYUN MENGWI - BADUNG
MENGETAHUI	Drs. I MADE KUSUMAJAYA
TAHUN	2003



1.f. Area of Nominated Property (ha) and Proposed Buffer Zone (ha)
(see above, 1.d)



CHAPTER TWO

DESCRIPTION



CHAPTER TWO

DESCRIPTION

the God of the Masceti temple, who controls the rats, must be given offerings and the God of Sakenan Temple, who controls grasshoppers, should be given offerings. If there is a problem at the weir, perform the balik sumpah ritual at the Ulun Swi temple...

Dewa Tattwa (History of the Gods), a traditional Balinese lontar manuscript

Date: Icaka 1865

Author: Ida Pedanda Made



Mount and Lake Batur

Introduction: Subaks and Water Temples

The sites chosen for this nomination were selected to exemplify the Balinese *subak* system, and the water temples and landscape features with which it is associated. *Subak* is a Balinese word, which first appears in royal inscriptions in the eleventh century.¹ It refers to a unique social and religious institution; a self-governing, democratic organization of farmers who share responsibility for the

¹ The first appearance of the term “subak” is as the root of the word *kasuwakan* in the Pandak Bandung inscription of 1071 AD (No. 436). Sukarto K. Atmodjo, M. M. 1986. Some short notes on agricultural data from ancient Balinese inscriptions. In *Papers of the Fourth Indonesian-Dutch History Conference, Yogyakarta 24-29 July 1983, Vol. I: Agrarian History* (ed. Sartono Kartodirdjo). Yogyakarta: Gadjah Mada University Press, pp. 32-33.



just and efficient use of irrigation water to grow paddy rice. Subaks are not villages, rather they are specialized institutions charged with the management of irrigation water. Most subaks possess written legal codes, called *awig-awig*, which detail the rights and responsibilities of subak membership. Importantly, the subaks are not only practical managers of water; they also possess a religious dimension stemming from the belief that irrigation water is a gift from the Goddess of the Lake(s), Dewi Danu. Subaks are entrusted with the management of this gift, and farmers are expected to contribute a small portion of their harvest each year to religious rites in subak temples, which are dedicated to Dewi Danu and other deities associated with the fertility of the land. The boundaries of a *subak* are usually defined by the collection of paddy fields that are irrigated by a shared tertiary irrigation infrastructure. *Subak* territories vary from a few hectares in the uplands to several hundred hectares in the lower reaches of the largest rivers. Presently there are approximately 82,000 hectares of irrigated rice terraces in Bali.

The expansion of the subak system of wet rice cultivation over roughly the last thousand years transformed the Balinese landscape. Balinese volcanoes are part of the Sunda-Banda arc, a continuous geological structure that extends for approximately 4700 km from the northern tip of Sumatra in the west to the island of Nila in the east.² The formation of the Batur caldera circa 23,670± 210 y. B.P. deposited a mineral-rich ignimbrite layer over most of southern Bali, which became the Balinese “ricebowl”, with irrigated rice terraces developing by the eighth century A.D.³ The landscape is especially rugged on the southern slopes of Mount Batur, where early kingdoms flourished. According to Balinese mythology, the volcanic peaks are fragments of the cosmic mountain that were brought to the island by the Hindu gods. The flanks of the volcanoes are deeply incised by ravines containing small rivers and streams. At the bottom of the ravines, over the centuries the subaks have constructed hundreds of small diversionary weirs. The highest weirs are located near the maximum elevation

² Wheller, G.E., Varne, R., Foden, J.D., Abbot, M.J., 1987. Geochemistry of quaternary volcanism in the Sunda-Banda Arc, Indonesia, and three-component genesis of island-arc basaltic magmas. *J. Volcanol. Geotherm. Res.* 32, 137–160.

³ Lansing, J. Stephen, Vanda Gerhart, James N. Kremer , Patricia Kremer, Alit Arthawiguna, Suprpto, Ida Bagus Suryawan, I Gusti Arsana, Vernon L. Scarborough and Kimberly Mikita. 2001. “Volcanic Fertilization of Balinese Rice Paddies”, *Ecological Economics* 38 (2001):383-390.



where rice will grow. More weirs are situated downstream, spaced a few kilometers apart until they reach the coast. Each weir diverts the flow from a short stretch of river into a small irrigation tunnel, usually no taller than a man and about a meter in width. The tunnels angle sidewise and emerge a kilometer or more downslope to flood rice terraces that have been carved into the flanks of the volcanoes. Each subak manages one or more blocks of terraces. When the water supply exceeds the amount needed for the first subak, canals and tunnels are often extended to transport the excess flow to more distant subaks downstream. In this way, using traditional engineering techniques the subaks are able to deliver small quantities of water with astonishing accuracy to terraces located as much as several kilometers from a water source. With this ancient technology, over the centuries rice cultivation spread over much of the island, as small teams of skilled workers drew the water out in long spidery threads that crisscrossed the slopes of the sacred mountains.



Mount and Lake Batur, 1920



Because the right of each subak to use irrigation water is based on the performance of annual cycles of rituals honoring the Goddess of the Lake and other deities, the cultural landscape created by the subaks includes water temples and shrines as well as the engineered landscape of dams, tunnels, aqueducts, and rice terraces. Each subak maintains a local network of shrines and water temples, where farmers make offerings to their gods. The schedule of ritual activities in these shrines and temples is keyed to the growth cycle of native Balinese rice, and the complex Balinese system of time reckoning finds one of its fullest expressions in these rites.⁴

As well as honoring the gods, the interlocking cycles of water temple rites also provide a template for the management of ecological processes in the paddy fields. By adjusting the flow of irrigation water, farmers can exert control over many ecological processes in their fields. Mineral nutrients needed by the rice are leached from the volcanic landscape by the monsoon rains, and transported to the fields in the irrigation water. Water can also be used



Control of rice pests by flooding the paddies at Batukaru

to manage rice pests (rodents, insects and diseases) by synchronizing fallow periods in large contiguous blocks of rice terraces. After harvest, the fields are flooded, depriving pests of their habitat and thus causing their numbers to dwindle. The success of this method of pest control depends on the ability of the farmers to schedule simultaneous harvests over large areas, so that the pests cannot migrate to a new food source. This requires a smoothly functioning, cooperative system of water management, physically embodied in

⁴ Vernon L. Scarborough, John W. Schoenfelder and J. Stephen Lansing. 2000. "Early Statecraft on Bali: The Water Temple Complex and the Decentralization of the Political Economy". *Research in Economic Anthropology*, Vol. 20: 299-330.



proportional irrigation dividers, which make it possible to tell at a glance how much water is flowing into each canal, and so verify that the division is in accordance with the agreed-upon schedule.⁵

The effective management of water often requires groups of subaks to coordinate their irrigation and planting schedules. These multi-subak groupings form the congregations of regional water temples. Such temples are larger and more imposing than ordinary subak temples. They exist to acknowledge the sites where water originates, such as crater lakes and springs. All of the farmers who benefit from a particular flow of water share an obligation to provide offerings at the temple where their water originates. For example, if six subaks obtain water from a given source, all six belong to the congregation of the water temple associated with that source. Thus the larger the water source, the larger the congregation of the water temple. The largest congregation, which presently includes more than 250 subaks, supports the supreme water temple, Pura Ulun Danu Batur, which is located on the rim of the volcanic crater overlooking Lake Batur. This temple receives annual offerings from its entire subak congregation, and its priests are often consulted by the subaks on questions about water rights and the development of new irrigation systems.

The Subak Landscape Defined

From a comparative perspective, two features of the subak system stand out. The first is the success of this cultural innovation in creating a landscape of spectacular beauty that has provided an ecologically sustainable foundation for Balinese civilization for the past millennium. This achievement is rooted in the second remarkable feature of the subaks: their success as a system of cooperative resource management sustained by self-governing democratic institutions (the subaks). Like all traditional civilizations, in the premodern era Bali was ruled by princes and kings. Elsewhere in Asia, the power of princes was often associated with control of irrigation. But in Bali, water is regarded as the gift of a Goddess, and over the centuries Bali's rulers cooperated with the subaks to promote harmony with the natural and spiritual realms, in keeping with the philosophy of Tri Hita Karana. The rituals of the subak temples define specific complementary roles for farmers, princes and priests in sustaining the

⁵ Lansing, J. Stephen and John H. Miller. 2005. Cooperation Games and Ecological Feedback: Some Insights from Bali. *Current Anthropology* 46(2): 328-334.



productivity of the landscape. Importantly, the components of the landscape cared for by the subaks extend beyond the rice terraces. They also include the lakes, springs and rivers that provide irrigation water; the weirs, tunnels, canals, aqueducts and rice terraces built and managed by the subaks; and the nested hierarchies of water temples that both honor the gods and provide an institutional framework for the management of irrigation and cropping cycles. All of these landscape features are referenced in the traditional legal mandate of the subaks, defined in *awig-awig* lawbooks.⁶ In addition, the subaks are also ritually connected to two other important landscape features. The first consists of the forested areas that provide the rainfall catchments that feed the irrigation systems. The second consists of the village communities. Farmers are also villagers, and the life of the subak is deeply entwined with the life of the community. Traditional houses possess wooden rice barns, called *lumbung*, where rituals are held to honor the Rice Goddess, Dewi Sri, and other deities associated with the fertility of the countryside.

Within the landscape of subaks and terraced rice fields, the lives of the farmers are organized around perennial rituals that are carried out in the water temples and in pilgrimages to the mountains and the sea. Looking at the system from the bottom up, each farmer has a small shrine (*bedugul*) located at the spot where irrigation water first enters his fields. This "upstream" corner of his fields is considered sacred; it is here that he makes offerings to the Rice Goddess incarnate in his crop. At harvest time, the rice which grows closest to the water inlet is traditionally used to create a sacred image of the Rice Goddess herself, which is not eaten, but carried to the rice barn and given offerings. (While these rites are not always practiced today in all regions of Bali, they are faithfully performed within the sites selected for this nomination).

Upstream from the farmer's field shrine, the next water temple is usually the subak temple, representing a block of irrigated terraces with a common water source. Several subaks make up the congregation of an Ulun Swi temple, associated with a large canal, and a weir- or spring-shrine. Several weirs typically form the congregation of a regional water temple (often called *Masceti*). Finally, each spring, lake and the headwaters of each river have shrines or temples. The largest water temple is furthest upstream: the Temple of the Crater

⁶ Adatrechtsbundels XXXVII: Bali en Lombok. 's-Gravenhage: Nijhoff, 1934.



Lake, associated with Lake Batur which is considered to be the source of all irrigation waters within its river boundaries. There are also major water temples in the other crater lakes.

There are also several important water temples located further downslope, such as the royal water temple Pura Taman Ayun. Upstream and downstream temples have different functions, associated with two different symbolic properties of water. Upstream water is associated with the nourishing or life-giving effects of water, and is regarded as a gift from the Goddess of the Lake. In contrast, downstream water is cleansing water: water used to purify, to wash away pollution. It is not collected in sacred vessels, like upstream water, but left running in the rivers. Impurities such as the ashes from sacrifices are thrown directly into the rivers, which bear them to the sea. This is the basis of a powerful symbolic contrast: while the waters high above in the crater lake represent the mystery of water as life-giver, the waters of the sea are associated with the equally potent mysteries of dissolution and regeneration. By the time they reach the sea, the rivers are considered to be brimming with impurities- the ashes of burnt sacrifices, the discharge from village and fields. The sea dissolves them all, removing their human content as impurities, and returning them to a wild, elemental, natural state.

Thus the annual cycle of rituals performed by the farmers in the water temples has both spiritual meaning and important functional effects on the ecology of the rice paddies. Major rituals such as “Water Opening” enable dozens of subaks to coordinate their irrigation schedules at the watershed scale. This enables them to avoid the shortages of water that could ensue if too many subaks experienced peak irrigation demand at the same time. The scheduling of irrigation flows also enables the subaks to create fallow periods at appropriate scales, and in this way manage rice pests such as rats, insects, and bacterial and viral diseases. Regional fallow periods reduce the habitat for rice pests, at geographic scales that prevent large numbers of pests from migrating across the landscape. By providing a way for the farmers to achieve a balance between water sharing and pest control, the subaks and water temples exert effective control on the terraced landscape. The cycle of field rituals also promotes cooperation within and among subaks, and encourages participants to remember the key concepts of Tri Hita Karana.



Criteria for Selection: Overview



Pura Ulun Danu Batur

Today much of the Balinese rural landscape is still managed by subaks, but in recent years this landscape has become fragmented due to intense pressure from commercial development, and soil fertility has declined due to over-use of chemical fertilizers in many areas. There is a strong desire among the Balinese people to recognize and preserve the integrity of the traditional subak landscape while there is still time (a prominent topic of discussion in Bali's newspapers, television programs and seminars).

The sites chosen for the World Heritage nomination were carefully selected as the most appropriate to reflect the historic scope and continuing cultural role of Bali's subak system of ecological management. It is important to recognize that subaks are not simple water-user associations managed by single communities. Instead, subaks are connected via the water temple networks into functional hierarchies that manage the landscape at different scales, from whole watersheds to individual paddies. In this way, the subak system achieves an effective coordinated management of a large and complex ecosystem, which includes lakes, forests, rivers, springs and rice terraces. In keeping with the philosophy of Tri Hita Karana, the subaks and their water temples articulate a cosmological grid which attaches meaning to landscape features over entire watersheds. Further, they define specific responsibilities for the ongoing care and



preservation of particular landscape features by designated social groups. This system has evolved over approximately a millennium, and there are important differences in the ways it is manifest in different regions of Bali.

Based on these considerations, five sites were selected to represent particular aspects of the subak system; collectively they define its most important features. As will be explained below, two sites encompass entire functional hierarchies of water temples, subaks, forests and rivers. Three more sites were chosen to exemplify the key role of the crater lakes and forests, and higher-level water temples that include large congregations of subaks. All of these sites are still intact, having so far largely escaped commercial development. The last major criteria for inclusion was the historical importance of each component in the emergence of the subak system over the last millenium. Thus taken as a whole these sites represent the best exemplars of all major components of the subak system. To clarify the overall logic of the nomination, we begin with a brief overview of all five sites. This is followed by a detailed description of each site.

Proposed sites:

A. Supreme Water Temple Pura Ulun Danu and Lake Batur

District of Kintamani, Bangli Regency

This site includes two component parts, the temple and the lake.

B. Subak Landscape of Pakerisan Watershed

District of Pakerisan, Gianyar Regency

This site includes villages, springs, subak rice terraces, water temples, archaeological sites from early kingdoms and a section of the Pakerisan river:

1. Subaks Pulagan and Kulub (Upper and Lower) and their terraced fields and irrigation systems.
2. Villages of Kulub, Tampaksiring and Manukaya Let, homes of the farmers who form the congregations of these three subaks.
3. Water Temple Pura Pegulingan
4. Water Temple Pura Tirtha Empul



5. Water Temple Pura Mengening
6. Ancient archaeological sites of Gunung Kawi

C. Subak Landscape of Catur Angga Batukaru

District of Penebel, Tabanan Regency and District of Sukasada, Buleleng Regency

This site includes two mountain lakes, a large protected forest, 17 subaks and their rice terraces, villages, water temples, springs and sections of several rivers:

1. Subaks Bedugul, Jatiluwih, Kedampal, Keloncing, Penatahan, Pesagi, Piak, Piling, Puakan, Rajasa, Sangketan, Soka, Tegallinggah, Tengkudak, Wongaya Betan.
2. Villages of Jatiluwih, Mangesta, Keloncing, Penatahan, Pesagi, Wongaya Gede, Mangesta, Puakan, Rajasa, Sengketan, Tegallinggah, Tengkudak
3. Water Temple Pura Luhur Batukaru
4. Water Temple Pura Luhur Pucak Petali
5. Water Temple Pura Luhur Tambawaras
6. Water Temple Pura Luhur Besikalung
7. Water Temple Pura Luhur Muncaksari

D. Royal Water Temple Pura Taman Ayun

District of Mengwi, Badung Regency

This site encompasses the temple Pura Taman Ayun.

Overview of the proposed sites

The nomination is comprised of five component parts. The first is the great water temple Pura Ulun Danu Batur, located on the crater rim overlooking Lake Batur, which is believed by Balinese farmers to be the home of the Goddess of the Lake, Dewi Danu. The crater lake of Batur is also included as a component part of this nomination, because it is regarded by Balinese Hindus as the ultimate source of water for the subaks, and in a more general sense for all life on the



island of Bali. This water temple and associated lands are directly managed by the people of the village of Batur, following ancient traditions. They are assisted by a steady stream of contributions from more than 250 subaks, as well as contributions from other segments of Balinese society. As will be described below, this temple is considered to be the supreme subak temple of Bali. The second component part is the Batur crater lake. This lake is located in a volcanic caldera and has no outlets, but it is a very large and deep reservoir of water that feeds the groundwater system which augments the flow of rivers feeding irrigation canals.

The third component part consists of a cluster of subaks, temples and villages located at high elevation in the valley of Pakerisan (Fig. 2.1). Archaeological evidence indicates that this valley was the cradle of Balinese civilization in the late first millennium C.E. Today, waters from natural springs enclosed by ancient temples provide irrigation water for ancient rice terraces where native Balinese rice is still grown in the traditional manner by centuries-old subaks. The Pakerisan site represents the origin and historic continuity of the subak system, and dramatically illustrates its relationship to the formation and growth of early Balinese kingdoms.

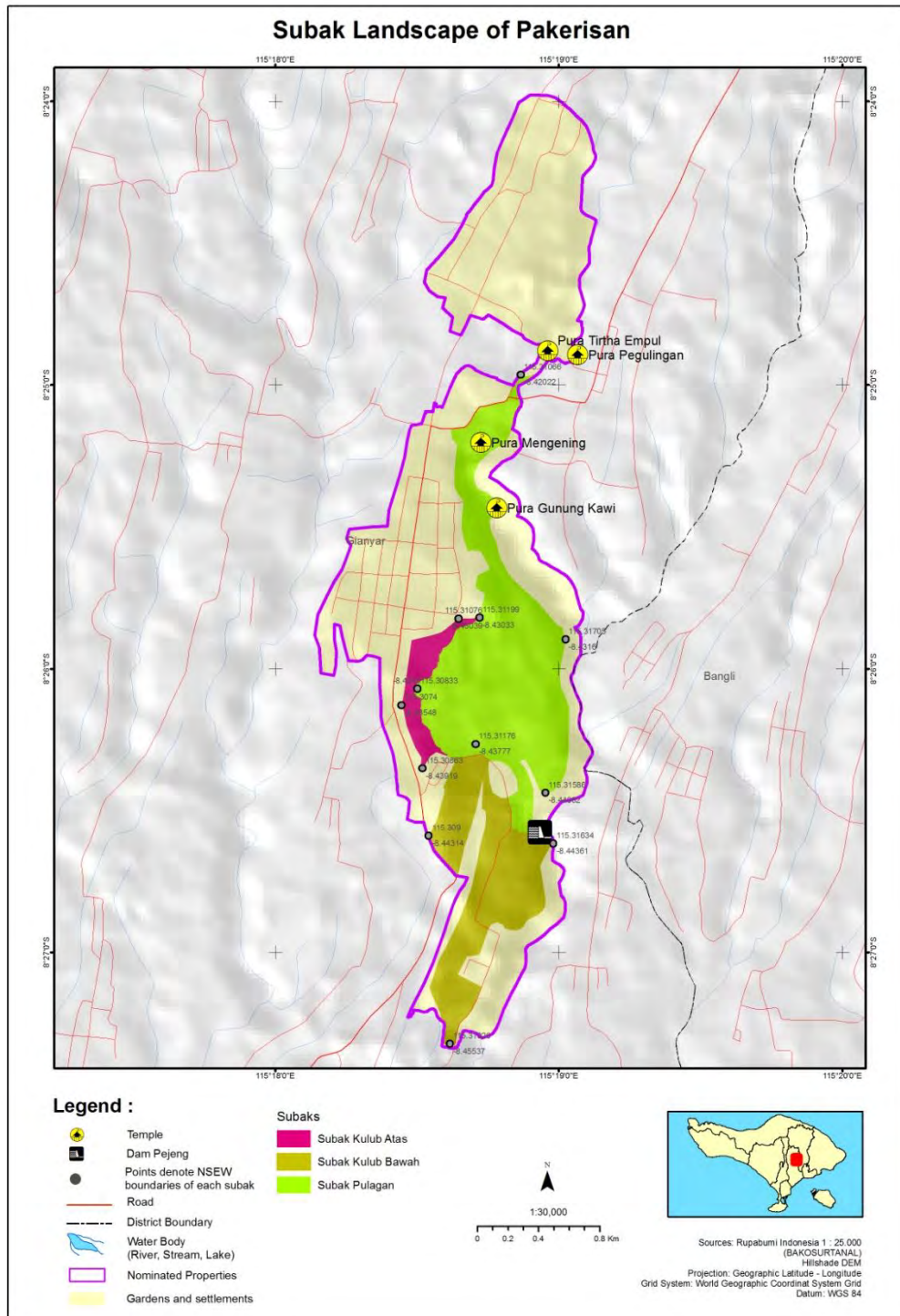


Figure 2.1: Map of the Subak Landscape of Pakerisan Watershed



The fourth component part comprises the subaks, forests, lakes, springs, temples and villages clustered around Mount Batukaru. Five important temples define the boundaries of a region called “Catur Angga Batukaru”, the Four Components of Batukaru, located downslope from the temple of Mount Batukaru.

Supreme among them is the central temple of Pura Luhur Batu Karu, dedicated to the deity of the mountain. The other four temples mark the boundaries of a sacred territory which is regarded as the highest (*utama*) *mandala* or sacred landscape of Tabanan. These five temples are sacred to the subaks. Periodically, when the priests believe that the land needs cleansing and purification, the deities of the temples are taken on a pilgrimage to the sea temple, accompanied by representatives from all the local subaks and villages.

This site exemplifies the multi-layered structure of the Balinese subak system, and its historic expansion in western Bali. From the standpoint of Bali as a whole, this site is significant because it encompasses two mountain lakes and associated temples, which are regarded as the origin of waters for all the subaks downstream in the western “ricebowl” region of Tabanan. At these lake temples, the subaks of the former kingdom of Tabanan perform the “Water-opening” rituals that mark the beginning of the annual cycles of cultivation. In addition to its importance as a sacred water-origin source for western Bali, Batukaru is also home to a local cluster of ancient water temples and subaks, which have so far successfully resisted pressures for commercial development.



Forests and terraced landscape below Mount Batu Karu

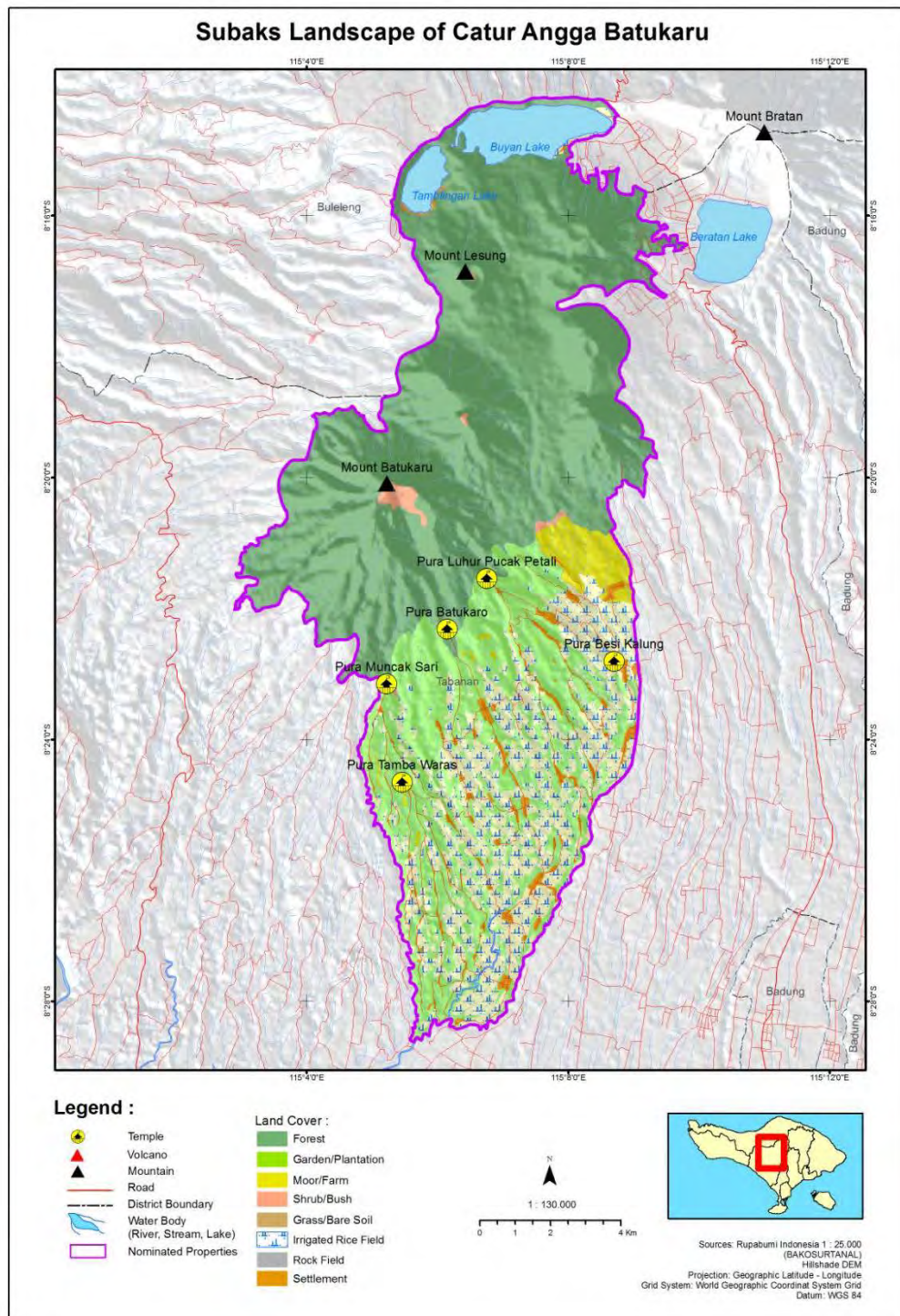


Figure 2.2: Map of the Subak Landscape of Catur Angga Batukaru showing the entire component, including lakes, forests, subaks and major water temples

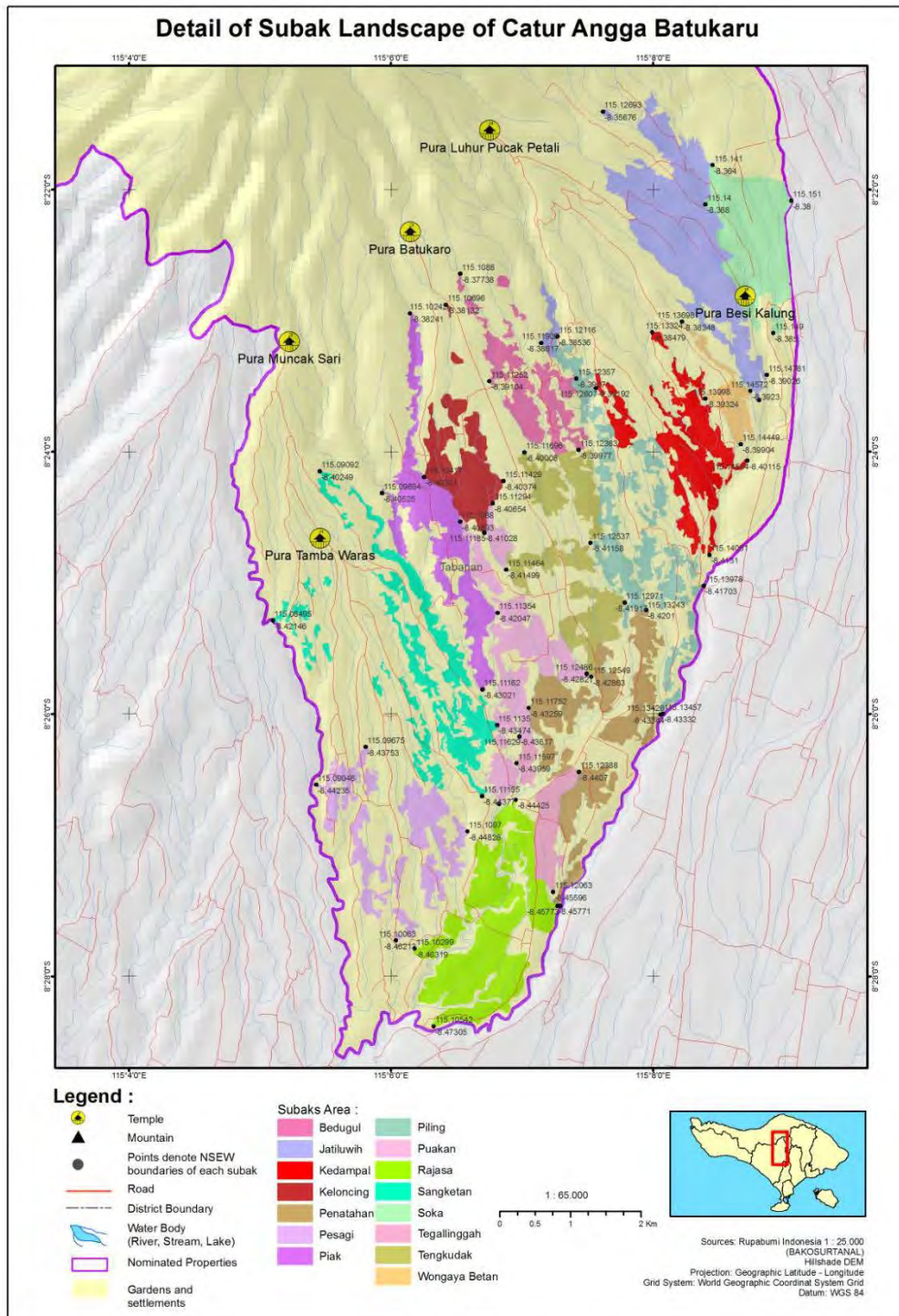


Figure 2.3: Detail map of the Subak Landscape of Catur Angga Batukaru highlighting the subaks and major water temples

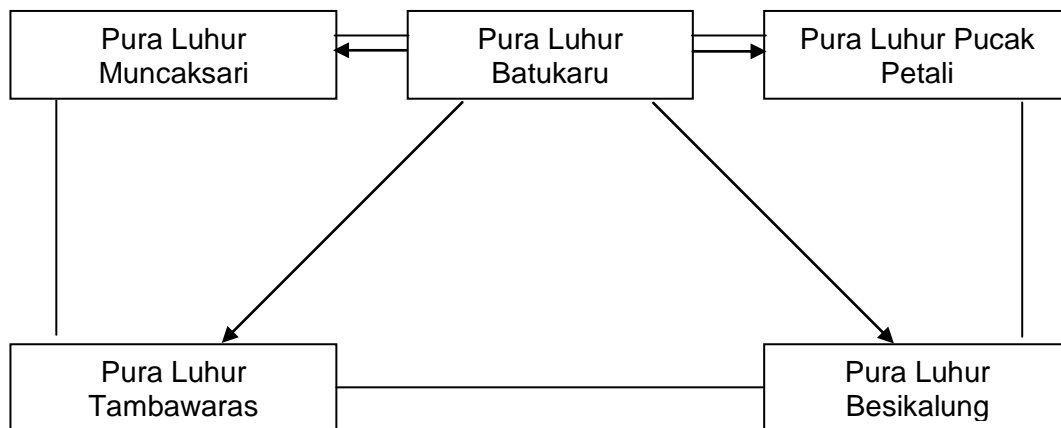


Table 2.1 The five temples that define the sacred landscape of Catur Angga Batukaru, in northern Tabanan regency.

As in the Pakerisan site, the subaks of this sacred region of Catur Angga continue to grow native Balinese rice using traditional technology. For example, rice stalks are harvested with a blade concealed in the palm of the hand, called *ani-ani*, to honor the Rice Goddess at the time of her sacrifice. This traditional technology is found today in only a few subaks, most prominently those that are included in the Pakerisan and Batukaru sites. Most photographers would agree that the most beautiful terraced landscapes in Bali are found in these two sites. The subaks enclosed within the sacred landscape of Catur Angga Batukaru acknowledge a special responsibility to sustain the purity of this landscape, and consequently have so far successfully resisted pressures to abandon traditional agricultural practices. They are now threatened by commercial development, lending urgency to their nomination as a World Heritage site.⁷

The fifth component part is the great temple of Taman Ayun, located at the heart of the former kingdom of Mengwi in the Regency of Tabanan. Here all of the subaks of the former kingdoms of Mengwi and Tabanan come to receive holy water from the mountain lakes, annually collected by the Mengwi royal family accompanied by a delegation of water temple priests and subak heads. This temple represents the final phase of the downstream development of the subak system, in which Balinese kings became active partners with the subaks in the

⁷ J. Stephen Lansing and James N. Kremer, "A Socio-ecological Analysis of Balinese Water Temples", in Indigenous Knowledge Systems: The Cultural Dimension of Development, ed. D.M. Warren, L. Jan Slikkerveer and David Brokensha. London: Intermediate Technology Publications, 1995: New York: 258-268.



management of the terraced landscape. While the major responsibility for the temple is shared by the village of Mengwi and the royal family, twenty three subaks also make substantial contributions to its upkeep and ritual cycles. This temple is ritually connected with the subaks and lakes of the upstream Catur Angga Batukaru site. But it also connects that landscape with the much larger subak landscape of southern Tabanan and Badung. It is the supreme downstream water temple for the largest congregation of subaks in Bali.

The criteria for the selection of these components includes the archaeological and historical significance of their water temples and associated subaks; the receptiveness of local inhabitants to inclusion in the World Heritage nomination; the desire of the local farmers to continue growing native Balinese rice; the ecological viability of each site, and the way each site exemplifies a particular historical manifestation of the subak system. A participatory mapping approach was used to define the boundaries of each component part, with the enthusiastic assistance of subak and village leaders as well as representatives from many government departments, including Archaeology, Forestry, Culture and Agriculture. The sites chosen for the nomination include three of the four Balinese crater lakes, which have great religious significance for the Balinese people, and the most sacred forests and springs. (The fourth lake, Beratan, was not included at this time because of the extent of recent commercial development around the lakeside). The supreme water temple associated with the crater lake on Mount Batur was selected because of its unique historic and religious importance for all subaks. The Pakerisan site encompasses the key sites associated with the historical origins of the subak system, and the wet-rice kingdoms that it made possible. The lakes, forests, subaks and water temples within the sacred landscape of Catur Angga Batukaru are the largest and most sacred region in which the subak system continues to function with minimal disturbance from inappropriate or unplanned development. The royal water temple Taman Ayun continues to play a vital role in the perennial rites of the subaks of Western Bali, and exemplifies the large-scale coordination among subaks achieved in their last phase of development.



Relationship to the Philosophy of Tri Hita Karana

The philosophy which governs the establishment of *subak* and their daily activities is the Hindu-Balinese concept of *Tri Hita Karana* (three causes of goodness or prosperity).⁸ According to this belief, prosperity and goodness can only be achieved through an harmonious relationship between humans and the gods (Parhyangan), their fellow men (Pawongan), and nature (Palemahan). Humans should maintain their harmony with nature and the divine through mindful worship and prayer. Hence, ceremonies become an important part of the rice cultivation cycle and various temples associated with *subak* are erected, from a simple shrine at the water inlet to the large multi-*subak* temple of Lake Batur, which is considered to be the ultimate source of water in Bali (Pitana 2005). At the same time, humans are part of nature. Therefore, humans should live in harmony with one another as well as with other living creatures and the natural environment.

Thus, humans have a social responsibility to obey customary laws and regulations, especially those pertaining to public domains such as land and water use, legal transactions of land transfers, and collective religious ceremonies. Humans may benefit from nature, but should not over-exploit it. It is their responsibility to maintain the environment sustainably and conserve nature for future generations.⁹ It is this philosophy that has long been the driving principle for Balinese in creating and maintaining the spectacular landscape of the rice terraces with their various *subak*-temples and irrigation works.

The concept of *Tri Hita Karana* is expressed differently in different water temple networks, with regional and even local variation. There are nonetheless attributes common to all *subaks*. As anthropologist Clifford Geertz observed, it is precisely these 'surface variations' of Balinese communities that ultimately exemplify and illuminate the underlying level of profound common agreement on fundamental values.¹⁰

⁸ *Tri* (three); *hita* (Skt ,benefit, advantage, profit, good, welfare etc), *karana* (Skt, the act of making, producing, affecting). P.J. Zoetmulder, Old Javanese English Dictionary. KITLV, s-Gravenhage, Martinus Nijhoff, 1982.

⁹ Lorenzen, Stephan and Rachel Lorenzen. 2008. "Institutionalizing the Informal: irrigation and government intervention in Bali." *Development* 51:72-88.

¹⁰ Clifford Geertz.1959. *Form and Variation in Balinese Village Structure*. *American Anthropologist* 61:991-1012.



2.a Detailed Description of the Property

A. Supreme Water Temple Pura Ulun Danu Batur and Lake Batur



Pura Ulun Danu Batur

Perched dramatically on the rim of Mount Batur overlooking the crater lake, the supreme water temple Pura Ulun Danu Batur is a collection of nested stone courtyards enclosing an array of towering shrines and pavilions dedicated to the worship of a pantheon of 45 deities, foremost among them the Goddess of the Lake, who is said to make the rivers flow and bring prosperity to the land. According to legend, in ancient times the supreme god who resides on Mount Meru broke apart the summit of the mountain and sent the pieces to Bali to become abodes for his son and daughter (Goris 1929, 1954). His son became the first male god of Bali and took up residence atop the larger fragment, which became the volcano Mount Agung. The smaller fragment, which became Mount Batur, contained a vast and deep crater lake. On the floor of the lake the daughter of the high god built a palace and took the name *Dewi Danu*, Goddess of the Lake.

The temple's supremacy reflects the structural logic of water temples.¹¹ In general, the congregation of a water temple consists of all the farmers who share water from a particular source, such as a weir or spring. Because the crater lake is regarded as the ultimate origin of every spring and river, its congregation

¹¹ J. Stephen Lansing, *Perfect Order: Recognizing Complexity in Bali*. Princeton University Press, 2006.



appropriately includes all subaks. As a water temple, the Pura *Ulun Danu Batur* temple is endowed with a unique collection of attributes: it is at once the most universal subak temple, the sacred summit of the cosmic mountain, the sole source of the most potent holy water and the only temple where the priesthood is selected by the gods themselves. These impressive symbolic associations combine with its spectacular location on the crater rim to endow the temple with an aura of other-worldliness, especially on the days when its greatest treasure, an ancient gamelan orchestra, plays stately music while the temple's vast courtyards become carpeted with flower offerings left behind by thousands of worshippers. This temple is a pilgrimage site and redistributive center for more than 250 Balinese subaks, which bring offerings each year during the festival of the Goddess of the Lake, held for ten days around the full moon of the tenth month on the Balinese sacred calendar.¹² The temple also plays an important role in the practical affairs of the subaks, in two respects. First, if a community wishes to construct a new irrigation system and subak, they request advice and assistance from the Pura Ulun Danu Batur temple. The creation of such a new subak is shown in the ethnographic documentary film *The Goddess and The Computer* (Lansing and Singer 1988). Second, the priests of the temple are often called on for advice when there is a dispute among subaks over water rights.¹³

Site boundaries and buffer of Batur Temple and Lake

This site consists of two component parts, the temple Pura Ulun Danu Batur and Lake Batur itself. The area within and around the Batur caldera includes a great many temples and shrines, many of which play a role in the annual cycle of rites associated with the Goddess of the Lake and the subaks. An argument could be made that all of them deserve to be included in the World Heritage site. However, a participatory mapping process conducted with the representatives of the Temple concluded that this is neither practical nor indeed necessary. It is not practical because the shrines and temples are scattered over a very large area, some of them in or near sites where commercial or agricultural development has already occurred. Fortunately, according to the religious authorities of the temples, it is not necessary to include these shrines and temples because their

¹² J. Stephen Lansing, *Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali*. Princeton University Press, 1991. Revised 2nd edition 2007.

¹³ Ibid.



ritual functions are encompassed by the supreme temple. Thus for example there are eleven small shrines around the lake, from which water is fetched to create holy water (*tirtha*), in a ritual sequence that culminates at the supreme temple.

The physical boundaries of the temple component are defined by the outer walls of the temple. A buffer extends from the outer perimeter wall of the temple to encompass inhabited land which belongs to the village of Batur. This is in keeping with both Balinese tradition and with Indonesian law. While the great temple is open to all and receives support from many individuals and institutions, primary responsibility for the upkeep and maintenance of the temple belongs to the village of Batur. In Bali, provincial zoning restrictions empower local communities to establish a protected buffer zone around major temples.¹⁴ A detailed explanation of the legal basis and rationale for this buffer (and the other buffer zones included in this nomination) is provided in Chapter 5. Lake Batur is included within the nominated area because it is symbolically and ritually identified with the temple, representing the symbolic source of water for the *subaks*. Indeed Lake Batur and the temple Ulun Danu Batur (Head of Lake Batur) are inextricably linked in Balinese cosmology. Following government regulations, the border of the lake is surrounded by buffer zone consisting of a 100 meter perimeter.¹⁵ The lake is managed by the Department of Forestry, which is represented in the Governing Assembly of the Cultural Heritage. The temple is strictly governed and managed by the village of Batur, who are also represented on the Cultural Heritage Governing Assembly.

The relationship between the village of Batur and the great temple is defined by the Balinese concept of *pengempon*. Every Balinese temple receives primary support from a specific congregation who are jointly responsible for the upkeep of the temple and the performance of its ritual cycle. The term for this relationship in Balinese is *pengempon*. In addition, many temples receive additional support from other individuals or segments of Balinese society. Support for the highest ranking temples, such as Pura Ulun Danu Batur, is shared with the entire Hindu

14 See Regulations of Bali Province Number 5 (2005) Section 19, which clarifies zoning for protected sacred sites, based on local *awig-awig* (customary law).

The Republic of Indonesia Act No.5 of 1990 concerning environmental conservation; the Republic of Indonesia Act No. 41 of 1991 concerning forest conservation, and The Republic of Indonesia Act No.32 of 1990 concerning conservation establish the following protected buffer zones: for lakes 100 meters; springs 200 meters; rivers from 50 to 100 meters; catchments 100 meters and conservation forests 500 meters.



community or *umat*. But unlike the *pengempon* relationship, the nature of this support is essentially voluntary; the Balinese term is *penyungsung*.

While the landscape surrounding the lake is of great geological interest, as a result of the participatory mapping process it is not included within the nominated area for two reasons. First, the significance of this site derives from the importance of the lake and the lake temple for all Balinese subaks, representing the divine gift of life-giving waters. Second, the lands around the lake and within the Batur caldera are presently zoned for mixed use. The forests and lands that surround and encompass the main active vents are managed by the Forestry Department and are zoned for limited agricultural and recreational use, so that local farmers can plant gardens, but are not permitted to cut the trees. These uses are deemed appropriate and do not conflict with the role of Pura Ulun Danu Batur as Bali's supreme water temple, nor with the conservation status of Lake Batur.

B. Subak Landscape of Pakerisan Watershed

This site encompasses the oldest known irrigation system in Bali, and the archaeological remains of the early wet-rice kingdoms that emerged in subsequent centuries. It represents a continuous living tradition of ecological management by the subaks that has continued for over a millenium. The nominated area includes the lands and watercourses of three subaks, Pulagan and Upper and Lower Kulub, as well as four ancient water temples that are also major Classical archaeological sites, and a cluster of royal temples and monasteries associated with the development of irrigated rice agriculture at the dawn of Balinese civilization. The proposed World Heritage site, which administratively falls within District Tampaksiring in the Regency of Gianyar, will encompass the following features:

- The subaks of Pulagan and Upper and Lower Kulub
- The villages of Kulub, Tampaksiring and Manukaya Let, home of the farmers who form the congregations of these three subaks
- The natural spring and associated ancient water temple Pura Tirta Empul, which are regarded as the symbolic source of the Pakerisan river. One of the earliest royal inscriptions that refers to irrigation, dated 962 AD, mentions a dam at this site. Today, after more than a thousand years, the irrigation



system that originates at the spring of Tirtha Empul continues to supply water to the subak Pulagan. Archaeologist John Schoenfelder (2003) states that this was among the first canal irrigation structures in Bali. Tirtha Empul functions as both a subak temple and a regional pilgrimage destination.¹⁶

- The ancient water temple Pura Mengening, a restored free-standing *candi* temple dating from the 11th or 12th century AD. It is associated with a holy spring that is the water source for downstream subaks.
- Pura Pegulingan, a 9th century Buddhist stupa found and restored in a temple that lies amidst rice fields at the top of a slope overlooking Pura Tirtha Empul, and the associate subaks. Here the stone containing the ancient royal inscription Prasasti Manukaya (described above) is kept and venerated by the people of Manukaya.
- The rock-cut royal memorial *candi* monuments and monasteries located along the Pakerisan at Gunung Kawi, dating to the 11th century AD. These royal tombs and monastic retreats testify to the prosperity attained by early Balinese wet-rice kingdoms, associated with the emergence of the ancient irrigation systems, subaks and water temples.

Collectively, the sites of Pakerisan constitute an ancient and still functioning water temple network that played a formative role as one of the cradles of Balinese kingship and religious traditions.¹⁷ As a cultural landscape that bears witness to past as well as present practices, Pakerisan is an exemplary manifestation of the Balinese reverence for water in both sacred and practical contexts.

Within the three administrative villages (*desa dinas*) contained within this component part, most of the farmers live in several traditional communities (*pakraman*) which are the principal support or *pengempon* for the major water temples within the site. In return for this support, the families which provide *pengempon* receive perpetual usufruct rights to the land on which their houses are built. Importantly, it is believed that the welfare of the larger community

¹⁶ Schoenfelder, John W. The Co-Evolution of Agricultural and Sociopolitical Systems in Bali. *Bulletin of the Indo-Pacific Prehistory Association* 20: 35-47.

¹⁷ Vernon L. Scarborough, John W. Schoenfelder and J. Stephen Lansing. 2000. "Early Statecraft on Bali: The Water Temple Complex and the Decentralization of the Political Economy". *Research in Economic Anthropology*, Vol. 20: 299-330.



depends on the successful performance of pengempon. Hence the pengempon relationship is a key ingredient in the ongoing implementation of the tri hita karana approach to the conservation of the cultural landscape of Bali.

Temple	Community of support (pengempon)	Number of households Responsible
Pura Pegulingan	Basang Ambu, Manukaya	493
Pura Tirtha Empul	Manukaya Let, Manukaya	147
Pura Magening	Sareseda, Tampaksiring	48
Pura Gunung Kawi	Penaka, Tampaksiring	66

Table 2.2: Pengempon relationship between communities and temples in Pakerisan



Subak Meeting in Pakerisan



B.1. Pura Pegulingan



Pura Pegulingan

Pura Pegulingan overlooks Pura Tirtha Empul, which is 200 meters to the west. The primary monument at this site is a Buddhist stupa (12 m high and 3 m diameter at the base) dated to the 9th century. The present structure is a reconstruction built in the 1980s atop a foundation of archaeological significance, a large collection of masonry and statue fragments, and a remarkable model stupa. In total, there are 34 structures in the temple complex, mainly pelinggih shrines for ceremonial purposes, all of which face Mount Agung, in accordance with Balinese cosmology.

This temple exemplifies the interconnection of villages and subaks in Bali.

Pura Pegulingan is both a community temple for the village and a subak temple (*ulun swi*). During annual temple festivals, farmers bring offerings of rice bundles to the *Uluu Swi* subak shrine located in the middle courtyard of the complex, and



Harvest offerings in a Pakerisan subak temple

perform rituals to assure the fertility of 25 hectares of rice fields irrigated by the springs. Like other temple structures in the Pakerisan area, the stupa features a base, a central body, and a top section, which in turn reflect the three worlds or Tri Bhwana. The foot of the stupa is surrounded by a moat which is about one meter wide. It is octagonal in shape and the sides are connected by stones, arranged to form spokes. In the centre there is a small stupa, around 55 cm high, in which some artifacts were found, including a sheet of gold containing some mantras, a gold Buddha image, a stupika, and a stone fragment of a Buddha sculpture. The octagonal design with a single centre reflects the Nasamanga Mandala wisdom, which indicates that the centre be surrounded by eight wind directions, the essence of Balinese cosmology. On the body of the stupa (andha) is a niche that originally contained Buddha sculptures, but they have not been found again or remain only as fragments. On top is a yasti: a stone mast with rings around it that becomes smaller and pointed at the top.

The architectural symbolism of Pura Pegulingan is well suited to communicate the desire of the Balinese community to maintain harmonious relationships with God, with fellow human beings and with nature (tri hita karana). A harmonious relationship with God is centered in worship at the pura's stupa and pelinggih. Harmonious relationships with fellow human beings are reflected in the social relationship characterized by tolerance for fellow worshippers of different creeds



(Buddhist and Hindu). Meanwhile, the harmonious relationship with nature is manifest by the ongoing rituals performed by the subak.

B.2. Pura Tirtha Empul and Subak Pulagan

This beautiful, ancient, and functional spring temple is an important pilgrimage destination for Balinese who revere it as the source of the Pakerisan River, which provides water for the extensive rice fields in the Pejeng area to the south. The ancient subak of Pulagan receives its irrigation water from the dam immediately downstream from the temple spring. **The temple is managed and supported by the village of Manukaya Let.** The temple is located in a rather steep-sided valley carved by the Pakerisan river. At the top of the slope on the western side of the pura (temple) is Tampaksiring Palace, which is used for state functions by the national government of Indonesia. (Because the Palace is managed directly by the National Government of Indonesia, it is not included in the World Heritage nominated area).



Water Reservoir of Pura Tirtha Empul

Often referred to as Bali's holiest spring, the upwelling of water originates in the most sacred section of the temple (the *jeroan*).¹⁸ From there, the sacred water flows through spouts and ponds used for ritual bathing and for the collection of holy water to be used in ceremonies elsewhere. At a weir a short distance

¹⁸ Stutterheim, Willem F. 1927. Voorloopige Inventaris der Oudheden van Bali [II: Afdeeling Zuid-Bali; Onderafdeeling Gianjar]. *Oudheidkundig Verslag van de Oudheidkundige Dienst in Nederlandsch-Indië* 1927(3-4): 139-150.



downstream from the temple, this water then passes into the channel that waters the fields of Subak Pulagan. In return, the subak contributes rice, eggs, and beautiful offerings made of flowers, palm leaves cut into origami-like shapes, gilt paper and figures formed from colored rice flour (*dangsil*, *jerimpen*, *daksina* etc) during annual festivals at the temple, on the full moon of the fourth Balinese month. Unlike most neighboring subaks, Subak Pulagan does not consider itself obligated to offer similar contributions (*suwinih*) to the supreme water temple Pura Ulun Danu Batur, because their water originates in the temple's springs rather than the lake. This assertion of self-sufficiency underscores the importance of the spring at Tirtha Empul, and also reflects the relative antiquity of the Subak Pulagan irrigation system as well as the contemporary variation among Balinese subak referred to above.



Another view of terraced fields and forests north of spring temple Tirtha Empul, Pakerisan site



Pura Tirtha Empul is divided into three courtyards: the outer yard called the *jaba sisi*, the middle yard or *jaba tengah*, and the inner yard or *jeroan*. The three yards represent the three realms of Balinese cosmology (*Tri Bhuana*), as well as the three philosophical elements of Tri Hita Karana. The relationship between humans and nature, called *palemahan*, is manifest in the gardens and community ablution facility in the *jaba sisi*. Social activities among parishoners conducted in a meeting pavilion (*wantilan*) in the *jaba tengah* embodies harmonious interpersonal relations among human beings, or *pawongan*. In a pond on the western side of the *jaba tengah*, visitors to the pura purify their souls to eliminate negative forces and restore positive power found in human beings. In the inner *jeroan*, the harmonious relationship between god and human beings, called *parhyangan*, is ritually celebrated.



Terraced fields and forests north of spring temple Tirtha Empul, Pakerisan site

The entrance to the inner courtyard (*jeroan*) is located on the west side and is marked with a *gapura bentar* (split gate). Behind the *rana gapura* at the entrance gate ancient objects such as a lingga yoni, a Ganesha statue, and a statue of Nandi are found. These ancient objects were presumably statues from a Hindu temple, worshipped at the beginning of the pura's establishment. The inner yard features *pelelinggih* (shrines) engraved with beautiful carvings. All the *pelelinggih* are arranged so that worshippers face Mount Agung, which is regarded as the center



of Bali's sacred landscape. The most sacred place in the Pura Tirtha Empul is the large altar at the far end of the inner yard called Tepesana. Made of stone terraces and square in form, the altar honors the god Indra, one of the most important deities in the Hindu religion. There is also a fenced pond containing the spring that emerges from the eastern side of the yard. This spring is large and produces a correspondingly large water output flow, which, as noted, supplies the subak irrigation system and the Pakerisan River.

Immediately to the north of the temple there are temple lands (*labo pura*) consisting of rice fields, which are farmed by sharecroppers who divide the harvest with the temple. These temple lands are situated in a steep-sided depression, ringed by forests. The traditional law (*awig-awig desa*) of the village of Manukaya precludes commercial development of these lands, which thus form a protective buffer zone for the temple and its spring. To the north of these temple lands is the village of Manukaya Let. This village is also included in the nominated area, because the village community is responsible for the temple and temple lands. In this way, the traditional village community is assured of appropriate participation in the governance of the World Heritage site.

B.3. Pura Mengening and Subak Kulub

This active traditional water temple, situated between Pura Tirtha Empul and Pura Gunung Kawi, on the slope of the steep valley of the Pakerisan, is home to a stone-block temple building (*prasada*) similar in form to the *candi* reliefs at Pura Gunung Kawi. This *prasada* owes its location to the presence of a holy spring, over which it towers. It is the water-origin temple for the subak of Kulub, where the farmers of Kulub give thanks for the waters that flow and receive blessings for their harvests. As at Pura Tirtha Empul, the walled spring pond feeds into an irrigation channel that irrigates the rice terraces of Subak Kulub to the south. Along the way, this canal passes by the archaeological sites associated with the kingdoms and monastic communities that grew up in this valley, notably the twelfth century royal tombs of Gunung Kawi.¹⁹

¹⁹ Gunung means hill or mountain. Kawi has several meanings: the Balinese name for the Old Javanese language; the poetry written in that language, and also the title of a poet or composer of verse in that language.



Architecture of Prasada Agung (Pura Mengening) represents a sacred mountain

To enter Pura Mengening, one has to climb steep stone steps along the sloping riverbank. The site features a 5.5 meter-high base, which represents one of Bali's best-preserved free-standing shrines of the Classical Period. A central feature within the temple is a stone structure called Prasada Agung. The structure features three spatial components,

which symbolize the three worlds (Tri Bhuana) and reflect the principles of Tri Hita Karana. The base of the temple features objects called peripih representing natural elements (palemahan), while the roof features peripih symbolizing the gods (parhyangan). Within the body of the temple is a lingga yoni, the central place of worship, which represents the human world.

B.4. Pura Gunung Kawi (rock cut royal tombs, temple and monasteries)²⁰



Bridge to Gunung Kawi Temple

²⁰ Stutterheim, Willem F. 1925. Voorloopige Inventaris der Oudheden van Bali [Afdeeling Zuid-Bali: Onderafdeeling Gianjar; District Oeboed]. *Oudheidkundig Verslag van de Oudheidkundige Dienst in Nederlandsch-Indië* 1925(3-4): 150-170.



Downstream from Pura Tirtha Empul, the valley of the Pakerisan deepens into a gorge, the sides of which are shaped into narrow rice terraces irrigated by the waters of Pura Tirtha Empul's spring. The site of Pura Gunung Kawi lies about a kilometer to the south of Pura Tirtha Empul, at the bottom of this gorge. Beyond its significance as a feature of the landscape of the subaks of Pakerisan, Pura Gunung Kawi possesses Outstanding Universal Value in that it bears witness to the antiquity of both reverence for water and skill in its management; both of these quintessentially Balinese traits are palpably demonstrated by the ancient rock-cut channels that lead to water spouts positioned in front of each candi. Because they were cut into living basalt instead of built from stacked blocks, parts of Pura Gunung Kawi have survived the centuries in exceptional condition relative to the best-known free-standing monuments of Java. The candis' near-sameness in size and form suggests a connection to themes of alliance visible in present-day Bali (and enshrined in the interpersonal harmony tenet of Tri Hita Karana), even as their design shows a strong link to the Classical states of Java, and their siting and monumental size illustrate both the temporal power of the early Balinese dynasties and their dependence upon the irrigated landscape.



Rock cut temple of Gunung Kawi

To the north of the temple group are two rows of rock cut temples. One row on the north side of the Pakerisan River consists of four temple structures and some meditation rooms, which are chiseled into the breccia stone on the wall of the slope (named the Group C Temple). The structure of this chiseled temple is 7 m high. Other rows of chiseled temple are found on the east wall of the Pakerisan River (The Group A Temple), across from the row of temples on the west wall of the river bank. There are five temple and two meditation rooms in this row. Some



temples are inscribed with Kadiri Quadrate characters. The inscription states that this structure is dedicated to the king who died in Jalu. The name 'Jalu' is synonymous with Keris and the name of the river that divides the groups of temple the Pakerisan River. In front of the row of temple, there is a batur (water receptacle) for water that is channeled to various fountains. In front of the batur approximately 10 m in the direction of the river, a rectangular pond parallel to the rows of temple is found. In the pond, there are fountains from which water still flows.

To the south of the rows of temple, niches and structures that resemble houses were chiseled into the stone of the sloping wall (Group B Temple). These spaces or rooms are believed to have been places of meditation for priests. The size of these monastic establishment and their close proximity to the great royal tombs show the close association between the ancient water temples and irrigation systems, and their links with the Balinese cosmological concepts of agama tirtha (religion of holy water) and Tri Hita Karana. While the monks and kings are gone, their unbroken legacy survives in the terraced landscape and the ongoing rites of the subaks. Today, these rites are performed in a temple situated directly in front of the ancient monastic niches.



Pakerisan River with 12th century tombs of Gunung Kawi



Around 80 m downstream from this group, there is a group of structures carved from rock on the steep slopes of the riverbank on the eastern side of the Pakerisan River. These carved rooms are variously sized spaces, square with two windows, to the left and to the right of the entrance door. The top is carved to resemble a roof and gives the impression of a house, and local residents describe the niches as griya pedanda or priests' homes. Approximately 250 m southwest of the entrance gate to the temple complex, a rock cut temple and groups of meditation houses are carved into the stone walls on the west bank of the Pakerisan River. In the lower part of the rock cut temple roof, an ancient inscription was found but is indecipherable due to its deteriorated condition.

Architecturally, the rock cut temples in the Pura Gunung Kawi complex highlight the ritual connection to water illustrated by the proliferation of water channels, which are carved into the sloping river banks at the temple site. From the Classical period to the present, participants at temple ceremonies in Pura Gunung Kawi have purified themselves under the fountains and received blessings from the holy water for a successful harvest.

B.5. Subaks Pulagan and Kulub



Rice Field at Village of Kulub



As mentioned above, the ancient and still-functioning subaks of the Pakerisan site are defined by their relationship to these water temples. The spring at Pura Tirtha Empul is the source of irrigation water for subak Pulagan, while subak Kulub receives its water from the spring at Pura Mengening. In addition, Pura Pegulingan is the central site of worship for Subak Basangambu. As well as the major temples described above, the proposed Pakerisan cluster site includes the lands, channels, and smaller field shrines and altars associated with these subaks. While the narrow terraces on the western slope of the gorge containing Gunung Kawi are watered from the channels of both systems, the bulk of Subak Pulagan's fields lie south of Pura Gunung Kawi on flatter land immediately southeast of the houses of Pakerisan, with the fields of Subak Kulub (upper and lower) to their south. In each case, the majority of the subak's fields lie over two kilometers from the source spring. Nonetheless, these springs are relatively accessible water sources when compared to the ravine-bottom river weirs that must be used by most subaks, with less tunneling and shorter channels required to bring the water to the fields. The historical evidence indicates that this site was among the first locations where wet-rice agriculture developed in Bali, due to the relative ease with which the flow of spring water could be captured and channeled to irrigate fields downslope (Scarborough et al. 2000). The site extends south along the Pakerisan river and encompasses the small village of Kulub and a major irrigation dam, the Dam Pejeng, which provides water for many downstream subaks. This dam is managed by the Department of Public Works.



Water temple of Pura Luhur Batukaru



Site boundaries and buffer of Pakerisan

In summary, the nominated area for this component part is a continuous area that encompasses all the subaks, temples and archaeological sites described above along with the villages of Kulub, Tampaksiring and Manukaya Let. These villages are included within the nominated area because they are the home of the farmers of the subaks, along with other families who are responsible for the care of the temples and temple lands. The northern boundary of the nominated area is defined by the village territory of Manukaya Let and the adjacent rice terraces of Subak Basangambu, based on existing Regency zoning records and confirmed by participatory mapping.

The eastern boundary is 100 meters to the east of the Pakerisan river. This boundary extends to the summit of the river valley and encompasses the rice terraces of the subak Pulagan. Provincial zoning regulations already protect lands lying within 100 meters of a major river, so no additional protection is required. From the north, the western border of the site is initially based on the western borders of the village of Manukaya Let, which is the *pengempon* (principal support) for the spring temple Tirtha Empul. South of the village, the border extends 50 meters to the west of the temple Pura Tirtha Empul, dividing the nominated area from the Wisma Negara which is managed by the national government and used for state functions. Continuing to the south, the border traces the western perimeter of the village of Pakerisan, home to many farmers of the subaks Pulagan and Kulub. Below the village, the border is determined by the western perimeter of the subaks Kulub Atas and Kulub Bawah. The southern border of the nominated area is the southern boundary of Subak Kulub Bawah.

The buffer zone around this component part is defined by a perimeter extending 100 meters from the outer boundary of the site, except in two locations. As explained above, provincial laws create protected zones around Balinese temples, the size of which depends on the status of the temple. The temple Pura Pegulingan is located quite close to the edge of the site. Hence the radius of the buffer zone bulges eastwards to 250 meters from the western entrance to the temple. This appropriately places the small hamlet of Basangambu within the buffer zone. Basangambu is the principal support (*pengempon*) for the temple Pura Pegulingan, and has primary responsibility for the day-to-day upkeep of the temple. The buffer zone is also extended just to the east of this temple, to include



the Wisma Negara (National Retreat), a residence built by the former President Sukarno in the 1960's which is now used by the national government for official functions. The grounds of the Wisma Negara abut the perimeter of the site next to the spring temple of Tirtha Empul, and form a natural extension to the buffer zone because they are already carefully conserved by the Provincial government.

The buffer zone around this component part is defined by a perimeter extending 100 meters from the outer boundary of the site, except in two locations. Several laws create protected zones around Balinese temples, the size of which depends on the status of the temple. The temple Pura Pegulingan is located quite close to the edge of the site. The radius of the buffer zone is extended outwards to 250 meters from the western entrance to the temple, and elongated slightly to include the hamlet of Basangambu, which has primary responsibility for the day-to-day upkeep of the temple. The buffer zone is also extended just to the east of this temple, to include the Wisma Negara (National Retreat), a residence built by the former President Sukarno in the 1960's which is now used by the national government for official functions. The grounds of the Wisma Negara abut the NE perimeter of the site adjacent to the spring temple Tirtha Empul, and extend the protected buffer zone.

C. Subak Landscape of Catur Angga Batukaru²¹

The expanse of forests, lakes, terraced rice paddies, intact subak institutions, and corresponding temple network of the Batukaru area exemplify the interconnectedness of Bali's ecological and cultural landscapes. Encompassing two volcanic crater lakes that are regarded as the sacred source of water for subaks in the ricebowl of western Bali, this site extends from mountainous water catchment zones to highland rice terraces in northern Tabanan. It is historically and ritually defined by a cluster of temples, to be described below, as "Catur Angga Batukaru", a sacred region of mountain peaks, forests, lakes and the villages and rice terraces closest to them. The area encompasses the forests of

²¹ Catur Angga Batukaru or Catur Angga Batukaru is a region defined by four temples which constitute the four guardians (catur Angga) of Mount Batukaru. These temples are Pura Muncaksari, Pura Tamba Waras, Pura Luhur Pucak Petali and Pura Besikalung. Symbolically, they support the supreme deity of Mount Batukaru, whose principal shrine is the temple Pura Luhur Batukaru, which is also associated with the crater lakes of Tamblingan and Buyan.



Bali's second highest volcano, Mount Batukaru (2276 m), as well as Lakes Tamblingan and Buyan in Buleleng Regency, which are considered to be the source of water for the upland springs that feed Tabanan's irrigated terraces²².



Lakes Buyan and Tamblingan

Tabanan is widely regarded as the “rice-barn” or *lumbung* of Bali, where fertile volcanic soils have long supported the cultivation of highly-valued local varieties of red, white, and black rice. **Collectively, 17 subaks maintain the traditional farming and irrigation systems in this sacred landscape (Table 2.3).** A primary function of the subaks is to perform temple rituals where subak priests and members honor the gods and goddesses who ensure a fertile landscape and “make the waters flow”. Irrigation and cultivation cycles are also pegged to the ritual calendars, and the water temples help facilitate communication and cooperation among dozens of subaks. The subaks of Catur Angga Batukaru, like subaks throughout Bali, regard the Lake Goddess (Dewi Danu) as bestowing the gift of water that feeds their terraces. **Similarly, the subaks in the area maintain a strong connection with the lake temple Pura Gubug Ulun Danu Tamblingan, whose goddess Ida Batara Danu Tamblingan is believed to bestow water for fields throughout the Tabanan region.**

²² Traditionally, Lake Buyan is regarded as a component of Lake Tamblingan by the water temple priests of Catur Angga Batukaru.



Subak Landscape of Sangketan, in Catur Angga Batukaru



Rice terraces of Subak Wongaya



No	Village community (desa pakraman)	Residence of Farmers from which subak	Approximate number of farmers in this subak who reside in the village (%)
1	Wangaya Gede	Subak Bedugul	100
2	Jatiluwh	Subak Jatiluwh	80
3	Gunung Sari	Subak Jatiluwh	20
4	Mengesta	Subak Kedampal	80
5	Wangaya Gde	Subak Keloncing	95
6	Penatahan	Subak Penatahan	95
7	Pesagi	Subak Pesagi	40
8	Wangaya Gede	Subak Piak	30
9	Piling	Subak Piling	100
10	Puluk-Puluk	Subak Puakan	90
11	Rejasa	Subak Rajasa	85
12	Sangketan	Subak Sangketan	100
13	Soka	Subak Soka	100
14	Tegal Linggah	Subak Tegallingah	90
15	Tengkudak	Subak Tengkudak	65
16	Wongaya Betan	Subak Wongaya betan	80
17	Babahan	Subak Wongaya Betan	10
17	Utu	Subak Wongaya Betan	10

Table 2.3 Relationship of Villages to Subaks & Farmers of Catur Angga Batukaru



Pura Ulun Danu Tamblingan

Within the site, the tranquil temple Pura Luhur Batukaru, nestled in the forest above the rice terraces defines the apex of the collection of major temples that define the sacred region of Batukaru (Catur Angga Batukaru). As one of Bali's



eight (or 6 – see Geertz 1980: 52) cardinal Sad Kahyangan temples, Pura Luhur Batukaru is one of Bali's most important sacred sites and the preeminent temple in the region. Believed to have been built in the 11th century, the temple contains a shrine to the goddess of Lake Tamblingan, the mythological source of Batukaru's springs and rivers, and the mountain god of Mount Batukaru. In the inner courtyard there are three meru tower-shrines to honor royal ancestors. The nearby pond is fed by the river Aa (pronounced "ehe"). In the center of the pond are two pavilions on a little isle, one for the goddess of Lake Tamblingan and one for the god of Mountt Batu Karu. As anthropologist Clifford Geertz first observed, the subak planting cycle in Tabanan begins with a regional "water-opening" ritual at Pura Luhur Batukaru, attended by all heads of subaks (*pekaseh*) and all subak temple priests and a representative of the Tabanan royal family, as well as any subak member who makes the pilgrimage to join in this ceremony conducted to ensure "sufficient and 'effective' water for all terraces in the realm in the coming season."²³ With this, the annual irrigation and rice planting cycle for the region is set in motion. The ritual opening ceremony honoring the rice goddess Dewi Sri is then replicated at all of the downstream subak temples, and subsequently at the smaller bedugul shrines that mark the entrance of irrigation water to each farmer's fields.



Offerings at a shrine in Lake Tamblingan

²³ Clifford Geertz, *Negara: The Balinese Theatre State in the Nineteenth Century*. Princeton University Press, 1980: 81.



The annual water-opening rituals at the temples of the mountain lakes of Beratan (Pura Ulun Danu Beratan) and Tamblingan (Pura Ulun Danu Tamblingan) involve representatives of all the subaks and royal families of Tabanan and Mengwi. As will be explained below, holy water from these mountain lakes is distributed to the subaks at other temples located downslope. In addition to these region-wide water temple rites, the proposed site also includes a cluster of temples that are supported by nearby subaks which obtain irrigation from the high elevation springs and streams. These temples each have unique ritual and cosmological significance, and jointly define the “Catur Angga Batukaru” mountain landscape that is proposed for inclusion as a component part of the World Heritage site.

For example, one of the four guardian temples, Pura Luhur Besikalung, is located in a forested valley just below the highest-elevation weir on the Ho river. Both sides of the valley are terraced and farmed by the subaks of Batukaru; they are among the most photographed rice terraces of Bali. But today the significance of this temple is not widely appreciated by visitors. Here five subaks make annual offerings for the water they obtain from the Pura Luhur Besikalung weir. The subaks share responsibility for the maintenance and ritual cycle of the temple with three villages. Until now, the temple and surrounding forest and streams are untouched by commercial development. The lands around the temple provide a refuge for wildlife (birds and monkeys) and a place for quiet meditation. The temple is undoubtedly very old and contains several menhirs and ancient stone statues. Twice a year, one of the oldest Balinese royal inscriptions (*prasasti*), dated 917 A.D., is placed in the innermost shrine of the temple for veneration. While only the five subaks that receive water from the Pura Ulun Besikalung weir have primary responsibility for offerings at this temple, twelve more subaks bring harvest offerings (*ngusaba nini*). This is one of the most beautiful and impressive examples of the nested hierarchy of water temples and subaks, both in terms of its cosmological significance and its functional role in the management of water.



Temple Pura Luhur Besikalung. Shrines in the inner courtyard



Pura Luhur Pucak Petali

A second guardian temple, Pura Luhur Pucak Petali, is located to the east of Pura Luhur Besikalung and provides a venue for worship and the coordination of irrigation schedules for another cluster of subaks. Importantly, this temple does not merely duplicate the functions of the Pura Luhur Besikalung temple (providing a venue for subaks to manage –in both a practical and religious sense- their particular water source). In addition, the temple contributes additional layers of meaning connecting the subaks and communities to the landscape. Thus the temple Pura Luhur Pucak Petali is the principal site for the worship of Ida Sesuhunan Petali, the God of Petali who is the chief minister to the God of Mount Batukaru. The temple is also the physical and spiritual manifestation of the connection between forest and field, situated at the edge of the forest above the



villages and subaks of Batukaru and Gunung Sari. At all temple ceremonies, a priest leads offerings of thanks to the god of the forests. This forest deity appears to be unique in Bali's western mountain temples; he is not recognized elsewhere. Pura Luhur Pucak Petali is of primary importance to subak farmers in the region who come to honor the fertility gods and ask for assistance with irrigation canals or to cope with pests, water shortages, or other problems in the ricefields. In addition, Pura Luhur Pucak Petali is an important site for villagers throughout Bali, who make the pilgrimage to the temple to ask for assistance with various afflictions. Located in the nearby villages of Gunung Sari and Penatahan, three other "sister" temples to Pura Luhur Pucak Petali exhibit a similarly strong link with Pura Gubug Ulun Danu Tamblingan and Pura Luhur Batukaru: Pura Ulun Danu Besikalung, Pura Luhur Tamba Waras, and Pura Luhur Muncak Sari.

Nested below Pura Luhur Pucak Petali, both physically and metaphysically, are four subak temples, called *Ulun Swi* (head of the ricefields): Cantik Kuning in subak Gunung Sari; Pejenengan in subak Umadui; and Jung Kook and Penaringan temples in Wangaya Betan. These temples in turn link with numerous smaller *bedugul* water temples that adorn the landscape, marking the sacred space where the Rice Goddess is honored at each farmer's field.

The Batukaru area also features numerous community temples, such as Pura Batu Panas. Surrounded by rice paddies farmed organically by the Subaks of Wangaya Betan and Peselatan in the district of Mengesta, this temple exemplifies the link between community and subak. Although primarily a community temple visited by parishioners throughout the Tabanan region, it is also an important temple for subak rituals. Temple ceremonies at Pura Batu Panas ritually symbolize the connection between the life of the "dry" village and the "wet" terraces of the subak (see Geertz 1980:76, *Pura Balai Agung*). Here subak members make semi-annual offerings of rice bundles, carried to the temple rice barn in honor of the Rice goddess Dewi Sri.

The third and fourth temples that define the Catur Angga region are Pura Tambawaras, which is associated with health, and Pura Muncaksari, associated with prosperity. All four temples possess their own congregations of subaks, and function as "ulun swi" (head of the ricefields) temples. Unlike other *ulun swi* temples, however, these temples are regarded as parts of a greater whole.



In addition to these major temples, each subak possesses its own subak temple; named for the subak that supports it. These are not listed separately because they are common to every Balinese subak, and fulfill identical functions. Along with the subak temples, there are other shrines and temples associated with components of the irrigated landscape. They are structured as follows: every irrigation system begins with a spring, or, more often, a weir in a river, which diverts part or all of the flow of water to an irrigation canal. Beside each weir or spring there is a shrine. The congregation of the weir-shrine or spring shrine consists of all the farmers who use the water originating from this source. The principal deity to receive offerings at the weir-shrine is called the "Deity of the Weir" (*bhatara empelan*). Offerings are also made at these weir-shrines to the Goddess of the Temple of the Crater Lake, who is said to make the rivers flow.

The irrigation canal which takes off from the weir eventually reaches a block of terraces. This spot is usually a kilometer or more downstream from the weir, and is marked by a major water temple, the "Head of the Rice Terraces" temple (*Pura Ulun Swi*). The congregation of this temple is the same as that of the weir shrine: it consists of all farmers who grow rice in the terraces irrigated by this particular canal system. The principal deity of the Ulun Swi temple is called *Ida Bhatara Pura Ulun Swi*, the "Deity of the Ulun Swi Temple", whose influence extends to all of the terraces watered by the canal. The temple itself is simply a walled courtyard containing a shrine where farmers can make offerings to this deity. Additional shrines provide a place for offerings to other gods and goddesses such as the Deity of the Weir and the Goddess of the Crater Lake. These offerings at the Ulun Swi temple acknowledge the dependency of farmers on the flow of waters into their terraces, which in turn depends upon the flow at the weir, and ultimately upon the flow in the river.

More generally, all water temples are physically located at the upstream edge of whatever water system they purport to control. Temples and shrines are situated in such a way as to exert influence over each of the major physical components of the terrace ecosystems, including lakes, springs, rivers, weirs, major canals, blocks of irrigated terraces, subaks and individual fields. The temples link these physical features of the landscape to social units according to a logic of production: the congregation of each temple consists of the farmers who obtain water from the irrigation component "controlled" by the temple's god. Within the



landscape defined by the temples of Catur Angga Batukaru, the major features may be summarized thus:

- The Catur Angga Batukaru site is defined by a collection of temples, each with its own special history and functions, which are associated with the mountain peaks, lakes, forests, springs, rivers and terraces of the region.
- The lake temples in this region are supported by all of the subaks of Tabanan and Mengwi, as well as members of the royal families of the former kingdoms, and play a key role in the annual irrigation schedule for the whole of western Bali. Within the Batukaru Catur Angga region, Lake Tamblingan is the water-source temple for Tabanan. It is also regarded as the female (*pradhana*) complement to the male (*purusa*) mountain.
- In addition to the lake and mountain-peak temples, another cluster of major temples jointly define the “Catur Angga Batukaru” region that is proposed as the core of this World Heritage site. These four guardian temples function as water-source temples (*ulun swi* and/or *bedugul*) for local clusters of subaks, all of which are located at the highest elevation where rice is grown. Each of these temples also possess unique shrines and symbolic attributes which define the meaning of local landscape features. Collectively they define the cosmological meaning of a spatial mandala (supreme or *utama* mandala Catur Angga), which gives the inhabitants of this region specific responsibilities as guardians of the peaks and mountain lakes. Today, descendants of the royal court of Tabanan continue to assist the subaks and villages in the performance of rituals at these temples. Each of the four Catur Angga temples defines a component of the Batu Karu deity: breath at Besikalung; health and strength at Tamba Waras; prosperity at Muncaksari, and the connections that bind all these qualities at Petali.

Having described the symbolic meaning of the Catur Angga Batukaru site for the Balinese, we turn now to a description of agricultural activities by the farmers and subaks in the region. For the majority of families in the Catur Angga Batukaru site, farming continues to be their primary occupation, though landholdings tend to be small (~.2 ha). The people of this region are very cognizant of a religious duty to preserve their sacred landscape and to make good use of its pure water and fertile land. For this reason, they have largely resisted inducements to give



up traditional farming of native Balinese rice. Elsewhere in Bali, there is a documented transition to off-farm employment and rapid land conversion that threaten to undermine the modern subak (Artha Wiguna et al. 2005). But in the Batukaru region, the pre-eminence of rice farming livelihoods and emphasis on values of trust, cooperation, and mutual help (Sutawan 2000) both strengthen and are indicative of the integrity of the subak institution in the area. A 2006 survey on subak governance affirms this observation. The survey asked a sample of 51 farmers in the Batukaru subaks about changes they had observed in the subak during their lifetime. All farmers indicated that the subak continues to be effective in managing water resources and maintaining the contoured rice terraces that typify the landscape; nearly all (49 of 51) agreed that participation among members and willingness to cooperate is as strong now as it was when their parents were farming their land. Looking to the future, three-quarters of the farmers interviewed stated their belief that the subak will continue to be a strong institution, due to the integrity of subak rules (*awig-awig*) and the importance of traditional farming as the appropriate livelihood in this landscape (Fox, personal communication). The interconnectedness of the subak with rituals and temple offerings reinforce this institutional integrity; because the temples that define the sacred landscape require annual offerings from the subaks.

The Batukaru site is also an important centre for the restoration of organic rice farming in Bali, which will be supported by the World Heritage program. In 2005, four farmers from the Subak Wangaya Betan subak of Batukaru and a research team from the Bureau of Agricultural Research and Technology Assessment of Bali's Department of Agriculture began to collaborate to promote sustainable organic farming of native Balinese rice varieties. This intervention was needed because the farmers were resisting pressure to plant non-native rice and use chemical fertilizers and pesticides. This led to the formation of an NGO called *Somya Pertiwi* (Gifts of the Earth Goddess) in the village of Wangaya Betan, where some farmers had recently begun to plant non-native rice. The ongoing activities of *Somya Pertiwi* are both environmental and socioeconomic. First, the group promotes an alternative to intensive chemical-based agriculture based on enhanced modern techniques of organic farming. Local compost production is used to ameliorate the growing problem of agricultural waste products, primarily from chicken and cattle production, and to promote organic rice farming. Second, the project seeks to improve farmers' livelihoods and strengthen subak



institutions. Somya Pertiwi works to *increase* rice yields, growing local rice varieties organically. Compared with conventional “Green Revolution” farming of hybrid white rice varieties that rely on chemical inputs, farmers with Somya Pertiwi can earn greater income from local, organic rice.

Since the project began, rice yields have indeed increased as much as ten percent. Although still quite new, the project has also realized success in the area of environmental conservation. Soil fertility has increased, with the percentage of soil organic matter doubling from less than one percent to two percent. There has also been an increase of biodiversity in the rice fields, evidenced by growing populations of mollusks, eels, worms and beneficial insects (Artha Wiguna et al. 2007). As well, recent analyses of rice samples from the Batukaru area detected no pesticide residues of any kind (Sucofindo, September 15, 2008). This is very unusual for modern Bali, where most farmers today plant high-yielding rice varieties and use chemical inputs (Lansing et al 2007). Today, all 90 farmers of the Subak Wangaya Betan subak grow organic rice. As well, the majority of farmers from neighboring subaks throughout the Batukaru area continue organic rice production, recognizing both the environmental and economic benefits. Somya Pertiwi has established a field training center, where farmers and agricultural extension agents from Bali and throughout Indonesia have begun to come to obtain seeds of native Balinese rice, and learn how to produce organic compost and begin organic rice farming on their own fields. Thus Somya Pertiwi and the training centre provide a model to support scientific organic rice production. This activity will be supported and expanded in the proposed World Heritage Cultural Landscape program, mandated by the Governor of Bali.

Site boundaries and buffer of Catur Angga Batukaru

The boundaries of the site are based on the ancient region “Catur Angga Batukaru” (Four Components of Batukaru), defined by the four ancient water temples and Pura Batukaru. The region is bounded to the north by lakes Tamblingan and Buyan and surrounding forests.



View of Lake Buyan

The lakes and forests are already managed as conservation areas by the Dept of Forestry. To the east the region is bounded by the Yeh Ho river, except for a region consisting of a cluster of subaks located to the east of the river, which belong to the congregation of the temple and are part of the traditional sacred landscape of Catur Angga. The southern boundary is defined by the downstream limits of the subaks that form the congregation of the Catur Angga temple system. Within this region, the nominated area consists of everything within the site, including temples, lakes, forests, villages, subaks, rice terraces and gardens. The entire site is surrounded by a protective buffer zone with a radius of 100 meters, in accordance with provincial and national law (see Chapter 5).

D. Royal Water Temple Taman Ayun

The fourth site proposed for this nomination is the Pura Taman Ayun (Royal Water Temple) in western Bali.



Shrine to the Deity of Lake Beratan in the temple Pura Taman Ayun. Here over a period of three days each year, after the “Water-Opening” ceremonies at Lake Beratan, holy water from the lake temple receives additional blessings from the gods of the temple, and is then distributed to twenty subaks of the former kingdom of Mengwi.



The head of the Subak Batan Badung stands beside the altar where his subak gives thanks for the waters from the moat of the temple Pura Taman Ayun, which irrigated their fields. The moat is visible in the background.

The Pakerisan and Catur Angga Batukaru sites described above are located at high elevation, and date from the time of the formation of the subak system. Later on, as rice cultivation spread and new kingdoms appeared, more complex relationships developed linking the subaks and water temples to Balinese kings. The largest and most architecturally distinguished example of this relationship is the great temple of Taman Ayun (Pura Taman Ayun), located in the heart of Mengwi, the largest Balinese kingdom of the nineteenth century. This site exemplifies the fullest expansion of the subak system, achieved in the eighteenth and nineteenth centuries. **From a technical perspective, the hallmark of this system is the extension of ritualized water control to encompass entire rivers.** Once a year, delegations of subak leaders, water temple priests and princes of the former kingdoms of Mengwi initiate a “Water-Opening” ceremony at the mountain lake of Bratan (adjacent to the Batukaru site). Subsequently, cycles of irrigation and rice cultivation continue at staggered intervals. The subaks are divided into three groups, based on their geographic location. Those located at high elevation plant first, followed by subaks in the central region and then by the subaks furthest downstream, which by virtue of their location are the largest in terms of both water flows and terraced areas. The level of cooperation achieved



by this system is so successful that downstream subaks frequently arrange to “borrow” water from subaks located far upstream. The augmented flow is allowed to pass through the weirs of the intermediary subaks (Geertz 1985, Schulte Nordholt 1996). Thus a parcel of borrowed water may pass undiverted through several weirs before arriving at its downstream target, thanks to the cooperation of all the intermediate subaks as well as the original donor.

The role of the temple Pura Taman Ayun in this system can be summarized as follows. First, the physical distance and rugged topography separating the large low elevation subaks from the mountain lakes meant that it was difficult for all the subaks to undertake annual pilgrimages to the mountain lakes for the “water-opening” rites. A solution emerged in the form of special “visiting” or “way-station” shrines (*penyawangan*) at the Pura Taman Ayun temple where the subaks could make offerings to the lake deities. Thus in any given year, only a small subak delegation needs to make the pilgrimage to the lakes. A prince of the royal family of Mengwi always accompanies this delegation. After offerings are made at the lake temple, holy water is brought to the Pura Taman Ayun temple to the shrine of the deity of the mountain. For three days, prayers are offered to augment the blessings of the mountain gods with those of other fertility gods and the ancestors of the royal family. All twenty subaks of the Mengwi region then obtain the holy water for their fields from the Pura Taman Ayun temple.

A second major feature of the Pura Taman Ayun temple is the role of the rajah in the control of agricultural pests. As noted above, the traditional solution for pest infestations is the imposition of a large coordinated fallow period, which temporarily deprives the pests of their habitat. In the former kingdom of Mengwi, responsibility for the rituals associated with pest control at this scale (*nangluk merana*) belongs to the king of Mengwi. The leading colonial ethnographer of Bali, V.E. Korn, describes these rites in detail, and today the prince of Mengwi continues to perform this function.²⁴

²⁴ V.E. Korn, *Het Adatrecht van Bali*. See also Korn’s papers on “Pengabenan Tikus” in the Korn Collection at the Royal Institute of Ethnography in Leiden.



Flooded paddy fields, where rice pests are deprived of their habitat

A third feature of the Pura Taman Ayun temple is the relationship with the Subak Batan Badung (62 hectares). This subak owes its existence to the water from the temple's large moat, and shares responsibility for the temple with the Mengwi royal family. The Pura Taman Ayun temple thus functions as the chief water temple for the Subak Batan Badung.

A fourth aspect of the relationship of this temple to the subaks is visible in the shrines to two deities worshipped by the subaks, in addition to the major shrine to the deity of Lake Beratan. These three shrines are dedicated to Ida Batara Tengahing ring Segara, the sea god who is associated with seasonal pestilence at the temple of Peti Tenget, and the deity of the Ulun Swi (head of the ricefields) temple at Jembaran. These three temples- for the Lake Goddess, the Sea God and the Head of the Ricefields- are known as *penyawangan* or "way-station" shrines, where a distant deity may receive offerings from a local congregation. They provide a way for the farmers to make offerings to these gods without making annual long-distance pilgrimages to their home temples. The subaks also routinely request holy water blessings from the ancestral shrine of the Mengwi royal family, to augment the holy water obtained from these shrines. Representatives of the royal family assist and accompany the subaks in their annual cycle of rituals at these shrines and temples.



Finally, the Pura Taman Ayun temple exemplifies the supportive role of the princes of western Bali in the later physical expansion of the subak system. This will be discussed below, in the next section.

Site boundaries and buffer of Pura Taman Ayun

Like the temple Pura Ulun Danu Batur, this site consists of a single temple. But unlike Batur, it is surrounded by a wide moat. A protective buffer zone extends for 250 meters around the outer perimeter of the temple, based on provincial zoning restrictions which empower local communities to establish a protected buffer zone around major temples.²⁵ Within this buffer zone, the Tabanan regional government has implemented zoning restrictions based on a master plan adopted in 2002. The plan takes note of the large number of foreign visitors to the temple, and permits commercial activity along the entrance to the temple (located to the south on both sides of Jalan (Street) Gunung Semeru. The plan also permits residential buildings and shops to the east and west of the moat, but restricts the height of new construction. A detailed description of the legal basis and rationale are provided in Chapter 5.

2.b History and Development

2.b.1. Overview of the Subaks of Bali

The oldest direct evidence for rice on Bali is a radiocarbon date of 2660 +/- 100 BP at the site of Sembiran on the north coast. However, this date is from rice husk used as temper in a pottery sherd of probable Indian origin, and thus does not prove that rice was consumed on Bali at that time (Bellwood et al 1992). More useful are the rice phytoliths found in the sediments at the same site, indicating likely cultivation by 1 AD. The earliest of all the dated Balinese royal inscriptions (Sukawana A I, from AD 882) mentions irrigated rice fields (*huma* in Old Balinese), and the third dated inscription (Bebetin A I, from AD 896) mentions irrigation tunnel engineers (*undagi aungan*). The reference to tunnelers is found in a list of professional artisans who worked for pay, suggesting that at this early date there already was enough demand for irrigation system construction to support them as independent specialists, since no evidence

²⁵ See Regulations of Bali Province Number 5 (2005) Section 19, which clarifies zoning for protected sacred sites, based on local awig-awig (customary law).



connects them with elite courts or village administrations (Christie 1992: 16; 2007: 250; Ardika 1994: 9-10; Ardika and Beratha 1996: 23, 27, 49; 1998: 13). Tunnel experts are mentioned again in the AD 1022 inscription of Batuan, which also contains the first of many mentions of the word *sawah*, the usual term for irrigated rice fields in Old Javanese (Ardika 1994: 9; Ardika and Beratha 1998: 66, 73; Setiawan 1995: 101-102). The same inscription also refers to the water allocation role of an official called the *makaser* of Air Gajah (Ardika and Beratha 1998: 74, Christie 1992: 15, 2007; Sukarto 1986: 59-60).

The first appearance of the term “subak” is as the root of the word *kasuwakan* in the Pandak Bandung inscription of 1071 AD (No. 436; Ardika 1994: 27, Ardika and Beratha 1998: 313; see also Sukarto 1986: 32-33, Setiawan 1995: 104-105), but it is difficult to tease out much information on the productive and religious roles of the institution from the text. The following year (1072 AD), the terms *kasuwakan* and *kasubakan* are used interchangeably in the inscription Klungkung C (No. 438, also known as the charter of Er Rara I; Sukarto 1986: 35-36, 51). This inscription discusses a royal order calling for the remeasurement of the rice fields of the *kasubakan* of Rawas, and lists the irrigated areas that belonged to this subak, which were located in at least 18 communities. As Christie notes, this suggests that subaks were boundary-crossing entities by the 11th century. She also examines the list of nineteen *kasuwakan*s given in the 1181 AD charter of Udanapatya (No. 628, Pengotan C II), pointing out that, in her words “the *kasuwakan* names are different from the names of the villages referred to in the same charter, so it does appear that their areas of jurisdiction cross-cut those of the villages” (Christie 1992: 15; 2007; Sukarto 1986: 33- 51). She further observes that the dissected nature of the Balinese landscape requires that irrigation systems frequently tap rivers and springs at points that lie within the lands of villages located well upstream from those that benefit from the water. The construction of boundary-crossing channels and tunnels could provide an impetus for the development of irrigation societies that are largely autonomous from other social institutions. In addition to the 1072 and 1181 AD cases just noted, in this context it is also significant that the 1022 Batuan inscription describes an irrigation system that brought water to “Bataran” from “Pujung Ngaji” and “Air Gajah.” These three place-names are usually associated, respectively, with the modern village of Batuan where the inscription was found, the neighborhood of Pejengaji 14 km to the north of Batuan in the village of



Tegallalang, and the monumental site of Goa Gajah in Bedulu, 6 km north of Batuan (Setiawan 1995: 111, 133; Ardika and Beratha 1998: 74). If these place-names are correctly interpreted, the distances involved make this an almost certain case of another boundary-crossing irrigation channel.

The terracing of fields following mountain contours allows for the irrigation and flooding of the fields and reduces the risks associated to soil erosion. Soil cores taken in the Sebatu rice terraces in 1997 showed that the landscape is quite dynamic with some of the terraces being reengineered nearly every decade (Lansing, et al. 2006: 343, 345).

Studies of the functional significance of the subak date from the nineteenth and early twentieth century. The earliest detailed accounts are from Liefrinck (1886-1887), Korn (1923), Wilk (1929), and Grader (1938). Later accounts of scholars who undertook studies of pre-colonial times are from Lansing, Schulte Nordholt, Geertz, as well as archaeological studies carried out by Schoenfelder and others. Geertz's extended studies and several publications on the subak rely mainly on fieldwork undertaken in 1957-58 (except for his book 'Negara'). Others who have looked at post-colonial Balinese subak are Stingl (1969), Birkelbach (1973), Poffenberger and Zurbuchen (1977-78), Foley (1987), Ramseyer (1988), and Lansing. Scholars who studied the subak of the early 1980s and onwards are foremost but not exclusively Lansing, Bundschu, Jha, MacRae, and Lorenzen. Balinese scholars who have intensively studied the subak in the last couple of decades include Pitana, Sutawan, Windia, Suyadna, Arifin and Arthawiguna and many more.

Dutch colonial authorities arrived on Southern Bali in 1908 and built concrete dams in the river and upgrade primary canals in the 1920s and 1930s (Foley 1987: 86; Horst 1996: 39-40; Schulte Nordholt 1996: 285). Before this time, construction material for the weir or dam at the river was either clay, wood (logs of coconut trees) and/or stone. Canals are usually mud-lined with the primaries sometimes cemented. Diversion weirs are made of bamboo, or more recently cemented. The Indonesian Government continued the Dutch rehabilitation work after independence (Arga and Sudana 1994). Even today, traditional engineering methods are still used to construct new irrigation tunnels, terraces and weirs.



2.b.1. a Supreme Water Temple Pura Ulun Danu Batur

This temple possesses a collection of traditional lontar manuscripts, which include many passages that provide information on its historic role. Many of the most important manuscripts have been transcribed and printed in Latin script.²⁶ In one manuscript, the borders of the region (“central Bali”) containing 45 communities that supported the temple were defined by river boundaries: on the north coast it reaches from today’s border between Buleleng and Karangasem to Singaraja, in the southwest and the south to the Yeh Somi river that constitutes today’s border between Tabanan and Badung; to the east to Klungkung and the Yeh Unda river (Pratekaning Usana Siwasasana, § 14b).

The importance of this temple is also well attested in written records from the colonial era. For example, in 1917 a major earthquake destroyed many temples and palaces in Bali. Some months later, a well-known Dutch architect, P.A.J. Moojen, was employed by the Governor General of the Netherlands Indies to undertake the first survey of major temples in the newly-conquered principalities of south Bali. One of the temples that was severely damaged in the earthquake was Pura Ulun Danu Batur. In his first report to the Governor General, Moojen wrote:

There are six temples which are superior to the many village temples, which are most sacred to the Balinese and are honored outside the borders of the little kingdoms in which they are situated. Several authors on Bali give various names for these six, and Frederich mentions that in the Oesana Bali itself there are different temples mentioned. However, it is certain that the Temple of Besakih is the most holy, followed by the Temple of Batur, also called Temple of Mount Lebah. Further information given to me by knowledgeable sources also points to this, and I even received a written request to start quickly on the repairs to the Batur temple.

The letter to which he refers to in this passage, urging the immediate repair of Batur, is preserved among Moojen’s papers in the archives of the Royal Institute for Anthropology and Linguistics (KITLV) in Leiden. The letter was written by the Sedahan Agung (royal tax collector) of the kingdom of Klungkung on the 27th of November 1918, addressed to a Balinese court official in Bangli and to the Dutch Controleur of Klungkung. The letter is written in Malay, and reflects the struggle

²⁶ Budiastira, P. 1975. Rajapurana Pura Ulun Danu Batur, Kintamani, Bangli. vol. 1 (1975), 2 (1979). Denpasar: Museum Bali.



of the Sedahan Agung to convey the importance of Pura Ulun Danu Batur to a foreign official. The key passage is as follows:

...I hope that you will advise the (Dutch) Regent in Bangli, so that he will assist with the temple at Batur at the Ulun Danu, the home of the Deity called the Goddess of the Lake who has the power of control over water, the male has power over fire, this is very important according to Balinese religious custom, because the Deities of Mount Batur and Mount Agung are the children of the Deity of Mahameru who were given power over Bali... therefore it is extremely important that the two aspects of this, Mount Batur and Mount Agung, receive worship, as your servant advised earlier in Badung, and because it is easy to make things right at Batur if the people at Batur are assisted by their father.

Architect Moojen wrote enthusiastically that

The fame of holiness, coming from this temple, has risen after the last eruption of Batoer in 1905 even more by the miraculous way by which it was then saved from total destruction. The glowing lava stream was stopped just at the main entrance in an inexplicable way!¹

This description is confirmed by the sketches of Nieuwenhuis, who visited the Temple shortly after the eruption. Moojen estimated the cost of restoration of the Batur temple at fl. 30,000, a large sum in 1918. This included a sizeable budget for labor. Batur was the only temple for which Moojen requested funding for labor, for a very interesting reason. As he explained in his report,

"wages for labor are not budgeted (for other temples) since among the people it is the custom and tradition to supply this. But for one budget I have made an exception and that is for the temple of Batoer...(Like Besakih), Batoer is of importance to the population of the whole of Bali, and from almost all parts of the island smaller or larger shrines have been built there, or the people have paid a share in their construction. ¹

Thus according to Moojen's report, the importance of the Batur temple transcended the boundaries of the former kingdoms. Unlike other temples, support for Batur came not only from nearby villages, but from the whole island. These reports indicate that in the immediate precolonial era the temple of Batur functioned as the supreme water temple, much as it does today.



View of the village of Batur circa 1920 when it was located on the floor of the caldera. The meru shrine with stacked pyramidal roofs, dedicated to the Goddess of the Lake, is visible on the left. From the archives of the Koninklijk Instituut voor Taal, Land en Volkenkunde, Leiden.



Baris dancers in front of the temple Pura Ulun Danu Batur, circa 1920. The 1916 lava flow that stopped just in front of the temple's main gate is visible in the background. From the archives of the Koninklijk Instituut voor Taal, Land en Volkenkunde, Leiden.



At the time of Moojen's report (1918), the Batur temple was located in the village of Batur, in the bowl of the volcano near the lake. In 1926 another volcanic eruption led to the abandonment of this site, and the relocation of the temple and the village to the rim of the crater, overlooking the caldera and lake. These events are thoroughly documented in an administrative report by the senior Dutch official then resident in Bangli:¹

...The village of Batur was situated before August 1926 at the foot of the volcano Batur. It was a neat, well kept village, which could be seen clearly from the crater...

On the third of August 1926, at 1 a.m., Mount Batur began to erupt. Along the north-western slope a long crevice appeared with a lot of noise and thunder, from which fires and many lava fountains spewed forth. I was informed of this and went to Kintamani, and descended to the village of Batur. It was impossible to get an overview of the situation: the inhabitants were not worried, and trusted in the power and will of the gods, and in the temple which already once before had stopped the lava-stream. From above you could see that the lava-stream was not moving towards the village. However, it seemed to me that the continuous eruptions would eventually fill the hollow in which the village was nestled. In the afternoon of the first day a new source of lava came into being at about 1200 meters distance from the village. With the sound of a diesel engine, it regularly emitted large waves of blood-red glowing lava. A lava stream started to move towards the village...¹

This report goes on to describe the abandonment of the village and the Temple, which were buried under a great tide of lava. The people of Batur had time to gather their possessions, including the orchestras and ceremonial objects stored in the temple, and climbed to the crater rim where they were invited to take refuge in the nearby village of Bayung Gde, where they remained as guests for three years. Soon after their arrival they began to solicit land and financial support from the colonial government in order to rebuild the temple and the village on the crater rim. This triggered another assessment of the importance of the temple by the colonial administration. A 1927 report by Controleur Haar describes the mobilization of funds and labor for the reconstruction of the Temple from the whole population of Bali:

At this moment the members of the new village of Batoer are busy preparing the terrain for a new temple. A request to have the whole of Bali participate in this new construction by means of handing over contributions was already made, but will later be prepared more closely by the Anak Agoeng (ruler) of Bangli and proposed again. It was thought to request a contribution of 5 cents per family head. If



you count the number of people at around 1 million (in 1920 the census says that most families consist of 5 people), then approximately 200,000 people would bring in an amount of 10,000 guilders.²⁷

With this support, a new temple was constructed at its present site, in the village of South Batur on the crater rim. The congregation of subaks that support the temple has grown in recent years, and now numbers more than 250.

Moojen's interest in the Batur Temple was primarily architectural, and he wrote very little about its cosmological role. But the importance of the Batur Temple to the subaks is confirmed by other reports. For example, the final report (memorie van overgave) of G.A.W.Ch. de Haze Winkelman, Resident of Bali and Lombok, dated April 1937, contains the following remarks:

In several areas the custom exists that the inhabitants of a watershed by sending deputations participate in the worship in the sanctuaries dedicated to the goddesses of the mountain lakes (Batoer, Bratan, Boejan and Tamblingan). Holy water is obtained during temple feasts by the representatives of the subaks. The subak members meet the delegations and ceremoniously share out the holy water, and the subak members then sprinkle their fields with it. In this way, they can participate in the blessing which the Goddess of the lake- as keeper of the irrigation waters- shares out to the farmers.

Let it also be mentioned that the festival calendar of the subak has no (or at the most only an incidental) relation with the organization of the religious ceremonies which are in the charge of the village community.²⁸

Thus this colonial official acknowledges "the lake goddess as the keeper of irrigation waters", as well as the distinctive calendar of the subaks, the pilgrimages to the lakes to obtain holy water to sprinkle on their fields, the temple festivals, and the Goddess not merely as mistress of lakes or holy water, but irrigation water (*bevloeiingswater*) itself. There are similar references in other documents of the colonial era. For example, V.E. Korn observed that :

From several village regulations from Karangasem, this opinion appears without doubt, that the water of the central Balinese lakes-Bratan, Batur, Buyung and Tamblingan- is in the hands of the gods, on whose good

²⁷ Lansing, J. Stephen, Chapter Five, Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali. Princeton University Press, 1991. Revised 2nd edition 2007.

²⁸ A.R.A. Den Haag: Memoire van overgave van G.A.W. Ch. de Haze Winkelman, Resident van Bali en Lombok, April 1937.



will it depends if the rivers will receive enough water through underground canals (a widespread belief).²⁹

Further details on the history and functions of this temple are published in Budiastira (1975, 1979), Lansing (1991, 2006, 2007), and Reuter (2002).

2.b.1.b Subak Landscape of Pakerisan

There is a story about this site that is a perennial favorite among those who study Bali—a story that has been published numerous times (Stutterheim 1935: 28-29, Bernet Kempers 1991: 157-158, Dalton 1992: 282, Lansing 1983b: 148, Barth 1993:335, Zurbuchen 1987: 42). It is a story about a stone. Today, this stone sits wrapped in white cloth in a small shrine in a temple in the village of Manukaya in the district (*kecamatan*) of Tampaksiring. Some locals have said that it fell from the sky. Every decade or so, on the full moon of the fourth month, it is taken down the hill from its home in Sakenan Temple to a major ceremony at the temple of Pura Tirtha Empul a kilometer away. There the rock joins other meaningful sacred relics and they are ritually washed in the spring-fed pools that are the focal features of the temple.

Upon this rock there is an inscription in Old Balinese, a language no longer remembered. In the 1920s, the Dutch archaeologist Wilhelm Stutterheim deciphered the inscription and reported his findings to the local Balinese, who had no knowledge of its contents. The inscription proved to bear a date equivalent to 962 A.D., and to tell of King Chandrabhayasingha Warmmadewa's construction or improvement of a bathing place at Pura Tirtha Empul, complete with a dam and two pools (Ardika and Beratha 1996: 112- 113; Goris 1954: 197, Stutterheim 1929-30: 68-69). The translation was incomplete because because some parts of the inscription had been worn away, quite likely by the effects of hundreds of years of regular ritual washings carried out on the day of the full moon of the fourth month—*the very day memorialized in the inscription*.

The proposed Pakerisan World Heritage site contains the water temple mentioned in the inscription, and a collection of downstream subaks and temples which continue to receive water from the springs of Tirtha Empul and neighboring water temples. This valley includes the largest and most physically imposing stone temples that exist in Bali, and was undoubtedly one of the cradles of early

²⁹ V.E. Korn, Het Adatrecht van Bali. (The Hague: G. Naeff, 1932).



Balinese civilization. The Subaks of Pulagan and Kulub often grow native Balinese rice varieties, which is cultivated in the traditional way. Archaeological evidence suggests that they have been in existence for nearly a millenium.

2.b.1.b.1 Pura Pegulingan

The Pura Pegulingan is an ancient temple that has become a place of worship for local families for generations. However, the antiquity of the site was only revealed in 1983, when debris of a large stone stupa was found in the “jeroan” (inner sanctum) of this pura. Intensive research that followed in 1984 succeeded in unearthing the stupa’s foundation. At the base of the stupa was found an octagonal structure with spokes. At the center of this structure is a miniature stupa which then serves as a model for reconstructing the big stupa. One of the important findings was a stone box containing a thin gold sheet and clay tablets inscribed with Buddha mantras. Judging from the style of writing, it is evident that the finding dated back from the ninth or the tenth century, which was the period of the reign of King Udayana and his spouse Gunapryadharmapadmi. Apparently, at the time, Pura Pegulingan served as a Buddhist place of worship. It is not known for certain when the pura became a place where Hindus came to pray. By agreement with the local community, in 1985 the large Pegulingan stupa began to be restored and was completed in 1991.

2.b.1.b.2 Pura Tirtha Empul

The site is clearly mentioned in the stone inscription describe above, dating to 962 A.D., in which a king commands the building or rebuilding of baths and a dam. This stone remains ritually significant at the temple, demonstrating extraordinary cultural continuity. It is kept at the village temple of Pura Puseh in the village of Manukaya. It is dated 884 in the Saka calendar (962 AD), and states that King Chandrabhaya Singhawarmadewa ordered that the pethirtaan Tirtha Empul be restored. The inscription is the oldest written record about Pura Tirtha Empul which in the inscription was mentioned as “...tirtha di Mpul...” (the holy water at Mpul). The inscription is discussed by W.F. Stutterheim in his book: “Oudheden van Bali” (1929) and by R. Goris (1954) and L.C. Damais (1957).



In 1972, part of Pura Tirtha Empul was damaged by a strong earthquake in Bali. Restoration was made by the community, but no detailed record was available to tell this. Since 1983, the Office for Heritage Conservation in Bali and Lesser Sunda (based in Gianyar, Bali) assisted in the restoration of some damaged parts of the pura and the restoration was completed in 1990.

Pura Tirtha Empul also has an important place in current myths. When asked about the origin of Pura Tirtha Empul, locals usually refer to variants of the Usana Bali legend. By doing so, they in effect attribute the site to a king of gods rather than to a godly king. The story in question concerns a war between the god Indra and the demonic king Mayadenawa. As usually reported, at one point Mayadenawa creates a poison spring, and Indra's army is killed upon drinking its waters. Indra then plunges a kris (sword) or a banner into the earth to create a new spring of holy water (Tirtha Empul) and uses this water to revive his followers. The version of the myth current in Manukaya elaborates on this incident to emphasize the power of Tirtha Empul by telling us that Indra only created the spring after his own priest (analogous to the padandas discussed below) failed to create holy water with the desired effect.

2.b.1.b.3 Pura Mengening

The history and the development of Pura Mengening are difficult to trace due to a lack of historical sources that mention this pura. It is included in the site nomination because of its continuing importance as a water temple. From the architecture of the main temple, one can estimate that this building was erected in the 11th century during the reign of King Anak Wungcu. Through the beginning of the twentieth century, no records exist describing the condition of the temple (prasada) and the Pura Mengening.

Based on oral history from the local community, when Bali was shaken by a huge earthquake in 1917, some buildings in this pura collapsed. The collapse of the temple at Pura Mengening was mentioned by W.F. Stutterheim in 1925. The story of the collapse was reiterated by A.J. Bernet-Kempers in his book: "Ancient Bali" (1960). In this book, only the remains of a temple and some statues were found on a hill near Pakerisan.

In 1982 research began on the temple by the Office for Heritage Conservation in Bali and Lesser Sunda. Based on the results of the research, the temple was



reconstructed and completed in 1983. At present, this temple has become the main building of the pura and is called Prasundan Agung. The garden surrounding the pura was planted in 1985 and the following year “zoning” was designed to protect in the site. In 1986, a more specific mapping of the site was completed. Up to the present, Pura Mengening is used and maintained by the community of Saraseda.

2.b.1.b.4 Pura Gunung Kawi

The history of the establishment of the Pura Gunung Kawi (Rock Cut Temple) is known from several ancient inscriptions found on the walls. A short inscription stated that: “... haji lumah ing jalu...rwa anak ira” meaning “....the King who passed away in the Jalu...and his two children”. The word “Jalu” means “Keris” (Kris=dagger) which leads to the name “Sungai Pakerisan” (River of the Dagger). The king referred to in the inscription (inscription) is King Udayana who reigned in Bali from 989 to 1021. The two sons are King Marakata (1022-1026 M) and (King) Raja Anak Wungsu (1050-1078 M). In one of the inscription published by King Marakata, Pura Gunung Kawi is mentioned as a sacred Amawawati structure found along the Pakerisan River (“... mangswaya ri sanghyang katyagan ing pakrisan mangaran ring amarawati”). Based on the data, it is presumed that the Pura Gunung Kawi (rock cut temple) was built in the 11th century. Some scholars attribute the founding of the site to Udayana in the early 11th century; others to Anak Wungsu in the latter half of the same century, based on a paleographic match to a dated inscription on a statue at Gunung Penulisan,

There is no record of how the development of the Pura Gunung Kawi proceeded after it was constructed. Although the local community was aware of the existence of these candi (temples), it was only in 1920 that its existence became widely known after Resident H.T. Damste reported on their cultural heritage. In the beginning, only temples A, B, and C were known. When Nieuwenkamp visited the site a few years later, he reported that the curved niches on the east side of the rock cut, which were later known as Temple Sepuluh, were still crowned by foliage growth. In 1949, J.C. Krijjamen succeeded in restoring some rock cut niches. He also discovered some other rock cut temples around the area of Pura Gunung Kawi.



Since the findings were made public, the complex of the Pura Gunung Kawi has become an object of tourism. The complex is often visited by foreign as well as local tourists. The local community has set up kiosks to sell souvenirs along the road leading to the temple complex. As noted in the Management Plan, it is anticipated that a participatory approach will improve the profitability and suitability of these commercial establishments in the proposed World Heritage site.

The maintenance of the Pura Gunung Kawi and other temples at the site is sustained by the local community and the office of Archaeological Heritage Conservation in Bali and Lesser Sunda (based in Gianyar). Presently, conservation activities consist mainly of cleaning moss and plants that flourish around the sloping riverbanks. In order to prevent overflow of water during the rainy season, canals on the slope were built, as they were for cluster IV of the temple on the South Western Site. In front of cluster C of the temple, places for worship made of wood were built for visitors. However, ceremonies are held mainly in the temple located in cluster B of the temple premises.

2.b.1.b.5 Subaks Pulagan and Kulub (Upper and Lower)

The water from the springs enclosed by the temple Pura Tirtha Empul now flows into a large canal that delivers it to the rice paddies of Subak Pulagan located in the valley immediately downstream. In the midst of these terraces are found the largest royal tombs and hermitages ever constructed in Bali, which were completed by the 12th century. The flows from two other nearby springs provide water for the subaks Basangambu and Kulub.



The main irrigation canal from the spring at Tirtha Empul, branching into flows for Pulagan and Kulub Atas

With regard to the antiquity of these subaks, an as-yet uncorroborated radiocarbon date of 635 to 685 (calibrated AD) has been obtained from a test pit located in a rice field close to the canal and about 2 kilometers downstream from the spring, at a level above bilobe rice phytoliths. While the excavator does not have great confidence in this date because it was taken on fine particulate matter that may have been transported up or down the soil column (John Schoenfelder, pers. comm.), it nonetheless hints at the likely antiquity of the system. Thus it appears that Pura Tirtha Empul was one of the oldest and most successful water control projects of Balinese kings.³⁰ The valley forms a concave microwatershed, utilizing a natural spring with very simple technology: the stone weir described in the tenth century inscription, and a short canal. The history and archaeology of canal irrigation in this region of Bali are discussed in Scarborough et al 1999, 2000; Schoenfelder 2003; Lansing 2006; Lansing et al 2008.

³⁰ M.M. Soekarto K. Atmodjo, "Some short notes on agricultural data from ancient Balinese inscriptions", in Sartono Kartodirdjo, ed., Papers of the Fourth Indonesian-Dutch History Conference, Yogyakarta 24-29 July 1983), Vol. I: Agrarian History. Yogyakarta: Gadjah Mada University Press, 1986.



Rice terraces of Subak Kumba Bawa

2.b.2 History of the Subak Landscape of Catur Angga Batukaru

As noted above, the earliest documented wet rice kingdoms in Bali originated in the Pakerisan region. Later on, more kingdoms emerged in western Bali, which eventually became Bali's "ricebowl", where the subak system reached its greatest geographic extent. However, most of this development occurred after the end of the Classical era in the fourteenth century. Post-Classical Balinese kings stopped issuing royal edicts (*prasasti*) on copper plates; consequently the early history of these subaks, temples and kingdoms is not as well documented as those of the Classical sites around Pakerisan and Sebatu. However, other kinds of evidence have been used to reconstruct the history of these institutions. Thus molecular genetic evidence sheds light on the population history of the region, and historical records in both Balinese and European languages are available beginning in the eighteenth century for the water temples. Here we briefly summarize the results of these studies.

Neutral genetic markers can be used to reconstruct migration and settlement histories. Lansing et al (2008) analyzed patterns of variation in the non-recombining Y chromosome for 587 Balinese men to gain insight into the history



of subaks in Bali.³¹ Genetic samples were obtained from eight subaks located along the Sungai river in west Bali, as well as thirteen subaks located near Pakerisan in the Sebatu region. One hundred random samples were also collected from the administrative districts of Bali, to provide context for the samples from the subaks. The results of genetic analyses on these subaks are fully explored in Lansing et al. (2008). Relevant results may be summarized as follows: the pattern of genetic diversity in all of the genetic systems included in that study are consistent with an historical scenario in which irrigation development began around the springs and rivers located highest upstream, which would have been the easiest sites to develop using traditional technology. Subaks located at the furthest positions upstream on both rivers demonstrate greater levels of genetic differentiation and diversity, indicating that they came into existence before their downstream neighbors. The oldest and most permanent communities are located in the Sebatu region adjacent to Pakerisan. (The antiquity of the Pakerisan subaks is known from prasasti inscriptions, as noted above). Small patrilocal communities with low migration rates, typical of traditional wet-rice farming villages, are subject to high rates of drift on the Y chromosome. If population growth eventually leads to downstream migrations of male kinsmen, the results are genetic patterns like those observed in the Sebatu region, which are technically known to geneticists as a budding deme model.³²

The second highest levels of NRY STR diversity in the study were found in the two farming villages located furthest upstream along the Sungai river in the region of Batukaru.³³ In the other six subaks located further downstream along the Sungai river, this pattern vanishes and the levels of genetic diversity are indistinguishable

³¹ Lansing, J. S., Karafet, T. M., Schoenfelder, J. W. and Hammer, M. F. (2008). A DNA signature for the expansion of irrigation in Bali? In *Past Human Migrations in East Asia and Taiwan: Matching Archaeology, Linguistics and Genetics* (eds A. Sanchez-Mazas, R. Blench, M. Ross, I. Peiros and M. Lin). London: Routledge, pp 356-375.

³² Fix, A.G. (2004) 'Kin-structured migration: causes and consequences', *American Journal of Human Biology*, 16: 387-94.

³³ Subaks Apit Yeh and P. Akitan, located approximately 1.5 km due east of Batukaru. A third upland subak, Uma Poh, is located immediately downstream from Apit Yeh. This subak is said to have been founded by farmers from Apit Yeh, a conclusion supported by its higher STR diversity.



from the all-Bali sample. Altogether, these results are consistent with several inferences:³⁴

- The subaks of Pakerisan and Sebatu are probably among the oldest in Bali, and originated before the 12th century AD.
- Later on, the subak system expanded to the high elevation springs and rivers to the west, downslope from the mountain lakes of Beratan and Tamblingan (i.e. the Batukaru region).
- The subaks located immediately downslope from the volcanic lakes of Tamblingan and Beratan (i.e. the Catur Angga Batukaru region) are likely to be the oldest subaks in western Bali

The oldest reference to the temples of the Catur Angga Batukaru site is contained in the royal copper-plate inscription Babahan 1 dated 947 A.D., issued by the Balinese king Sri Ugrasena (Goris 1929:64-5). This inscription describes the visit of the king to Buwunan and is still preserved in the nearby village temple Pura Puseh Jambelangu of Babahan. It fixes the borders of a temple or asrama Petung Bang Hyang Sidhi, which is believed to be the precursor to the temple Pura Luhur Besikalung. This inscription also refers to local streams and wet-rice agriculture, which supports the genetic evidence that this region was one of the earliest sites in Bali for irrigated rice cultivation.³⁵ Like the inscription of 962 A.D. at Pura Tirtha Empul described above, this *prasasti* dates the farming community of Babahan (and its responsibility to the temple) to the earliest period of Balinese kingdoms. Subsequently, references to the lake temples are abundant in the later lontar literature of Bali, including major religious texts such as the Purwwa

³⁴ Lansing, J.S., M. P. Cox, S. S. Downey, M. A. Janssen, J. W. Schoenfelder. (2009). A robust budding model of Balinese water temple networks. *World Archaeology* 41(1):110-131

³⁵ The passage which refers to wet-rice (*huma* in Old Javanese) extends privileges to persons in the region of Catuspatha, which may correspond to Catur Angga, who labor in rice fields and those who support religious establishments: “paniungsungyan di catuspatha, anada tu anak dharmmana, tumaku marhuma”. Prasasti Babahan 1, #102:4. Roelof Goris, *Prasasti Bali: Inscripties voor Anak Wungcu*. (Bandung: N.V. Masa Baru, 1954),page 64.



Cili, Cau (harvest offering) dedicated to goddess Sri, placed in the field during harvest time



Rice granaries; the higher called gelebeg, and the smaller one klumpu. Wongaya-Gede, on the slope of the Watukaru Mountain, Tabanan

Agama.³⁶ References to the vital role of the major lake temples are also prominent in early European descriptions of Bali and continue in the colonial era, as attested by the reports of de Haze Winkelman and Korn quoted above. An important theme in these descriptions is the unique importance of the subak system in Bali. In 1811 Sir Stamford Raffles visited Bali and was surprised to discover that the Balinese rajahs did not lay claim to all of the productive lands: “the soil is almost invariably considered as the private property of the subject.”³⁷ Similarly in 1887 the Dutch administrator of north Bali carried out a detailed study of land tenure. He concluded that the subak system is the key to the prosperity of Balinese kingdoms: “The explanation for the amazingly high standard of rice cultivation in Bali”, he wrote, “is to be found in Montesquieu’s observation that ‘the yield of the soil depends less on its richness than on the degree of freedom enjoyed by those who till it.’”³⁸

Technologically, the small-scale irrigation works of the Batukaru region used only traditional materials until around 1960. Dams were constructed by piling up stones, dikes between rice fields were made of raised soil, and bamboo served

³⁶ Helen Creese, “Balinese Babad as historical sources: A Reinterpretation of the fall of Gelgel.” BKI 147 (1991):236-60.

³⁷ T.S. Raffles, *The History of Java*, vol. 2. London: Black, Parbury and Allen, 1817:234.

³⁸ F.A. Liefrinck, “Rice Cultivation in northern Bali”, in J. W. Swellengrebel, ed., *Bali: Further Studies in Life, Thought, Ritual*. The Hague: [1886-7] 1969:3.



as water pipes. After 1960, the government provided aid in building dams and made water networks more permanent by using cement. Water channels as long as 6 km were built by farmers from the village of Gunungsari to reach the village of Kasembahan. Tunnels as long as 160 m were also constructed in order to enhance the flow of water. In 1975, local farmers built a concrete dam on the River *Yeh Baat*. Thereafter, no new irrigation facilities were built, although some improvements were made. The waterworks in *Gunungsari* were improved by “*gotong royong*” or mutual cooperation in stages from 1977 to 1981, and the dam was repaired in 1980. Otherwise, the terraced rice fields and the *subak* organization in Batukaru have not undergone any significant changes. In 2005, this region was proclaimed a natural and cultural conservation area by the Governor of Bali.

2.c. Historical Notes on the Royal Water Temple Pura Taman Ayun

In the second half of the second millennium C.E., under royal patronage the *subak* system expanded with the creation of larger dams at downstream locations, where river flows are larger than at the older high elevation sites like *Pakerisan* and *Batukaru*. However, the later Balinese kings did not assume direct control of irrigation, or attempt to displace the *subaks*. Instead, they provided support for both the practical and ritual activities of the *subaks*. For example, the kingdom of *Mengwi* came into existence early in the eighteenth century. According to historian H. Schulte Nordholt, at that time *Mengwi* was largely forested. The first king built a dam in the *Sungi* river, and subsequently played an important role in irrigation management (Schulte Nordholt 1996: 58). Schulte Nordholt writes that, although ‘there is no accurate information’ on the villages that existed in *Mengwi* at the time the dam was built, circa 1750, the picture that emerged from attempts to reconstruct the demography ‘is that of a thoroughly fragmented settlement . . . [these villages] would not have been able to clear large tracts of woodlands or to construct irrigation works miles from home’ (Schulte Nordholt 1996: 57).

In the course of the eighteenth century the sawah area probably expanded under the encouragement of the Mengwi dynasty. But this did not mean that the king centrally controlled the whole. If his control of manpower in the region was limited, his say in the matter of irrigation was no less so. The example of Sibang shows that the larger satellites each managed their own irrigation works and the concomitant taxes



and servitude. The effect of this was that the position of the satellites in relation to the centre was quite strong. The satellites were micro kingdoms (Schulte Nordholt 1996: 61).

Thus, according to Schulte Nordholt, the mobilization of labor to expand irrigation into previously forested regions of western Bali was accomplished by the lords of these 'micro kingdoms'. Eventually, local water temple clusters merged into the region-wide system of ritualized water control depicted by the annual rites of the temple Pura Taman Ayun.

The creation of large dams by groups of subaks was documented in the early twentieth century by engineers working for the Dutch colonial government. The Dutch completed their conquest of south Bali in 1908, and in 1912 the colonial government began to map the subaks and irrigation systems of south Bali. An irrigation engineer, O.W. Sørensen, described the construction of large storage dams by the subaks in a 1921 engineering report:

Because of the deep ravines, dams that hold the water up high are necessary to make irrigation possible. Especially in the district of Gianyar, we find dams of great height (up to 35 meters). In most cases as a result of the irregular terrain the digging of tunnels is necessary, often of respectable length. From there the water follows an open canal to reach the sawahs. The maintenance and repairs of the dams and canals rests with the subak members, who at the charge of the pangloerah, the head of one or more waterschaps [water districts], and under the supervision of the heads of the subaks, the pekasehs, must execute the necessary labor. The same with the construction of new dams: the execution and the costs are borne by those who later will profit from the dam...The best tunnel builders are found in Klungkung and they enjoy a very good reputation all over Bali, so the help of these specialists is always invoked for that kind of work.

(Sørensen 1921: 116; translated by J.S. Lansing)

Sørensen provided diagrams, photos and descriptions of some of the large dams constructed by the subaks. Dam construction began in the dry season when flows are low, with the construction of a row of baffles or obstacles in the river where sediment would build up. Larger tunnels were dug on one or both sides of the dam, and the flow diverted so that the dam could be raised and strengthened. These dams were vulnerable to the high flow volumes of the rainy season. Sørensen comments:

The normal principle followed by the Balinese in the construction of a prise d'eau is an earthen blocking dam in the river; the dam in general is built up quite a bit above the banjir (flood) height and the top is planted



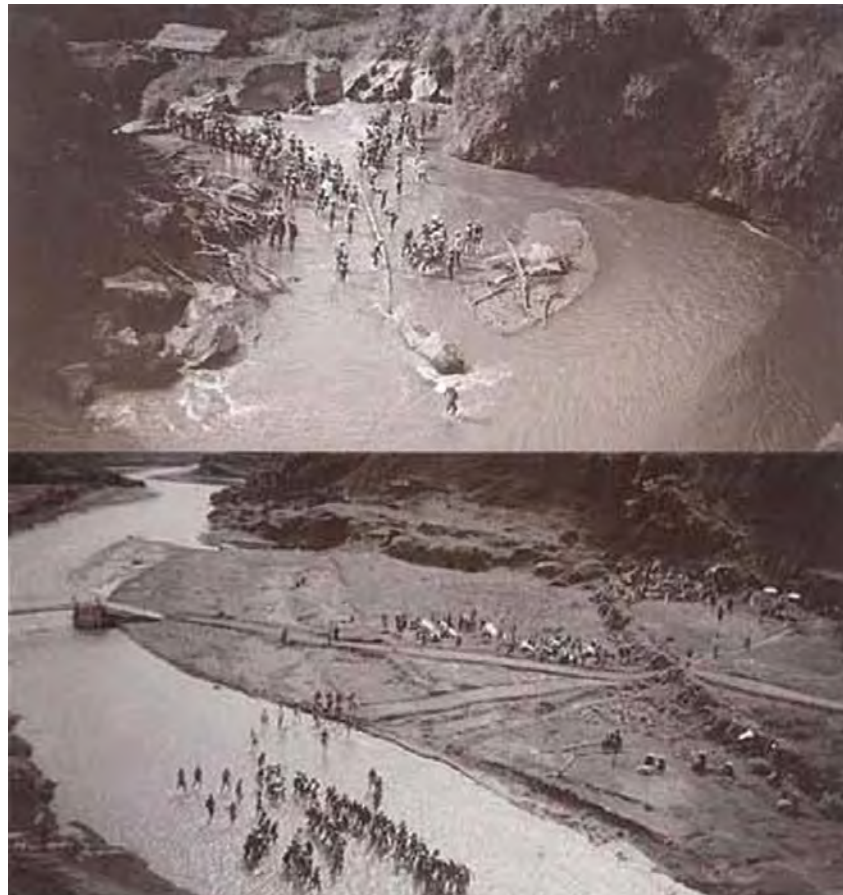
with coconuts, along grass etc. To be able to get rid of the banjir (flood) water, on one of the banks a canal is dug that serves as an overflow duct. The dams that are built rather solidly hardly ever suffer from overflow since they are sufficiently high above the height of the banjir; the weak point of the Balinese waterworks lies in the overflow canals.

(1921: 116)

These large dams could retain a large quantity of water to be released in the dry season. A small water temple was placed atop the larger dams. Sörensen provides sketch maps and photos of some of the most impressive dams:

The old indigenous dam of Badoeng consisted of a broad approximately 40 meter high earthen dam with two canals for overflow, one on the right and another on the left bank of the river, and a water outlet which delivered water for about 478 bouw sawahs.

(1921: 118)



Photos of the construction of the large dam of Pejeng by local subaks, taken during a visit by the Governor General of Netherlands Indie in 1925. This dam is included within the Pakerisan nominated area. Source: archives of the KITLV.



Thus the temple Pura Taman Ayun reflects the historic expansion of the subak system, in which large multi-subak dams were constructed at lower elevations and the rajahs assisted in subak rites which extended along entire watersheds, from the mountain lakes to the sea. According to the royal chronicle of the kingdom, the Babad Mengwi, the temple Pura Taman Ayun was dedicated in 1634 A.D.³⁹ In 1890, war between the Kingdoms of Mengwi and Badung compelled the Royal Family of Mengwi to abandon the temple grounds, leaving the area in a state of neglect. Upon the return of the royal family in 1911, the temple grounds were restored and returned to their original function. Subsequently, in 1917, an earthquake caused the collapse of some temple structures. Nearly 40 *adat* villages and the *subak* Batan Badung contributed to the restoration of the temple.

³⁹ A.J. van der Heijden, "Het Waterschaps Wezen in het voormalige Zuid-Balische Rijks Badoeng en Mengwi", *Koloniale Studien* 9: 431 (1925). H. Schulte Nordholt, *Een Balisches Dynastie, Hierarchie en Conflict in de Negara Mengwi 1700-1940*. (Amsterdam: Dissertation in the Vrije Universiteit, 1988). V.E. Korn, *Het Adatrecht van Bali*, 2nd uitgave. (The Hague: Martinus Nijhoff, 1932).



CHAPTER THREE

JUSTIFICATION FOR INSCRIPTION



CHAPTER THREE

JUSTIFICATION FOR INSCRIPTION



Architecture of Prasada Agung (Pura Mengening)
Represents a Sacred Mountain

3.a Criteria under which Inscription is Proposed (and Justification for the Inscription under these Criteria)

- (ii) ***Exhibit an important interchange of human values, over a span of time or within a cultural area of the world, or developments in architecture or technology, monumental arts, town-planning or landscape design***

The *subaks* and water temple networks of Bali reflect the Balinese philosophical principle ***Tri Hita Karana*** (“three causes of goodness”), which promotes an harmonious relationship between the individual and the realms of the spirit (*parhyangan*), the human world (*pawongan*) and nature (*palemahan*). This abstract idea is given concrete realization in the lives of the Balinese through the institutions of *subaks* (ancient, democratic self-governing farmer’s associations) and water temples, which give spiritual meaning to the governance of the rice terrace ecology. Since the twelfth century, water temple networks have expanded to manage the ecology of rice terraces at the scale of whole watersheds, transforming the volcanic landscape into faceted terraces whose jewel-like perfection creates general prosperity.

The origin of the concept of *Tri Hita Karana* can be traced to the oldest temples built by Javanese kings on the volcanoes of central Java, in the first millenium



A.D. Physically these monuments show evidence of contact with South Asian religious and architectural traditions, but in their written charters they are not described as sites for the worship of Indian gods or Boddhisattvas. Rather, following an older Austronesian tradition they are depicted as ancestor temples; burial places for Javanese kings whose spirits were invoked, along with the spirits of the gods who dwell on the volcanoes, to protect the royal palace and if necessary to act upon a curse. Syncretism is also apparent in the association of many mountain temples with springs. From the 9th century onwards, most temples were located beside natural springs in order to create sacred bathing pools (*tirtha*, *patirthan*).¹ Later Javanese temples incorporated symbolic references associating the holy springs (*patirthan*) of the mountain temples with *amrta*, the water of immortality described in Hindu myths, and to the goddesses of fertility. Later on, when kings began to fill the plains and valleys of East Java with temples, wherever possible temples enclosed sacred springs and bathing pools.

In Bali, the term *tirtha* came to refer not to the spring itself but to the holy water that flowed from it. A ritual performed inside the temple could transform ordinary water into *tirtha*, imbued with the essence of the temple's god. Eventually, the primary sacrament of Balinese religion became an exchange in which worshippers offered the fruits of their labors to a temple's god in return for a blessing of *tirtha* that could be sprinkled on them and also on their offerings, children, houses, fields, tools and livestock. By obtaining *tirtha* from several temples, one could combine the blessings of several gods. Particular temples came to be associated with specific functions or purposes, and also with the human congregations that supported them. *Tirtha* from these temples could be

¹ In Sanskrit, *tirtha* is "a passage, way, road, ford, stairs for landing or for descent into a river, bathing place, place of pilgrimage on the banks of sacred streams; also "one of the ten orders of ascetics founded by Samkaracarya", and in a more general sense, a sacred preceptor or guru (Monier Monier-Williams, A Sanskrit-English Dictionary, Motilal Banarsidass Publishers, Delhi 1993 [1899]:449). In Old Javanese, these primary meanings are retained, but to them is added a secondary meaning: holy water in general (P.J. Zoetmulder, Old Javanese-English Dictionary, Part II, Martinus Nijhoff, 's-Gravenhage 1982:2019). In modern Balinese, only the meaning of *tirtha* as holy water is retained (Kamus Bali-Indonesia, Dinas Pendidikan Dasar Propopinsi DATI I Bali, 1990:732). Van der Tuuk's Kawi-Balineesch-Nederlandsch Woordenboek offers tentative translations of several compounds derived from *tirtha*, including holy river, possibly pilgrimage, and the performance of a religious purification consisting of bathing for a month and seven days, but does not clearly distinguish between the Old Javanese and modern Balinese meanings (Batavia: Landsdrukkerij, 1899, Vol. III:599).



used to express not only the functional blessings of the gods, but relationships between the human groups that comprised each temple's congregation.

In a similar way, the metaphor of water flowing from a sacred origin was used to define relationships among *subaks*. *Subak* temples are built to commemorate the sites where water originates, such as springs, crater lakes and the weirs where irrigation systems begin. All of the farmers who benefit from a particular flow of water share an obligation to provide offerings in return for *tirtha* at the temple where their water originates. If six *subaks* obtain water from a given weir, all six belong to the congregation of the water temple associated with that weir. Thus the larger the water source, the larger the congregation of the water temple.

Eventually, the religion of Bali came to be known as the religion of *tirtha*. The metaphor of water flowing from a sacred source was joined to the ancient Austronesian concept of descent from a sacred origin. When this symbolism was applied to the physical landscape of Bali, the summits of the volcanoes became doubly sacred. Already populated by both Hindu gods and the deified ancestors of kings and lineage founders, the summits with their crater lakes became the ultimate source of *tirtha*. In this way, the island itself became a metonym for a concept of the sacred that drew from both Indic and Austronesian sources.

Thus it is possible to trace both the origins of the concept of *Tri Hita Karana*, and the physical expression of that idea in the landscape and social institutions of Bali, to the very beginnings of Balinese civilization. The magnificent rice terraces, water temples, rituals and ceremonies performed by the farmers testify to the unique power of this idea to shape a cultural landscape that Jawaharlal Nehru called "the morning of the world."

(iii) *Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared*

The water temples, *subaks*, forests, lakes and rice terraces of Bali are living expressions of the ancient philosophical concept of *Tri hita karana*. Each year, the congregations of the water temples perform an intricate series of rituals, offerings and artistic performances that are intended to sustain an harmonious relationship with their natural and spiritual existence. Over the centuries, the physical landscape of Bali has been reshaped in conformity with these philosophical ideas. Some of the *subaks* and water temples included in this nomination appear to have been in existence since the twelfth century.



Although ‘*subak*’-like organizations may have existed on Java for a few centuries beginning in the 9th Century AD, at present they only survive in Bali. The water temples built and maintained by the *subaks* include ancient monuments as well as more modern structures. Today, the water temples are still actively used and maintained by the local populations.



Piodalan ceremony at Pura Taman Ayun, 1950

(v) *Exhibit an outstanding example of a traditional human settlement or land-use which is representative of a culture (or cultures), especially when it has become vulnerable under the impact of irreversible change*

Balinese water temple networks represent a unique response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area. The mountainous nature of the island with deep ravines and seasonal rains has created an ecosystem that is prone to water scarcity and threats of disease and pests. Water temple networks traditionally cope with these problems by enabling clusters of *subaks* to adjust irrigation schedules at the watershed scale, controlling pests by inducing synchronized fallow cycles. Although each *subak* focuses on the management of its own rice terraces, a global solution to water allocation emerges from the temple networks, optimizing irrigation flows for all. This thousand-year-old system is now experiencing new problems due to development pressure, fragmentation of the landscape, and pollution from agricultural chemicals.

The democratic and egalitarian farming practices of the *subaks* enabled the Balinese to become the most prolific rice growers in the archipelago. But today the very survival of the *subaks* is uncertain. There are four major threats. The first is the cumulative effect of the over-use of agrochemicals, leading to loss of soil fertility (Lansing et al 1991: 383-390; Marion et al 2005). The second is the uncontrolled expansion of tourism, which leads to the sale and fragmentation of the rice terraces. The third is the loss of forest cover and consequent water



shortages. On this issue, the Governor of Bali, I Made Mangku Pastika, was quoted as follows on October 4 2008 in the *Bali Times*:

"We are very concerned about the environmental problems in Bali, because our forests now are only 22% of the whole area in Bali — according to our laws there should be at least 30% — and of this 22% only 59% is in good condition and can function as a real forest." Demand for wood was three times what legal logging could supply, so that even young trees are cut down, eating into the remaining forest, Pastika says. "The next problem this creates is water. Now from 400 rivers there are 260 dry. We have 140 left, but they are in the process of drying." Bali's environmental balance is under threat, he says. "First we have to talk about the environment; that is the most important thing. This is the relationship of our life. First is water, forests needs water, water needs forests. Water is the source of life. "Water levels are decreasing. People are exploiting water, taking deep water. There is a massive exploitation of our underground water by hotels and big companies like Coca-Cola. The process of drying is destroying our environment."

The fourth major threat to the survival of the *subaks* and rice terraces is the low price of hybrid Green Revolution rice grown with chemical fertilizers. Organically grown native Balinese rice sells for a much higher price, but decades of support for chemical fertilizers and Green Revolution plants have made it hard for farmers to return to organic production of Balinese rice. As long as farmers can only grow cheap hybrid rice, rising land prices and increasing living costs tempt them to sell their land and seek alternative professions (Lorenzen and Lorenzen 2005).

(vi) *Be directly or tangibly associated with events or living traditions, with ideas or beliefs, or with artistic and literary works of outstanding universal significance*

Balinese water temples are unique institutions, which for more than a thousand years have drawn inspiration from several ancient religious traditions including Saivasiddhanta and Saṃkhyā Hinduism, Vajrayana Buddhism and Austronesian cosmology. The focus of water temple rites is the maintenance of harmonious relationships between humans and the natural world. This is achieved through active engagement with spiritual concepts, emphasizing the dependence of the human community on the life-sustaining forces of the natural world. These ideas are expressed through the musical traditions of various types of orchestra; dramatic performances such as topeng, gambuh, wayang, rejang and baris; the reading of poetry in four languages (Sanskrit, Balinese, Old and Middle Javanese); the creation and dedication of offerings made of flowers, fruits and



rice; and the performance of rituals by priests and the congregation. The temples themselves are continually repaired and embellished by stone masons, sculptors, woodcarvers and painters.

The traditions sustained in the rites of the water temples are a direct and tangible reflection of Balinese original ideas and beliefs which crystallize the Tri Hita Karana philosophy. The significance of this philosophy is not only locally and nationally recognized, but also internationally appreciated. The World Tourism Organization in its meeting in Madrid (2004) admitted Tri Hita Karana as an example of proper conduct in accordance with the WTO Global Code of Ethics for Tourism.

Importantly, the concept of Tri Hita Karana is not only a religious principle. As many scholars and artists have observed, one of the most extraordinary aspects of Balinese culture is the role of the arts in Balinese villages. The annual cycle of rites in the temples provides a venue for an outstanding variety of artistic performances, including many forms of gamelan music, dramatic performances such as topeng, gambuh, wayang, Calon Arang, and poetry readings in several languages (Old Javanese, Middle Javanese, Balinese).²

3.b Proposed Statement of Outstanding Value

The *subaks* and water temple networks of Bali reflect the Balinese philosophical principle ***Tri Hita Karana*** (“three causes of goodness”), which promotes an harmonious relationship between the individual and the realms of the spirit (*parhyangan*), the human world (*pawongan*) and nature (*palemahan*). This abstract idea is given concrete realization in the lives of the Balinese through the institutions of *subaks* (ancient, democratic self-governing farmer’s associations) and water temples, which give spiritual meaning to the governance of the rice terrace ecology. Each year, the congregations of the water temples perform an intricate series of rituals, offerings and artistic performances that are intended to sustain an harmonious relationship with their natural and spiritual existence. Over the centuries, the physical landscape of Bali has been reshaped in conformity with these philosophical ideas. Water temple networks have expanded to

² Cf. Artaud, Antonin. *The Theatre and Its Double*, Trans. Mary Caroline Richards. New York: Grove Weidenfeld, 1958; Hildred Geertz, *Images of Power: Balinese Paintings Made for Gregory Bateson and Margaret Mead*, University of Hawaii Press (1994); Urs Ramseyer, *The Art and Culture of Bali*, Oxford University Press, 1987.



manage the ecology of rice terraces at the scale of whole watersheds, transforming the volcanic landscape into faceted terraces whose jewel-like perfection creates general prosperity.

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The temple networks represent a unique response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area. The mountainous nature of the island with deep ravines and seasonal rains has created an ecosystem that is prone to water scarcity and threats of disease and pests. Water temple networks traditionally cope with these problems by enabling clusters of *subaks* to adjust irrigation schedules at the watershed scale, controlling pests by inducing synchronized fallow cycles. Although each *subak* focuses on the management of its own rice terraces, a global solution to water allocation emerges from the temple networks, optimizing irrigation flows for all. This thousand-year-old cultural system is now under threat, due to development pressure, fragmentation of the landscape, and pollution from agricultural chemicals.



Aerial Photograph of Pura Gunung Kawi (Rock Cut Temple)

3.c.1 Comparative Analysis (Including State of Conservation of Similar Properties)

Here we provide two levels of comparative analyses: we begin by considering sites located in other parts of Indonesia and elsewhere in the world, and then discuss comparisons within Bali. To begin, we note that within the Indonesian archipelago, a cultural landscape comparable to Bali's *subaks* and water temples is not found. Although terraced rice fields exist in Java, Flores, Sumatra and Sulawesi, they lack elaborate irrigation organizations resembling the *subak* system of Bali. Moreover the rice-field terraces of the other Indonesian islands have no specific temples or rituals similar to the Cultural Landscape of Bali Province. The rice field terraces on Sumatra, Java and Sulawesi were built to meet technical considerations, while in Bali, the landscape also reflects the *Tri Hita Karana* philosophy.

Outside Indonesia, the rice terraces of the **Philippines Cordilleras** in Luzon, the Philippines, may be compared to the rice field terraces of Balinese *subaks*. The former are believed to have been constructed more than a millenium ago and are watered by an ancient irrigation system from the rainforests above the Ifugao Mountains. They were thoroughly mapped by Yale anthropologist Harold Conklin in the 1960's, and the results published in his *Ethnographic Atlas of Ifugao: A Study of Environment, Culture, and Society in Northern Luzon* (1980). In 1995, the Banaue rice terrace was declared a World Heritage Site. As in Bali, the



Banaue irrigation system is supported by a traditional organization, agricultural engineering, rituals and a belief system. However, the rituals and belief systems as well as the organization behind the system are quite different from those in Bali. Ifugao rituals and their belief system have no Hindu or Buddhist influence. Instead, they reflect the cosmology of a traditional tribal society. The Balinese water temples reflect a more universalistic cosmology and value system, in which the rites of agricultural labor are embedded within a grand vision of the cycles of nature and human life. Thus the prayers of innumerable farmers to the particular spirits that control life and death in their fields and progress through a pantheon of fertility gods and goddesses in the regional water temples and culminate in universal rites of fertility itself (birth, life and death: *utpeti, stithi, pralina*). Hence the addition of the Balinese *subaks* will complement the Rice Terraces of the Philippine Cordilleras in the World Heritage list. The Philippine terraces are a spectacular example of the development of terraced rice fields in a tribal landscape, while the Balinese terraces exemplify the role of wet-rice irrigation in the formation of Balinese kingdoms, and the emergence of watershed-scale ecological management by nested hierarchies of democratic *subak* assemblies.

Regarding the water temples associated with the Balinese *subaks*, nothing like them is known to exist elsewhere in South or Southeast Asia.³ As noted in chapter two, offerings to agricultural deities in these temples play a major role in the lives of the farmers. The associated beliefs reflect a uniquely Balinese contribution to the theory of elements (*bhūta*) that is a central part of the Indian philosophy of Saṃkhyā, which we now know began to have a major impact on the formation of Javano-Balinese cultural life as early as the late 1st millennium CE. Balinese water temples possess many unique features which distinguish them from the Hindu temples of South Asia (Ramseyer 2002). As the French ethnologist Jean-François Guermonprez observed in a recent study, they are noteworthy precisely “because of their capacity to selectively receive and locally transform Indic influences...[resulting] in profound transformation of religious,

³ Hermann Kulke, “The Early and the Imperial Kingdom in Southeast Asian History”, in David G. Marr and A.C. Milner, eds., *Southeast Asia in the 9th to 14th Centuries*. Canberra: Research School of Pacific Studies, Australian National University, 1986. See also in the same volume Michael Vickery, “Early State Formation in Cambodia.”



social and economic institutions.”⁴ All the temples included in the Cultural Landscape of Bali Province include profound architectural and ritual symbolism related to the life-giving properties of water, which is regarded as the most important substance in maintaining a harmonious relationship among the gods, humans, and the environment (*Tri Hita Karana*). Such a philosophy does not exist in relation to South Asian Hindu temples, or in the terraced landscape of the Philippine Cordilleras.

Perhaps the closest historical comparison to Balinese water temples may be found in the carved reliefs at the headwaters of the Russei river in Cambodia, which waters the rice fields and tanks in the vicinity of the Angkor Wat World Heritage site. These Hindu reliefs were carved into the rock of the riverbed between the 11th and 13th centuries. They include images of the gods Vishnu, Shiva and Uma as well as hundreds of sacred linga. Archaeologists suggest that the function of these reliefs was to purify the water that flowed over them, before it entered the farmer’s fields (personal communication, Roland Fletcher). However, because these beliefs are no longer current among the local farmers, it is not possible to conclusively verify this interpretation. While it was probably an important component of classical Southeast Asian wet-rice kingdoms like Angkor, it is only in Bali that this ritualized system of water management continues to exist.⁵

⁴ Jean-François Guernonprez, La religion balinaise dans le miroir de l'hindouisme. *Bulletin de l'École française d'Extrême-Orient*, Année 2001, Volume 88, Numéro 1, p. 289.

⁵ See John Miksic, “Terraced Temple Sites”, in Gunawan Tjahjono, ed., *Architecture*. Singapore: Indonesian Heritage Series, Editions Didier-Millet and Archipelago Press, 1998:74-6.



Relief depicting the Hindu God Visnu meditating on the re-creation of the world, at the Kbal Spean Site on the Russei River in Cambodia. The God Brahma emerges from a lotus, signifying rebirth.

Looking farther afield, the Cultural Landscape of Bali may be compared with the **Agave landscape and ancient industrial facilities of Tequila**, a World Heritage site in rural Mexico that was inscribed in 2006. This comparison suggests itself because the Agave Landscape was deemed worthy of inscription based upon similar criteria to those that form the basis for the Bali nomination. Three specific criteria are common to both sites:

(ii) Exhibit an important interchange of human values, over a span of time or within a cultural area of the world, or developments in architecture or technology, monumental arts, town-planning or landscape design

In the Agave site, this criterion was fulfilled by the observation that the cultivation of agave and its distillation have produced a distinctive landscape. This is also the case for Bali, where the expansion of the *subaks* and water temple networks dramatically transformed the forested volcanic landscape over a time span of over a thousand years.

(v) Exhibit an outstanding example of a traditional human settlement or land-use which is representative of a culture (or cultures), especially when it has become vulnerable under the impact of irreversible change

In the Agave site, it was noted that “The agave landscape exemplified the continuous link between ancient Mesoamerican culture of the agave and today...” In Bali, the ancient landscape shaped by the *subaks* and water temples is now



vulnerable, with the loss of approximately a thousand hectares of rice terraces each year. Further observations are made on this point in chapter five.

(vi) *Be directly or tangibly associated with events or living traditions, with ideas or beliefs, or with artistic and literary works of outstanding universal significance*

In the Agave site, “The Tequila landscape has generated literary works, films, music, art and dance, all celebrating the links between Mexico and tequila and its heartland in Jalisco.” In Bali, there is a continuous tradition of artistic traditions in the farming villages such as music, theatre, painting, sculpture and poetry, all of which are described in the letters of Balinese rulers to villages within their domains, as early as the eleventh century.

The two sites differ in the fourth proposed criterion: the Mexican site also refers to criterion 4, architecture, while the Balinese nomination includes criterion 3, because it bears unique testimony to a living civilization and cultural tradition. While tequila and other spirits are cultivated in many places, the democratic and egalitarian *subaks* and water temples of Bali are unique.

Comparison with Chief Roi Mata’s Domain in Vanuatu

The Cultural Landscape of Chief Roi Mata’s Domain in Vanuatu offers another relevant comparison. This comparison makes historical sense, because like the Philippines, Vanuatu shares with Bali a common heritage of Austronesian culture and language, dating from the era of Neolithic colonization of Island Southeast Asia and Oceania. Three sites on Efate, Lelepa and Artok islands (three of the 83 islands of Vanuatu) are associated with the life and death of the last holder of the title paramount chief or Roi Mata of what is now central Vanuatu. This chief, who lived around 1600 AD, had a profound impact on society during his lifetime and continues to be revered today for the moral values he espoused, and for his social reforms which led to widespread conflict resolution. In particular, he is said to have extended a system matrilineal kinship from land tenure to the regulation of marriage, and in this way diminished conflict between clans. He is now the central figure in oral traditions, known throughout the Pacific, and his former domain, particularly the sites of his home, death and mass burial, provide material proof of his actions, give authority to his successor chiefs, and act as contemporary sources of power and inspiration for social practices and the way people relate to their land.



This site differs from the Bali nomination in that criteria (ii) was not deemed relevant, but it shares criteria (iii), (v) and (vi). Here we offer a point by point comparison of Chief Roi Mata's Domain (hereafter CRMD) and the Bali nomination:

Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.

This criterion was justified for CRMD on the grounds that the domain is a continuing cultural landscape that reflects the way chiefs, who pay a major social role, derive their authority from previous title holders; and in particular how the *tapu* prohibitions on the use of Roi Mata's residence and burial site have been observed for 400 years and continue to structure the local landscape and social practices.

The *subak* landscape of Bali exhibits a different historical development that emerged from the Austronesian cultural heritage which it shares with Vanuatu. In the islands of Micronesia, matrilineal kinship systems are thought to have played an important role in creating functional alliances between small and vulnerable human populations. In a matrilineal chiefdom, as hypothesized for Proto-Oceanic society⁶, a man is succeeded by his sister's son. Recently Hage and Marck used genetic data to argue that matrilineal residence and matrilineal descent were widespread in Austronesian Proto-Oceanic society (2003).⁷ Neolithic Bali may similarly have passed through a matrilineal phase. But the development of irrigated rice agriculture in Bali led to a more dramatically transformed landscape of terraces and temples, which became the hallmark of classical Balinese culture. This landscape has survived to attract millions of visitors to the island each year. Unlike other major civilizations of Southeast Asia, the principal monuments of Balinese culture are not royal palaces, but rather the cultural landscape itself. Thus the Balinese cultural landscape adds an important historical component to the history of Austronesian cultural development in Island Southeast Asia and the Pacific, complementing CRMD.

⁶ Hage, Per. 1998. Was Proto-Oceanic society matrilineal? *Journal of the Polynesian Society* 107:365–379..1999a. Reconstructing ancestral Oceanic society. *Asian Perspectives* 38:200–228.

⁷ Per Hage and Jeff Marck, Matrilineality and the Micronesian Origin of Polynesian Y Chromosomes. *Current Anthropology* 44, *Supplement*, December 2003: S121-7.



Criterion (v): be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change.

ICOMOS concluded that the landscape of Roi Mataí's domain is an outstanding example of a settlement which is representative of Pacific chiefly system, particularly in the way people interact with their environment over time in respecting the tangible remains of the three key sites associated with Roi Mata and being guided by the spiritual and moral legacy of his social reforms.

The vulnerability of Bali's terraced landscape and *subak* system has already been touched upon, and will be described in greater detail later in this nomination. The tunnels, terraces and irrigation canals are quite fragile, and would cease to exist within a very short time without the constant labor of the farmers. The continued existence of Bali's terraces testifies to the importance that the Balinese attach to them, and the millions of visitors who come to see them testify to their outstanding beauty.

Criterion (vi): be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.

This criterion is justified by Vanuatu on the grounds that the landscape of Roi Mataí's domain memorialises his deeds in introducing matrilineal as a means of conflict resolution, and its value for contemporary society through Central Vanuatu, tying people inextricably to the landscape. ICOMOS considers that Chief Roi Mata still lives for many people in contemporary Vanuatu, as a source of power evident through the landscape, and as an inspiration for people negotiating their lives.

Similarly, the *subak* landscape of Bali has inspired many tributes from visitors to the island. The Indian statesman Jawaharlal Nehru famously described Bali as the "Morning of the World." Both Balinese and foreign artists such as Walter Spies have memorably depicted the *subaks* and their temples in works of visual art. Less well known are the remarks penned by Noel Coward in the register of the Bali Hotel in 1933, when he and Charlie Chaplin visited the island:



*As I said this morning to Charlie, there is far too much music in Bali!
And although the results are entrancing, there is also a thought too
much dancing.
It appears that each Balinese native from the womb to the tomb is
creative.
And although the results are quite clever, there is too much artistic
endeavor!*

Coward meant to be funny, of course (though the joke was not discovered for years), but serious anthropologists like Margaret Mead were impressed by the ubiquitous presence of the arts in the landscape of rural Bali. On returning to New York in 1937, Mead described what it was like to spend two years in an upland Balinese village:

the air was never empty of music, even in the small hours before the dawn, and it was not mere woodland piping but complicated orchestral music that bore witness to many hours of concentrated rehearsal. Upon the hundreds of stone altars of Bali, there lay not merely a fruit and a flower, but hundreds of finely wrought and elaborately conceived offerings made of palm leaf and flowers, twisted, folded, stitched, embroidered, brocaded into myriad traditional forms and fancies...Their lives were packed with intricate and formal delights.⁸

Both Mead and Coward, in different ways, draw our attention to the ways that the arts of Bali flourish in the countryside, rather than being restricted to the royal courts and elite segments of society. Similar observations may be found in major scholarly studies of the arts in Bali, such as Urs Ramseyer's *The Art and Culture of Bali* (Oxford University Press, 1987); Hildred Geertz' *Images of Power: Balinese Paintings Made for Gregory Bateson and Margaret Mead* (University of Hawaii Press, 1994), and the edited volume by Jane Belo, *Traditional Balinese Culture* (Columbia University Press, 1970). In comparison with CRMD, it is noteworthy that the artistic achievements of Bali have influenced artists on a worldwide scale. Thus in 1937, when Margaret Mead wrote her essay in praise of the Balinese arts, Antonin Artaud attended a performance of Balinese village artists at the World's Fair, which subsequently became a major theme in his most famous work, *The Theatre and its Double*. More recently, the Balinese shadow puppets helped inspire Julie Taymore's *Lion King*. For a small island, Bali has had a disproportionate influence on the arts at a global scale. One of the key

⁸ Margaret Mead, "The Arts in Bali", originally published in *The Yale Review*, Vol. XXX. No. 2 (December 1940):335-347; reprinted in Jane Belo, ed., *Traditional Balinese Culture*. New York: Columbia University Press, 1970.



themes consistently noted by artists and scholars is the vital role of the arts in Balinese villages.

3.c.2 Comparative Analysis of Sites within Bali

We turn now to the comparative analysis of the sites selected for inclusion in the Bali nomination, with other sites in Bali itself. We begin with the supreme *subak* temple Pura Ulun Danu Batur. This temple was selected because of its fundamental importance to the *subak* system and the fertility of the rice fields, according to Balinese cosmology. While each of Bali's volcanic crater lakes is associated with a temple dedicated to Dewi Danu, the Goddess of Waters, Balinese religious leaders agree that the principal home of the Goddess is Lake Batur. The ritual calendar of this temple attracts hundreds of *subaks* each year, whose voluntary offerings help to support the temple and its rites. It is also worth noting that in recent times this temple is widely acknowledged to be much better managed than the other supreme mountain temple of Bali, Pura Besakih, which is located on the slopes of Mount Agung. The managerial problems of Pura Besakih, which contributed to its failure to be proposed as a World Heritage site, are thoroughly analyzed in a recent article by Putra and Hitchcock.⁹ No such problems exist with respect to Pura Ulun Danu Batur, which enjoys a unique position as the supreme *subak* temple of Bali.

The sites selected for inclusion in the nomination also include two landscapes containing *subaks*, water temples and local environmental features (forests and human settlements). In comparison with other terraced regions of Bali, these two landscapes have several unique attributes which led to their selection. In the case of the Pakerisan landscape, two features stand out. First, archaeological and historical information described in the previous chapter indicate that this valley contains one of the oldest irrigation systems in Bali, and supported the flowering of the first great Balinese wet-rice kingdoms, whose archaeological remains are still visible today in the Pakerisan valley. Second, there is an unbroken historical continuity from ancient times to the present day. The *subaks* of Pakerisan continue to grow native Balinese rice in the traditional way; to

⁹ I Nyoman Darma Putra and Michael Hitchcock. 2005. Pura Besakih: a World Heritage Site Contested. *Indonesia and the Malay World*, Vol. 33, No. 96, July 2005: 225-237.



govern themselves in accordance with the ancient democratic traditions defined in the awig-awig lawbooks, and to perform the cycle of agricultural rites according to ancient custom. Moreover, in their responses to survey questions the farmers of these *subaks* indicated that they strongly favor the World Heritage designation so that their traditions and landscape may be conserved, protected and appreciated.

Turning now to the Catur Angga Batukaru site, we note that it does not possess comparable archaeological remains from ancient kingdoms; those are mostly found in the Pakerisan site. However, this region does contain rice terraces and temples mentioned in a tenth century royal inscription, proving that they are also among the oldest terraces and temples in Bali.¹⁰ Like Pakerisan, this site also has a continuous tradition of *subaks* and temple rites that have continued in an unbroken tradition for more than a millenium. From a comparative perspective, the existence of similarly ancient rice terraces, *subaks* and temples is also documented for other sites in Bali. For example, the twelfth century Mantring C inscription mentions offerings from *subak* leaders to a water temple in the vicinity of the Sebatu district, just to the west of Pakerisan (Goris 1929, 1954). This inscription also names several *subaks* which continue to exist today, and participate in water temple rites.¹¹ However, there has been more commercial development in the Sebatu area than in Pakerisan or Catur Angga Batukaru. In Sebatu, modern secular buildings have been constructed on land that was formerly rice terrace. Also, in the Sebatu region as in most of Bali, for several decades farmers have given up planting native Balinese rice using traditional

¹⁰ The passage which refers to wet-rice (*huma* in Old Javanese) extends privileges to persons in the region of Catuspatha, which may correspond to Catur Angga, who labor in rice fields and those who support religious establishments: “*paniungsiungyan di catuspatha, anada tu anak dharmmana, tumaku marhuma*”. Prasasti Babahan 1, #102:4. Roelof Goris, Prasasti Bali: Inscripties voor Anak Wungcu. (Bandung: N.V. Masa Baru, 1954), page 64.

¹¹ The relevant text in Old Javanese followed by English translation:
 “*pangacarani pakasaih kangamet bañu telebud ri purwwan, pakaseh kusubatu, kēdisan, jungjungan, padang tegal patolu, luntuduh, yang kamēnuh habiyanasung pari pabatēn mari purwwan pada limang tapuh sowang litan bangsa tapuh kētannya irng patampuh masa bulan gesta sabran tahun angêkē*”
 Now, the task or duty of the pakasehs who take water at Telebud [Telepud] that originates at Purwwan [Pupuan], namely the pakasehs of Kusubatu [Sebatu], Kedisan, Jungjungan, Padang Tegal, Patolu [Petulu?], Luntuduh [Lodtunduh?], Yang Kamenuh Habiyan [?], in order to carry out their duties toward the needs of the upacara [ritual] of Purwwan, amounts to five vessels [?] each of [a kind of?] black ketan [glutinous rice], levied every year during the month Jyestha. Roelof Goris, Prasasti Bali: Inscripties voor Anak Wungcu. (Bandung: N.V. Masa Baru, 1954).



farming techniques, in favor of hybrid “Green Revolution” rice grown with the aid of commercial fertilizers and pesticides. So far, the sites selected for this nomination have not experienced comparable environmental changes. Thus as well as their antiquity, the unbroken continuity of the *subak* traditions in the Pakerisan and Catur Angga Batukaru sites were important considerations in their selection.

However, the most important criterion for the choice of Catur Angga Batukaru, besides its great beauty and historic importance, was the local Balinese tradition which defines this region as a sacred landscape. As mentioned in the previous chapter, this region is regarded as the *utama mandala* (highest mandala, or sacred landscape) in western Bali. Its boundaries and sacred topography are defined by five guardian temples, whose shrines, rites and attributes attach symbolic and spiritual meaning to landscape features. In the twenty first century, no other region of Bali possesses a comparable intact mandalic structure as a sacred landscape of *subaks*, forests and temples. For example, the region of Sidemen, located to the east of the Pakerisan valley, also contains guardian temples but lacks the cohesive mandalic structure of Catur Angga Batukaru. Furthermore Sidemen, like Sebatu, has also experienced some commercial development, and has largely adopted Green Revolution agriculture. Thus while Sebatu and Sidemen are also possible candidates for future inscription, neither is as immediately suitable as the Pakerisan and Catur Angga Batukaru sites. Elsewhere in Bali, other possible sites suffer from one or more deficiencies, such as environmental degradation, or lack of comparable historical or religious significance. For these reasons, the supreme *subak* temple Ulun Danu Batur and the *subaks* of Pakerisan and Catur Angga Batukaru are regarded as the finest exemplars of the *tri hita karana* philosophy of the cultural landscape of Bali.

Finally, the Royal Water Temple Pura Taman Ayun site is the largest regional water temple on Bali, in terms of its congregation of *subaks*, and exhibits a different functional role than any of the smaller water temples described above. From a comparative perspective, there are several other major downstream regional water temples, such as the Masceti Er Jeruk in Gianyar or the Pura Ulu Watu on the southern coast of Badung, or the temple of Sakenan on the coast of Tabanan. All of these temples are pilgrimage sites to which *subaks*, as well as other segments of Balinese society, make regular visits to give offerings and seek holy water. However, none of the other temples play a major role in the collection



and distribution of holy water from the mountain lakes to a large downstream congregation of *subaks*. Their role in the annual cycle of *subak* activities is thus more religious than functional. The Royal Water Temple Pura Taman Ayun thus uniquely exemplifies the integration of functional and cosmological roles in the largest *subak* landscape of Bali.

3.d Authenticity/Integrity

For the sake of clarity we will distinguish between the authenticity and the integrity of the sites that comprise this nomination, and discuss them one by one. The authenticity of the supreme *subak* temple Pura Ulun Danu Batur can be considered from two perspectives: do the farmers of Bali regard it as an authentic manifestation of their beliefs, and does it possess a well-documented history? The answer to both questions is affirmative. Each year more than two hundred and fifty *subaks* bring offerings to the temple, and dozens of village orchestras participate in the ceremonial processions that mark the culmination of the ritual cycle at the full moon of the tenth Balinese month. The temple is staffed twenty four hours a day, every day of the year, to accommodate the needs of farmers and other worshippers from all of Bali. It is invariably included in the list of the most important temples of Bali, called *Kahyangan Jagat*.

With regard to its historical authenticity, there are three sources: Balinese lontar manuscripts, Balinese oral history, and descriptions by colonial and post-colonial European observers. All of these sources provide richly detailed descriptions of the role of the temple in prior centuries. The temple possesses a collection of centuries-old *lontar* manuscripts which detail its functions and relationship with other Balinese institutions, including specific ties to forty five named villages. These manuscripts, the *Rajapurana Ulun Danu Batur*, have been transcribed by a Balinese scholar, Dr Putu Budiastira, and copies are kept in the Bali Museum in Denpasar.¹² Oral histories pertaining to the temple are extensively discussed in Thomas Reuter, *Custodians of the Sacred Mountains: Culture and Society in the Highlands of Bali* (University of Hawaii Press, 2002). Colonial records pertaining to the temple are analyzed in Lansing (2006, 2007), these are briefly summarized

¹² Budiastira, P. 1975. *Rajapurana Pura Ulun Danu Batur*, Kintamani, Bangli. vol. 1 (1975), 2 (1979). Denpasar: Museum Bali.



in the preceding chapter. From all of these sources it is clear that this temple has been regarded as the supreme *subak* temple of Bali for centuries.

The question of the integrity of the temple is a slightly more complex issue. As noted in chapter two of this nomination document, the present-day temple was constructed in the 1930's after a volcanic eruption buried its predecessor under a lava flow. This event, and the relocation and subsequent reconstruction of the temple, are thoroughly documented (with eyewitness accounts and photographs) by Dutch colonial officials, summarized in Lansing 2006. However, it is important to note that it is the usual custom for the Balinese to continuously refurbish, modify and embellish their traditional architecture, including religious sanctuaries. It is clearly stated in the 1994 Nara Document that the authenticity of cultural heritage should be considered and judged within the cultural context in which it belongs. For the Balinese, it is not the material aspects of culture which determine the authenticity of their cultural heritage, but the ongoing traditions. Much of Balinese material culture is comprised of degradable materials such as wood and soft volcanic tuff. Therefore, it is common practice for the Balinese to renew and replace the material aspects of their temples and other structures as the materials become worn and climatological circumstances warrant. However, the shrines, rituals and architecture of the temple all have deep historic roots. The continuity of the layout of shrines and major architectural features is apparent from the plans, sketches of the Dutch architect P.A.J. Moojen, summarized in Lansing 2006 and in chapter two of this nomination document. This temple is part of a living tradition with a well documented history.

With regard to the authenticity of the Pakerisan site, the archaeology and history of this site were described in detail in the previous chapter. The earliest written inscription pertaining to Pakerisan is dated 962 A.D., and describes the Balinese king Chandrabhayasingha Warmmadewa's construction or improvement of a bathing place at Tirtha Empul, complete with a dam and two pools (Ardika and Beratha 1996: 112- 113; Goris 1954: 197, Stutterheim 1929-30: 68-69). The inscription is discussed by W.F. Stutterheim in his book: "Oudheden van Bali" (1929) and by R. Goris (1954) and L.C. Damais (1957). In 1972, part of Pura Tirtha Empul was damaged by an earthquake. Restoration was made by the community, but no detailed record was made. Since 1983, the Office for Heritage Conservation in Bali and Lesser Sunda (based in Gianyar, Bali) assisted in the



restoration of some damaged parts of the pura and the restoration was completed in 1990.

Thanks to the combined efforts of the local communities and the Office for Heritage Conservation, the integrity of the Pakerisan site has been very well preserved. Commercial development has been excluded, except for a small collection of retail shops lining a visitor's walkway that descends to the site of several royal tombs. Otherwise, the landscape of terraced ricefields and archaeological remains is fully intact. The clear waters from the spring, which feed the streams and irrigation canals, are pure and unpolluted.

The authenticity of the Catur Angga Batukaru site as one of the earliest locations where paddy rice was grown in Bali is attested by the copper-plate inscription described above: Babahan 1, dated 947 A.D., issued by the Balinese king Sri Ugrasena (Goris 1929:64-5). Moreover the extraordinary historical continuity of the ritual system of water temples is demonstrated by the treatment of this copper—plate inscription: like the famous stone inscription of Manukayu (described in chapter two), this prasasti is periodically transported from its home in a village temple to a local water temple (Pura Luhur Besikalung) where it serves as a reminder to the farmers of traditions of worship stretching more than a millenium into the past. As noted earlier, this inscription describes the visit of an early Balinese king to a site called Buwunan; it is kept in the nearby village temple Pura Puseh Jambelangu of Babahan. The inscription fixes the borders of a temple or asrama Petung Bang Hyang Sidhi, which is believed to be the precursor to the temple Pura Luhur Besikalung, one of the four “Guardian temples” that jointly define the sacred landscape of Catur Angga Batukaru. This inscription also refers to local streams and wet-rice agriculture, which supports the genetic evidence that this region was one of the earliest sites in Bali for irrigated rice cultivation.¹³ Like the inscription of 962 A.D. at Tirtha Empul described above, associated with the Pakerisan site, this prasasti dates the farming community of Babahan (and its responsibilities to the temple) to the earliest period of Balinese kingdoms.

¹³ The passage which refers to wet-rice (huma in Old Javanese) extends privileges to persons in the region of Catuspatha, which may correspond to Catur Angga, who labor in rice fields and those who support religious establishments: “paniungsiungyan di catuspatha, anada tu anak dharmmana, tumaku marhuma”. Prasasti Babahan 1, #102:4. Roelof Goris, *Prasasti Bali: Inscriptions voor Anak Wungcu*. (Bandung: N.V. Masa Baru, 1954),page 64.



The question of the integrity of the Catur Angga Batukaru site may be addressed as follows: so far the *subaks* of this region have for the most part successfully resisted destructive development pressures, but the great beauty of this site has led to ever-growing pressure for commercial development. Today visitors to Bali are lured by photographs of gorgeous rice-terrace landscapes. These postcard views are almost invariably photographs of either the Pakerisan or Catur Angga Batukaru sites. Photographic safaris to both sites are a daily occurrence. But while visits by tourists who wish to photograph the views are welcome, there is now increasing pressure on the farmers to sell their rice fields for commercial development: retail shops, hotels or villas. One can see the effects of this kind of unplanned commercial development in other regions of Bali, like Denpasar or Ubud. The Catur Angga Batukaru is also much larger than the Pakerisan site, and until now the absence of major archaeological sites has meant that the Office for Heritage Conservation has had only limited involvement in site conservation. Thanks to the efforts of the local communities of Catur Angga Batukaru, this ancient sacred landscape is still largely authentic; its great beauty and rich history have been preserved. But in the opinion of local village leaders as well as staff of the Office for Heritage Conservation, it is poised on the brink of irreversible changes, such as those which have occurred in the vicinity of Ubud. This issue lends urgency and impetus to the desire of the Balinese people to designate Catur Angga Batukaru, Pakerisan and Pura Ulun Danu Batur as a World Heritage cultural landscape.

Finally, the authenticity of the Pura Taman Ayun is attested by both Balinese and colonial written records. According to the royal chronicle of the Mengwi Dynasty, creators of the temple, it was dedicated in 1634 A.D.¹⁴ In 1890, war between the Kingdoms of Mengwi and Badung compelled the Royal Family of Mengwi to abandon the temple grounds, leaving the area in a state of neglect. Upon the return of the royal family in 1911, the temple grounds were restored and returned to their original function. Subsequently, in 1917, an earthquake caused the collapse of some temple structures. Nearly 40 *adat* villages and the *subak* Batan Badung contributed to the restoration of the temple, attesting to its importance for

¹⁴ A.J. van der Heijden, "Het Waterschaps Wezen in het voormalige Zuid-Balische Rijks Badoeng en Mengwi", *Koloniale Studien* 9: 431 (1925). H. Schulte Nordholt, *Een Balisches Dynastie, Hierarchie en Conflict in de Negara Mengwi 1700-1940*. (Amsterdam: Dissertation in the Vrije Universiteit, 1988). V.E. Korn, *Het Adatrecht van Bali*, 2nd uitgave. (The Hague: Martinus Nijhoff, 1932).



villagers as well as the royal court of Mengwi. The functional role of the temple at this time was described by a colonial official, A.J. van der Heijden, in 1925.¹⁵ Subsequently the relationship of the temple to the Mengwi dynasty was the subject of a doctoral dissertation by Henk Schulte Nordholt in 1988.¹⁶ A revised English language version of the dissertation was subsequently published in 1996.¹⁷



Local Community of Mengwi Bring Offering
at Piodalan Ceremony at Taman Ayun

¹⁵ A.J. van der Heijden, "Het Waterschaps Wezen in het voormalige Zuid-Balische Rijks Badoeng en Mengwi", *Koloniale Studien* 9: 431 (1925).

¹⁶ H. Schulte Nordholt, *Een Balisches Dynastie, Hierarchie en Conflict in de Negara Mengwi 1700-1940*. (Amsterdam: Dissertation in the Vrije Universiteit, 1988). V.E. Korn, *Het Adatrecht van Bali*, 2nd uitgave. (The Hague: Martinus Nijhoff, 1932).

¹⁷ Henk Schulte Nordholt, *The Spell of Power: A History of Balinese Politics 1650-1940*. Leiden: KITLV Press, 1996



CHAPTER FOUR

**STATE OF CONSERVATION
AND FACTORS AFFECTING THE PROPERTY**



CHAPTER FOUR

STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY



Subak Jatiluwih Rice Terrace Field

4.a Present State of Conservation

Overview

This nomination encompasses two clusters of Balinese *subaks*, the supreme *subak* temple Pura Ulun Danu Batur and the Royal Water Temple Taman Ayun. Each of the *subak* clusters includes rice terraces, irrigation works, water temples, villages and forests. The nomination also includes three of the four Balinese lakes. All of the *subaks* and water temples are presently functioning. But all the *subaks* are experiencing varying levels of threats to their environmental and economic viability. Here we briefly outline the nature of those threats. Later sections of this chapter provide information about specific vulnerabilities in each of the nominated sites.

The major threats to the *subaks* fall into these categories:

1. Loss of soil fertility and paddy ecology



2. Low income from rice farming
3. Reduction of forest cover and spring flow
4. Commercial development and land conversion

To explain why these problems have developed, it is necessary to provide some background information about changes to the ecology and economics of wet rice farming in Bali since the 1970's. Before that time, traditional farming methods practiced by the *subaks* took advantage of natural ecological processes. Tropical rains leach minerals from the glassy and pumiceous ignimbrite rock, and canal irrigation systems capture the flow from streams, rivers and springs, transporting dissolved minerals directly to the rice paddies. Nutrient-rich volcanic soils combined with microbial nitrogen fixation and traditional harvest methods that left much of the plants in the fields meant that farmers growing traditional slow-maturing rice varieties could escape the need to fertilize their rice paddies. The paddies develop hard bottoms called plough pans that reduce seepage and create pond-like aquatic ecosystems where the loss of nutrients is minimized.¹

Major changes began in the 1970's with the introduction of the "Green Revolution" in rice agriculture. The Green Revolution replaced native rice varieties with hybrid seeds engineered to grow faster, to produce more grain and to make efficient use of inorganic chemical fertilizers. Dozens of warehouse complexes were built in rural Bali, in order to make hybrid rice seeds and agrochemicals (bundled into "technology packets") available to the farmers on credit. The cost of the technology packets was recouped by deducting it from the farmer's profits when they returned to the warehouses to sell their harvests.

The application of inorganic fertilizers to high-yielding hybrid rice varieties increased average grain yield from 1.53 ton in the 1960's to 4.2 ton ha⁻¹ in 2000 (Wiguna 2002:14).² But the use of large quantities of inorganic fertilizer had unexpected consequences. Since the 1970's the maximum retail prices of nitrogen, phosphate and potassium fertilizer to Balinese farmers were never more

¹ G.E. Wheller, R. Varne, J.D. Foden and M.J. Abbot, "Geochemistry of Quaternary Volcanism in the Sunda-Banda Arc, Indonesia, and Three-component Genesis of Island-Arc Basaltic Magmas", *Journal of Volcanology and Geothermal Research* 32 (1987), 137-160.

² Wiguna, I.W.A.A. 2002. Kontribusi Sistem Usaha Tani Padi Sawah terhadap Pengkayaan Hara Nitrogen, Fosfor dan Kalium Aliran Permukaan pada Ekosistem Subak di Bali. *Doctoral Dissertation*, Environmental Sciences, Bogor Technical University, Indonesia.



than half the world price. Prices were annually adjusted according to the “farmer formula” (rumus tani), a ratio of the price of urea fertilizer to the support price for dry rice paddy (gabah). These fertilizer subsidies “constitute a significant financial burden to the government,” observed economist Frederick C. Roche (1994:59).³

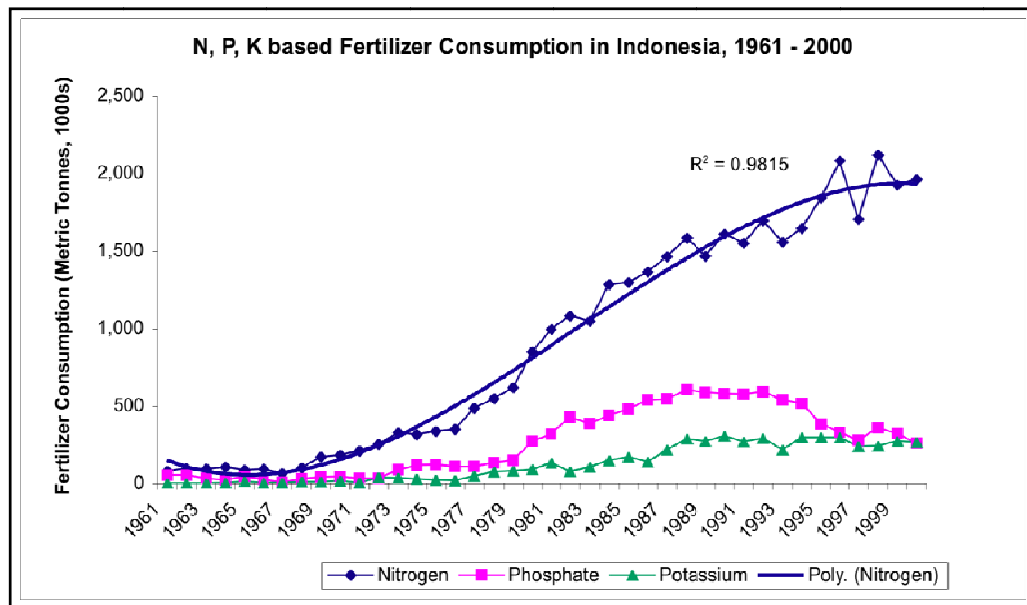


Fig. 4.1 Fertilizer consumption in Indonesia, 1961-2000. The rate of growth over the past 15 years was about 16% per annum. Indonesia achieved self-sufficiency in rice in 1984. Since then most of the fertilizer used in Indonesia (72%) has been used for lowland rice, and only 13% for non-rice food crops. Source: Indonesian Ministry of Agriculture.

In the past two decades, research by ecologists indicates that two hitherto neglected pathways exist for the continuous natural replenishment of phosphate and potassium in rice paddies: the frequent deposition of volcanic ash; and the transportation of leached minerals in irrigation water. Together these effects provide more than enough phosphate and potassium for high yielding rice. The superfluous fertilizer applied by the farmers washes directly into the rivers, where concentrations increase steadily until entering the coastal zone, threatening the coral reefs that encircle the island.⁴ But by adjusting fertilizer inputs appropriately,

³ Frederick C. Roche , “The Technical and Price Efficiency of Fertilizer Use in Irrigated Rice Production”, *Bull. Indo. Econ. Stud.* Vol 30 No 1, April 1994, pp. 59 – 83; James J. Fox, “Managing the Ecology of Rice Production in Indonesia”, in Joan Hardjono, ed., *Indonesia: Resources, Ecology and Environment*. Oxford University Press, 1991: 61 – 84.

⁴ Guy S. Marion et al. “Coral Skeletal ¹⁵ Reveals Isotopic Traces of an Agricultural Revolution”. *Marine Pollution Bulletin* 50:9 (Sept 2005): 931 – 944.



the natural fertility of the volcanic landscape can continue to provide bountiful harvests.

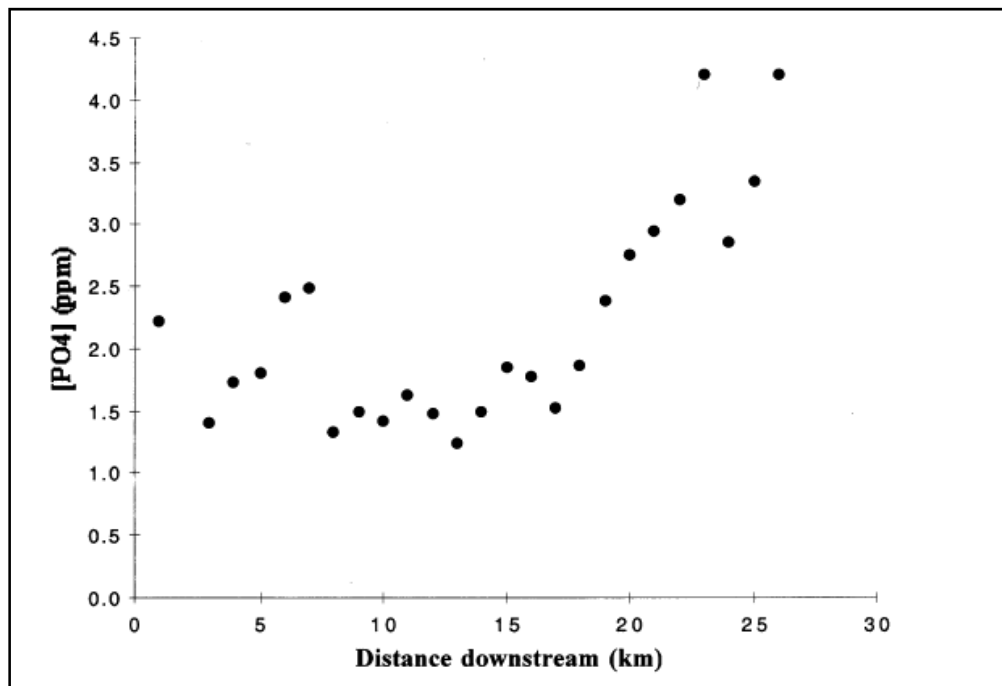


Fig. 4.2 Dissolved reactive phosphate (PO_4) measured in spring and river water showing a pattern of increasing concentration downstream from river headwaters in the Bangli and Gianyar regencies of southeastern Bali, July 1997. Source: Lansing et al. 2001.

A recent study of nitrogen isotopes in the coral reefs identified excess nitrogen fertilizer as responsible for the growth of destructive macroalgae on the reefs:

*We suggest that the $d^{15}\text{N}$ of residual organic nitrogen in long-lived *Porites* skeletons serves as a historical environmental proxy for water quality by aiding in the identification of past variability in nitrogen provenance. This isotopic tracer of chemical fertilizers in coral skeletons suggests that the intensification of Western style agricultural practices since 1970 are contributing to the degradation of coastal coral reefs in Bali.⁵*

⁵ Guy S. Marion et al. 2005. "Coral Skeletal $d^{15}\text{N}$ Reveals Isotopic Traces of an Agricultural Revolution". *Marine Pollution Bulletin*.

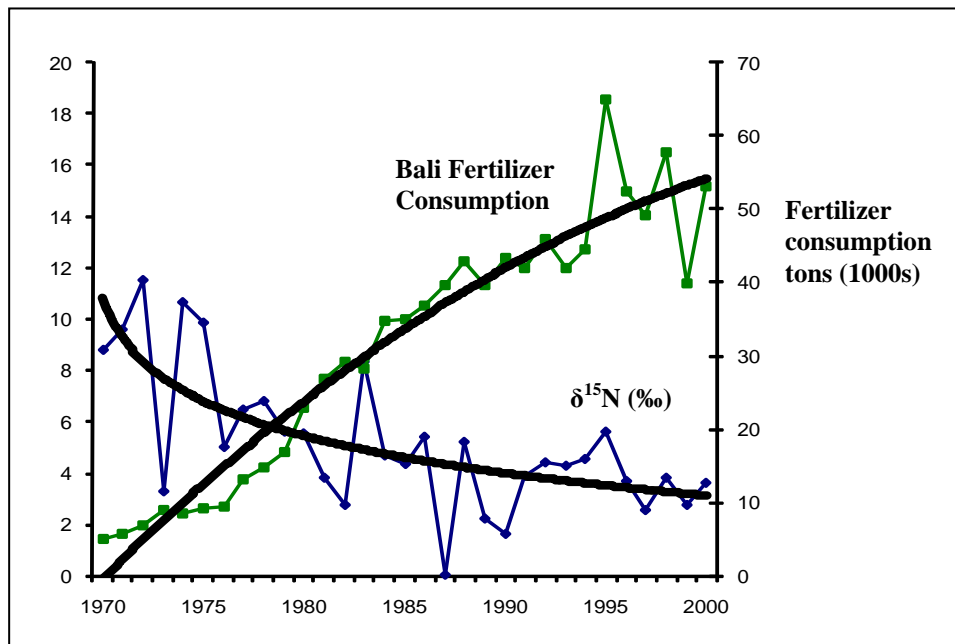


Fig.4.3 Nitrogenous synthetic fertilizer consumption in Bali (metric tons, 1000s) is significantly and inversely correlated ($R^2 = 0.40$) to the long-term logarithmic decline in the $\delta^{15}\text{N}$ of organic matter in the *Porites* skeleton obtained from a reef in the agricultural drainage near the agricultural area of Amed, east Bali. The decline of the $\delta^{15}\text{N}$ is clearly evident, and reflects the increase in fertilizer application.

The over-fertilization of Balinese rice paddies added excess quantities of chemical inputs to an island ecology that had already been damaged by the application of chemical pesticides, as noted in a 1988 World Bank study.⁶ The introduction of pesticides bypassed a more effective and relatively cost-free traditional method of pest control based on the control of irrigation flows: by synchronizing irrigation schedules and planting the same rice varieties over large areas, Balinese farmers deliberately induce region-wide fallow periods. The paddies are dried for harvest, left fallow and then flooded for the next planting cycle, depriving most pests (rats, insects and insect-borne diseases) of their habitat. Computer simulation modeling indicates that this system of region-wide pest control is self-organizing if left unperturbed.⁷

⁶ Badruddin Machbub, H.F. Ludwig and D. Gunaratnam, "Environmental Impact from Agrochemicals in Bali (Indonesia)"; *Environmental Monitoring and Assessment* 11 (1988): 1 – 23.

⁷ J. Stephen Lansing and James N. Kremer, "Emergent Properties of Balinese Water Temples", *American Anthropologist* 95 (1) [March 1993]:97-114; J. Stephen Lansing, James N. Kremer and Barbara B. Smuts, "System-dependent selection, ecological feedback and the emergence of functional structure in ecosystems", *Journal of Theoretical Biology* 192 (1998), 377 – 391.



On a time scale of decades, these chemicals induce changes in the physical and biological composition of agricultural soils, leading inexorably to a gradual loss of soil fertility. For Balinese farmers, the high cost of chemical inputs combined with the low market price of Green Revolution rice and the gradual decline in soil fertility all threaten the long-term economic and ecological viability of rice farming.

Presently, rice terraces within the nominated site are located within designated Green Zone, which protects the landscape from large scale tourism development (Government of Tabanan Regency Decree No. 9, 2005). Similarly, government regulations protect the forested areas from invasive timber extraction. These laws and regulations are thoroughly discussed in the next chapter. It should be noted, however, that recently there have been some proposals to modify existing land use regulations to allow the sale of rice paddies for tourism development. For those farmers who are alarmed by the prospect of the disintegration of their *subaks*, it is this changing function of the land that has the greatest potential to undermine the *subak* institution.

Thus another set of issues affecting the present state of conservation of Balinese *subaks* is related to the expansion of the tourist industry. Ironically, the beauty of the Balinese terraced landscape draws increasing numbers of visitors, whose very presence creates hazards to the landscape features that attracts them to Bali. This problem is common to many World Heritage sites, from Venice to the lake district of England. With respect to the cultural landscape of Bali, there are two major drivers of destructive change. The first is the outright sale and conversion of wet rice paddies into buildings connected to the tourist trade. The most scenic roads in Bali are now lined with endless rows of shops selling handicrafts. This creates a “tragedy of the commons” dilemma: as shops proliferate they block the view, and competition increases among vendors selling identical products, leading to declining revenues. Eventually, visitors are no longer attracted to the area.

The second hazard is the loss of forest cover as settlements expand, which is already causing a reduction in the flow of water to rivers and springs. To this is added the pressure to divert water from agriculture for use in tourist hotels and facilities. Most recently, a building boom in tourist “villas” has accelerated. These residences are no longer confined to the usual areas of tourist development along the coast. Instead, there are plans for large numbers of villas in the upland



rice paddies. This creates another “tragedy of the commons” dilemma for the farmers. The sale of farm land to create a few luxury villas or hotels can enrich a few land owners at the expense of the continued viability of the *subak* as a whole. We conclude this brief overview of the present state of conservation of the cultural landscape of *subaks*, by noting that news stories about these problems have recently become a major theme in Bali’s newspapers and television news. We turn now to the state of conservation of the five sites included in this nomination.

4.a.1 State of Conservation

A. Supreme Water Temple Pura Ulun Danu Batur

This temple is renowned throughout Bali for the excellence of its management, which is firmly in the hands of the village of Batur. Architectural features of the temple are continually renewed, thanks to voluntary contributions of funds, materials and labor.

B. *Subaks* and Ancient Water Temples of Pakerisan

B.1 Pura Tirtha Empul

The character of this site, a bathing pool located in a narrow dale, causes the site to be very damp. The biotic decomposition process in this site is dominated by *moss*. These plants thrive in the pool and fountains because their position is nearest to the water. In the slits between the stones it is very damp and in clean condition, so it is difficult for *pterydophyta* to grow. *Lichens* and *fungi* also grow along the fence where the rock condition is drier.

The site is formed from *andesite* stone and *tuffaceous* stone. The part made from *andesite* stone, is in better condition than the part made from *tuffaceous* stone. On the pool fence made from *tuffaceous* stone, the condition deteriorates easily and besides the deterioration process, there is also mechanical defacement because of the rocks’ characteristics. Because the fountain and pool fencing are made from *andesite* stone, their condition is better, but on the other hand, the force of the water stream through the small holes in the fountains has eroded some parts of the pool



and caused leaks. The water flow has also caused the fence construction of the pool to tilt.

The location of the site on a base dale has the potential for landslides given that the slope steepness is above 45°. The river slope represents lava flow with *andesite* stone. The number of plant with high coronet which grow on the river slope helps to maintain site security.



Ponds Used for Ritual Bathing
In Tirtha Empul Temple

B.2 Pura Gunung Kawi

The whole condition of this property is well protected by cooperation among the local government, the community and the Archaeological Office for Bali-NTB-NTT Province.



Retail Shops along the Path
to the Gunung Kawi Temple



B.3 Pura Mengening

The deterioration process of *Prasada Agung* in *Pura Mengening* includes *moss* growing on the foot of the temple. The salting process and the growth of *lichen* in the slits between the stones on the foot and body of the temple are present. *Fungi* grow on some *antefix* on the roof of the temple. Other plants, *pterydophyta* and grass grow in the slits because these areas are damp and very difficult to clean. The condition of the sanctuary reservoir in the *jaba* (outer yard) is very damp because it is located under a big tree and *moss* and *pterydophyta* grow very quickly here.

Mechanical damage process in *Prasada Agung* occurs on the *tuffaceous* stones as part of the deterioration process. Although the land formation condition of the site is stable, the building is located on a steep slope (>45°) and that is a dangerous position.



Restoration Work in the Temple, 1983

B.4 Subaks Pulagan and Kulub

These *subaks* are fully intact, functioning social institutions. The rice terraces are in excellent condition, thanks to the continuation of traditional farming methods cultivating native Balinese rice.



C. *Subaks* and Water Temples of Batukaru

Care for the lands within the Catur Lokapala Batukaru site is the historic responsibility of the villages and *subaks* that lie within this region, bounded by the four temples as described in chapter two. The *subaks* actively promote conservation and eagerly cooperate with government agencies such as the Forestry and Agriculture departments in conservation measures. For this reason, this landscape is exceptionally well cared for. The local government also protects the Batukaru *subak* irrigation systems by identifying the area as a green belt area and making it illegal to build there. Small repairs which might hinder the rice fields remain the responsibility of *subak* organization members.



Main Road within the Jatiluwih Area

4.b Factors Affecting the Property

4.b.1 Development Pressures

A. Supreme Water Temple Pura Ulun Danu Batur

In a 2005 article on “Pura Besakih: A World Heritage Site Contested”,⁸ Darma Putra and Hitchcock describe the deterioration of the temple that most closely resembles Pura Ulun Danu Batur, namely Pura Besakih, as a result of increasing tourism and ambiguity in responsibility for the protection and management of the site. Clearly, there are major development pressures on these temples

⁸ *Indonesia and the Malay World*, Vol. 33, No. 96, July 2005.



because of their attractiveness to the tourist industry. While the temple Pura Ulun Danu Batur is subject to similar pressure from visitors, responsibility for this temple is firmly in the hands of the village of Batur and the governing priests and Elders of the temple (Lansing 2006). World Heritage status for the temple will help to clarify and strengthen this local control, and help sustain the temple in the face of continuing tourist development in Bali. The priests and Elders do not regard current levels of tourism and commercial development in the vicinity as threatening.



Ulun Danu Batur Located by the Main Street in Bangli Regency

B. Ancient Water Temples and *Subaks* of Tampaksiring

Busloads of visitors arrive daily at Tirtha Empul and the Gunung Kawi Rock Cut Temple. At Tirtha Empul, a large area adjacent to the parking lot for buses and cars is devoted to retail shops and small restaurants. These are well situated to avoid disturbing the temple and springs. However, development pressures at the Gunung Kawi site have led to the proliferation of small retail stores lining both sides of the path all the way from the parking area to the temples on the valley floor, blocking the view but producing little revenue for the vendors.

These sites are pressured by the building of tourist facilities around the sites. There is a need to better enforce regulations against



building near the archaeological sites on the Pakerisan River. A comprehensive management plan for these sites, as proposed in later chapters of this document, will mitigate these problems.

C. *Subaks* and Water Temples of Batukaru

1. There is development pressure from houses and buildings developed for tourism near the property.
2. There is development pressure on the property as a whole caused by changes in land ownership, changes in the function of the agriculture farm and building construction.
3. There are electrical cables strung across the rice fields at various locations, disturbing both the view and the security of the property.
4. Restaurants and shops that are beginning to appear in the area diminish the visual integrity of the landscape.



Scenic View of Subak Jatiluwih Rice Terrace

D. Royal Water Temple Taman Ayun

This temple is already subject to heavy visitor pressure. However, the temple and environs are well managed, and the moat around the temple is a very effective buffer. The site is quite large and can easily accommodate large numbers of visitors. However, informational facilities for visitors are inadequate, particularly with respect to the



history of the temple, the symbolism of the shrines and its role in the agricultural cycles of the *subaks*.

4.b.2 Environmental Pressures

Major environmental threats to the *subaks*, as noted above, are caused by the application of large quantities of nitrogen and phosphate fertilizer to the rice paddies. These are common to *subaks* in all areas except some *subaks* in Catur Angga Batukaru, where farmers practice organic agriculture.

In addition, there are some environmental issues with regard to the water temples. The microclimate of these regions of Bali is damp with high rainfall; this leads to the development of various harmful organisms such as: *moss*, *lichen*, *algae*, *fungi*, *pteridophyta* and various types of grass. The areas located near the rivers also have high humidity and dampness.

At the rock cut temple of Gunung Kawi and adjacent meditation shelter sites, there are large trees, hundreds of years old, on the slope of the riverbank. Their roots cause the collapse of the riverbank, yet the roots also arrest the erosion of the riverbank wall. The trees also influence the humidity of the temple building and meditation shelter because their branches and leaves provide shade. The resulting dampness leads to the appearance of plant organisms on the surface of the stone.

4.b.3 Natural Disaster Preparedness

Bali is geographically located in an earthquake zone, an area with volcanic activity and tectonic plate movement. There is also a danger from landslides. Earthquake disasters in 1917 and 1972 affected some structures, but they remain in stable condition. Pura Ulun Danu is vulnerable to earthquakes or volcanic eruptions from the nearby caldera of Mount Batur, an active volcano. The volcano is under continuous observation from a permanent post at the Batur Volcano Museum, equipped with a seismograph. Early warnings of hazardous volcanic activity can be quickly broadcast from this observer post.

Some temples are located on a sharply sloping riverbanks with the possibility of landslides, for example: Pura Mengening, and the Pura Gunung Kawi. With regard to the *subaks*, there is the possibility of natural disasters, such as floods



and landslides, if the dams, tunnels and protected forests are not taken care of properly.



Condition of Tirtha Empul After Earthquake Disaster, 1972

4.b.4 Visitor Pressure

Annual statistics on visitor pressure are provided in the next chapter, in Section 5.h. In general, visitor pressure is increasing in Bali as both domestic and international tourism to the island increases. Total numbers of foreign visitors increased from 1.3 million in 1997 to 2.4 million in 2009. In an interview on 6/9/2008 for the newspaper *Business Bali*, the head of the Bali Tourism Board (BTB) observed that "What's most pressing is the repair of tourism sites, not the building of villas and hotels." "The repair of tourism sites must become a priority," Wijaya warned. Jan Hendrik Peters, a professor of service management at Wageningen University, noted that "Bali is under threat of becoming the victim of its own tourism success story."⁹

However, the greatest density of tourists is confined to the beach areas, and the numbers of tourists who visit the upland countryside is still considered to be manageable. Visitors in the area of Pakerisan, which includes two of the most visited sites within this region (Pura Tirtha Empul and Pura Gunung Kawi) registered more than 63,000 domestic visitors and 60,000 foreign visitors during 2009.

⁹ "New Warnings Sounded Over Too-Crowded Bali", *Bali Times*, December 10 2010, page one.



Tourists at the Ancient Spring Temple of Tirtha Empul

The region of Catur Angga Batukaru is vulnerable to rapid expansion as a new tourism development area, with specific threats to existing conservation zones, such as construction of new villas and exploitation of water resources for tourist development. Recently, 25 hectares of land within the designated "Green Belt" was sold for the proposed development of villas on rice paddy terraces for the Traditional World Healing World Centre (Jl. Raya Seminyak 504 Kuta-Bali). Partly as a consequence of such unplanned developments, the regional governments of Tabanan, Badung and Gianyar have begun to strengthen the enforcement of zoning regulations, particularly in the designated "Green Zones." The two component parts of this nomination that include rice terraces, villages and forests (Pakerisan and Catur Angga Batukaru) are both enclosed within Green Zones. Consequently, the necessary legal and administrative tools are in place to cope with growing numbers of visitors.

4.b.5 Inhabitant Pressure

Bali's population is growing, which creates continuous pressure on the rice terraces, *subaks* and forests. The Forestry Department is active and effective, but forests are sometimes subject to unplanned exploitation. The conversion of *sawah* to other uses leads to the fragmentation of the paddy ecosystem, which creates problems for governance by *subaks*. In the major urban areas of south Bali, some water temples stand empty, surrounded not by rice fields but by commercial development.



However, in recent years these issues have been widely discussed in governmental and academic settings in Bali, and in the mass media. Bali's small size and excellent physical and administrative infrastructure provide the means to cope with the challenges created by prosperity and demographic change. In addition, the people of Bali are very proud of their cultural heritage. The conservation of key historical and cultural sites, such as those included in this nomination, are a matter of intense public interest. For these reasons, the Government of Indonesia is confident that the various threats to the conservation of these sites described in this chapter can and will be successfully addressed.



CHAPTER FIVE

PROTECTION AND MANAGEMENT OF THE PROPERTY



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PROTECTION AND MANAGEMENT OF THE PROPERTY

5.a.1 Introduction

The *subaks* of Bali are well known to social scientists as one of the most ancient and successful examples of the adaptive, democratic management of water. However, as described in the previous chapter, the *subaks* now face formidable problems. Loss of soil fertility, declining revenues from rice farming, the conversion of rice terraces to other uses, reduction in forest cover and in irrigation flows affect the *subaks* to a varying extent in different regions around the island. Consequently, the need for new approaches to support the *subaks* has become a major topic in Bali's newspapers, radio, and television.

The key issue is how to adapt the existing framework of *subak* and governmental institutions to enable the *subaks* to flourish now as in the past. Importantly, this question extends beyond the ecological management of the rice paddies to include the preservation of the cultural values of Tri Hita Karana, in which the *subaks* play a vital role. Thus for the Balinese, the *subaks* are much more than irrigation associations: more fundamentally, they help to preserve and sustain the balanced harmony of humans with the landscape and the gods. The perennial rites of the *subaks* are believed to "make the foundations strong" (*negteg linggih*) and are considered vital for the whole of the Balinese world.

To support the *subak* system within the proposed World Heritage sites, a management plan has been adopted by the provincial government of Bali, using principles of adaptive co-management by diverse stakeholders modified to suit the Balinese context (Folke et al., 2002a, 2005; Berkes and Folke, 1998; Adger, 2006). This system of adaptive governance will connect individuals, organizations, agencies, and institutions at multiple organizational levels by means of a democratic Governing Assembly, which is fully described below (Young, 2002; Pretty, 2003; Galaz, 2005; Hahn et al., 2006). By strengthening the control of the *subaks* over their local environments, the problems detailed in the previous chapter can be directly and effectively addressed, within the ancient traditions of *subak* governance. In addition, it is hoped that the programs



developed for these World Heritage sites may provide models for emulation in neighboring communities. In this way, the value of the World Heritage program in Bali could ultimately extend beyond the core areas of the project.

As explained in chapter two, Balinese *subaks* manage irrigation water as a common or shared resource, and also share responsibility for the performance of water temple rituals that are intended to promote the fertility and productivity of their terraced fields, and the welfare of their communities. But as the profitability of farming and the fertility of the soil decline, there is increasing temptation to convert the land to other uses; “planting concrete” instead of crops, as the Balinese saying goes. The protection and management plan for the World Heritage sites is designed to tip the balance back in favor of continued cooperative rice farming. In broad terms, the principal planned outcomes of the management plan are:

1. Establishment of legal, institutional, and administrative structures to coordinate the adaptive co-management of the site among inter-sectoral policy makers and diverse stakeholders, by means of the Governing Assembly for Bali’s Cultural Heritage (Dewan Pengelolaan Warisan Budaya Bali), hereafter called the Governing Assembly, which is described in detail below. **These policies and structures will guarantee that *subaks* and water temple congregations will retain control of their own institutions and resources.** This point needs to be made clear because prior discussions of World Heritage status for Balinese sites led to confusion and misinformation on this issue (see Darma Putra and Hitchcock, 2005).
2. Comprehensive and participatory assessment of the cultural, social and ecological components of the property by the staff of the Governing Assembly, involving the broad spectrum of stakeholders and resource users. Continuing monitoring and assessments will consider the vulnerability and response capacities of local communities to potential internal or external threats (e.g. climate change consequences, land use change due to economic development) (Wisner et al., 2004; Folke et al., 2005; Adger, 2006).
3. Participatory planning and design of master plans for each of the sites within the broader cluster of World Heritage properties, which will be coordinated by the Governing Assembly. This includes land-use conservation strategies in the relevant protected areas, in consultation with stakeholders across scales



(local communities, governmental agencies, international organization, etc). (Young, 2002; Pretty, 2003; Galaz, 2005; Hahn et al., 2006).

4. Implementation of activities to support Strategic Priorities for comprehensive and effective cultural and environmental conservation and livelihood enhancement within the proposed World Heritage site. Strategic priorities for implementation are:
 - Ongoing support for the role of *subaks* in sustaining Tri Hita Karana
 - Livelihood protection and enhancement
 - Conservation and promotion of ecosystem services
 - Conservation of material culture
 - Appropriate development of cultural tourism and education
 - Infrastructure and facility development

These planned activities include effective and comprehensive support for a return to organic farming of native Balinese rice for all participating *subaks*. This will directly address the environmental problems described in the previous chapter that stem from over-use of agrochemicals. It will help to reduce costs and increase revenues from farming, reverse the decline in soil fertility, and reduce environmental pollution. The model for this phase of the project is the ongoing successful return to organic farming in the *Somya Pertiwi* projects of the Catur Angga region, described above in Chapter 2.

The staff of the Governor of Bali has opened discussion on a variety of proposals to strengthen the *subaks* in the nominated areas. These include a land tax subsidy for rice paddy land; support for health care services and education for participating communities; assistance to communities that rely on and maintain forested areas, particularly for sustainable non-timber forest production; enforcement of restrictions on deep well construction; incentives to *subaks* and local communities to restore and maintain traditional architecture; and development of facilities and interpretation to enhance the experience of visitors to the *subaks* and water temples. These proposals are presently under review by the relevant government agencies, and will be submitted to the Governing Assembly.

5. Capacity building for the Working Groups of the Governing Assembly, to enhance ongoing monitoring and evaluation and ensure implementation that



is sensitive to social and ecological feedback (Young, 2002; Dietz et al., 2003 ; Hahn et al., 2006).

6. Identification of possible serial sites in Bali based on their historical and cultural significance (outstanding universal value).

5.a.2.1 Legal, Institutional, and Administrative Policies and Structures

A specific legal framework for the management and coordination of the World Heritage Cultural Landscape of Bali was initially established by Memorandum of Understanding between the Government of Bali and Regencies of Bali for the Establishment of the Strategic Area of Bali (Annex 3). This Agreement legally codified conservation and spatial planning for the proposed World Heritage sites named above, including tangible and intangible heritage and agricultural and forest ecosystems within the site boundaries. The Provincial Decree is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for conservation of critical cultural landscapes.

Subsequently, the administrative structure for the management of the sites emerged from a lengthy process of consultation involving many stakeholders. Presently, the government of the Republic of Indonesia restricts the activities of each Ministry to its respective mandate. But for the purposes of managing a multifaceted cultural landscape, it was felt that a more integrated management system would be required. To achieve this goal, two important steps were taken. First, at the National level: the Coordinating Ministry for People's Welfare coordinates a National Focal Point for World Heritage which includes cultural and natural heritage sites. The Director General for History and Archaeology is responsible for cultural heritage. The purpose of this committee is to provide integrated cross-sector advice and planning for the management of World Heritage cultural and natural sites in Indonesia. The leading sector is the Coordinating Ministry for People's Welfare. Its membership consists of representatives from the following ministries: the Ministry of Culture and Tourism, the Ministry of the Environment, the Ministry of People's Welfare, and the Secretaries General of Forestry, Agriculture and Public Works.

Second, in August 2010 Governor's Regulation No. 32 created a Governing Assembly for Bali's Cultural Heritage (Annex 4), tasked with the management of



the sites that are presently Bali Heritage sites, which have been nominated for World Heritage status (Fig. 5.1). The structure and functions of the Governing Assembly emerged from two years of discussions and planning by the Planning Committee for the Governance of Proposed World Heritage Sites, a committee that was officially created by the Governor in 2008. This 27-member committee included representatives of all relevant government office at both the Provincial and Regency levels, including Agriculture, Forestry, Culture, History and Archaeology, Public Works, Legal Affairs and Planning. In addition the committee included four academic experts. The committee held 7 meetings from 2008-2010, to which village leaders, *subak* heads and water temple priests were invited as well as representatives of NGOs. After extensive discussion, the committee agreed to model the governing body on the democratic Assembly (Dewan) structure that presently manages the Bunaken National Marine Park in Sulawesi, suitably modified to fit the different circumstances of Bali's *subak* landscape. The Bunaken park is governed by a multi-stakeholder management board comprised of villagers from the 30 villages in the park, local tourism, fisheries and environmental government agencies, the North Sulawesi Watersports Association, and the local university's marine sciences department. The governing assembly at Bunaken possesses several features that were deemed to be attractive for Bali. First, the assembly includes representatives from all relevant government offices, but they are outnumbered by representatives of local communities and stakeholders. This helps to ensure community empowerment. Second, the Assembly can call on the assistance of the relevant government offices to implement their decisions. Third, the Assembly structure also provides a clear channel of communication between governmental agencies and stakeholders. Fourth, the Assembly structure facilitates involvement with NGOs, donors and consultants. Fifth, the Assembly receives annual reports on monitoring, evaluation and budgetary matters, which are used to create a yearly work plan that prioritizes the most urgent conservation issues in the park for funding. This system has been so effective that the national Ministry of Nature Conservation has designated Bunaken as one of its "centers of excellence" for training for other parks. However, the cultural landscape program for Bali creates additional challenges for effective management. The role of the Governing Assembly structure for Bali's cultural landscape is described in detail in the following section.



5.a.2.2 Role of the Governing Assembly for Bali's Cultural Heritage

The Governing Assembly for Bali's Cultural Heritage links together government and non-government entities at the national, provincial, and local levels involved in the management of the properties described in this nomination (Figure 5.1). The Assembly is administratively housed within the Office of Culture and Tourism in Bali, reflecting the emphasis on the cultural role of the *subaks* and water temples in preserving the values of Tri Hita Karana. The Office of Culture and Tourism has overall responsibility for administration, including budgeting and staffing. The head of this Office is appointed by the Governor of Bali. He or she is also the head of the Governing Assembly, as mandated by Governor's Regulation No. 32 of 2010. The full text of this regulation has been translated into English and is included in the Annex 4 to this dossier. It defines the Governing Assembly for the Heritage sites as a democratic governing body which consists of the following representatives:

- Representatives of all 17 *subaks* in the nominated property
- Representatives of all the villages in the nominated property (in some cases single individuals may represent both their village and their *subak*)
- Representatives of relevant Government Offices: Culture and Tourism, Agriculture, Forestry, Environment, and Public Works.

The Governing Assembly is housed within the leading sector, the office of Culture and Tourism at the provincial level. The Office has already allocated office space and administrative support to manage the day-to-day coordination of the property. The structure of the Governing Assembly includes a professional Secretariat, headed by an appointed Secretary who oversees the work of three units: Planning, Monitoring and Evaluation, and Finance and Human Resources. Each of these units includes at least one full time professional staff person. To ensure effective liason with Provincial and Regency-level government offices, part-time staff from relevant offices are also appointed to two of these units. Thus the Planning Unit also includes part-time staff from both the Provincial and Regency Planning Office (BAPPEDA), and the Finance and Human Resources Unit includes part-time staff from the Provincial Finance Office (SEKDA) and the Regional Employment Agency (BKD).



BA	<i>Bendesa Adat</i> (Traditional Village Authority)
BPTP	Institute of Agricultural Research and Technology Assessment, Bali Ministry of Agriculture
OPW	Office of Public Works
COBP	Cultural Office of Bali Province
DGHA	Directorate General for History and Archaeology
GBP	Government of Bali Province
IAUA	Individual Academic, University or Other Research Agencies (Stockholm Resilience Center, Udayana University)
IDA	Indonesian Ministry of Agriculture
IDE	Indonesian Ministry of Education
IDEMR	Indonesian Ministry of Energy and Mineral Resource
IDEnv	Indonesian Ministry of Environment
IDF	Indonesian Ministry of Finance
IDFor	Indonesian Ministry of Forestry
IDH	Indonesian Ministry of Health
IDPU	Indonesian Ministry of Public Works
MONEV	Monitoring and Evaluation unit of Secretariat
NGO	Non-Government Organization
OAHC	Office for Archaeological Heritage Conservation in Gianyar
OARB	Office for Archaeological Research, Bali
ORHT	Office for Research on History and Traditional Values in Bali
RG	Regional Governments (<i>Kabupaten</i> : Badung, Bangli, Buleleng, Gianyar, Tabanan)
SBK	<i>Subaks/ Pekaseh Subak</i>
TOBP	Tourism Office of Bali Province
WGA	Working Group on Agriculture of Governing Assembly
WGC	Working Group on Culture of Governing Assembly
WGE	Working Group on Environment of Governing Assembly
WGSi	Working Group on Social & Infrastructure of Governing Assembly
WGL	Working Group on Law/Governance of Governing Assembly
WGVE	Working Group on Visitors & Education of Governing Assembly

Table 5.1 Acronym List of Responsible Authorities for the Governing Assembly

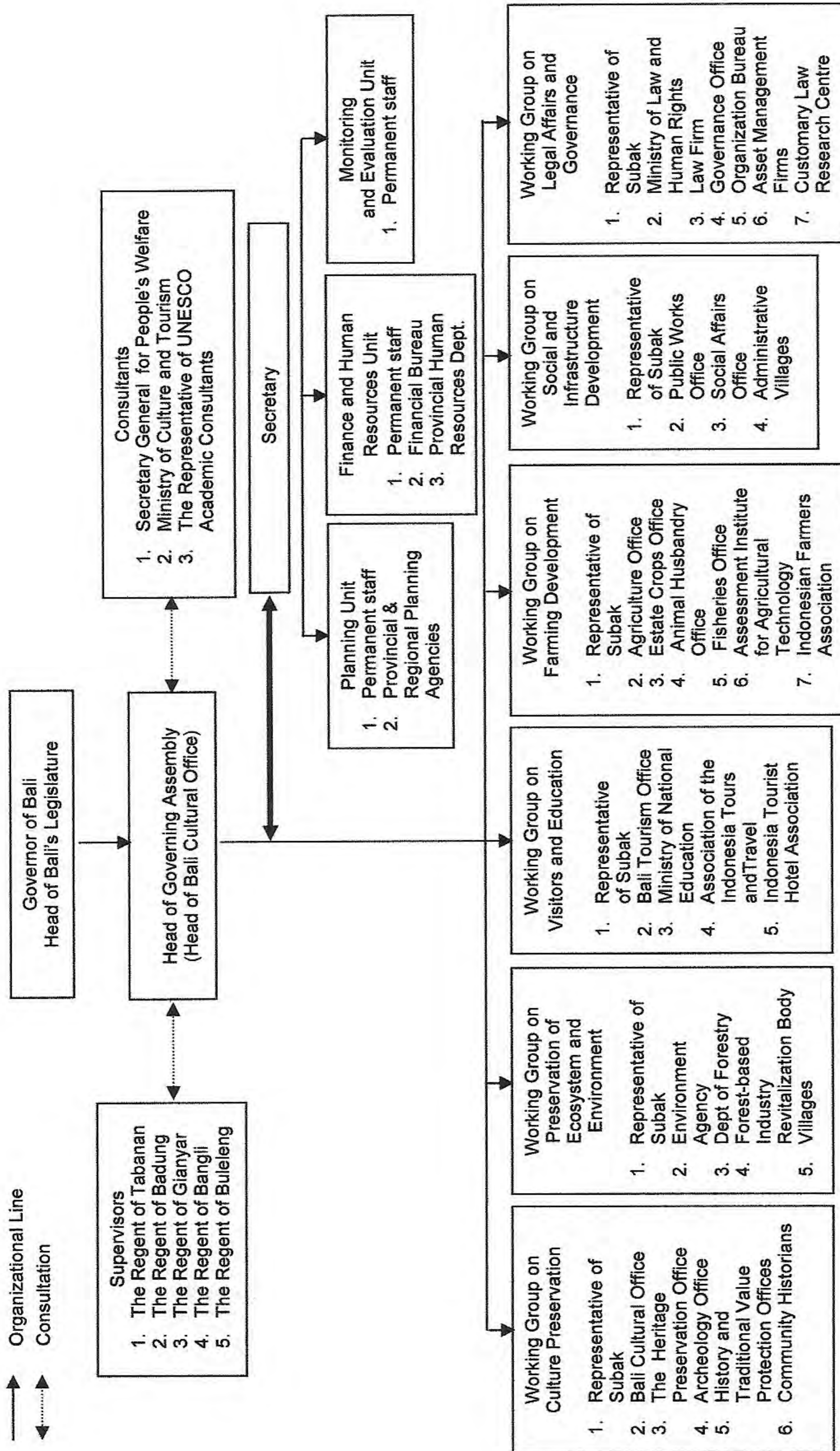


Figure 5.1 Organizational Structure of the Governing Assembly



The Governing Assembly will facilitate coordination among relevant offices so that the goals of cultural preservation, adaptive ecosystem governance, and livelihood enhancement can be realized. The structure of the Assembly clearly situates responsibility for the management of the World Heritage program in a well-defined organization, which is entrusted with implementation and monitoring and evaluation. The Assembly is organized into six Working Groups with specific responsibilities (Fig 5.1). This structure explicitly integrates participation from a broad forum of stakeholders, representing *subak* and community organizations, government institutions at the international, national, provincial and regional levels, and academic and research institutes. It is anticipated that external collaborators such as the Stockholm Resilience Center (SRC) will provide technical assistance. The SRC, a premier institution for environmental research and adaptive governance of sociocultural-ecological systems at Stockholm University, will support research, capacity building, and policy development (per a prior Memorandum of Understanding between Stockholm Resilience Center and UNESCO, reproduced in the Annex 6). *Subaks* and local communities will retain responsibility for day-to-day site maintenance and conservation, based on existing institutional and legal structures of *subak awig-awig* and customary *adat* law. The Governing Assembly will facilitate ongoing communication among the local communities and *subaks*, government agencies and other stakeholders. It will also be responsible for implementing the principal project components outlined in this plan.

5.a.3 Participatory Planning and Design

A participatory planning approach is being implemented to support the strategic priorities (described in detail below) and achieve an integrated approach to managing the five proposed component parts of the property. Findings from integrated assessments will provide a foundation for this ongoing process. This work will be coordinated by the Planning Unit of the Secretariat, based on results from the Monitoring and Evaluation Unit, and will involve all Working Groups. Planning and design will involve all stakeholders and consultants, drawing on experience and ideas from other adaptive governance processes. Importantly, it will respect and strengthen existing *subak* and community planning processes. It will also facilitate coherent harmonization of cultural conservation and livelihood enhancement initiatives at various levels of government authority. The principal



outputs from this process will be (1) individual site management plans (Master Plans) that feed into and reflect the cluster-wide policies and strategies and (2) annual work plans to guide day-to-day site management. Plans will reflect the strategic priorities and capacities at each site, to promote sociocultural-ecological resilience. To navigate the complexities of the social and ecological systems and facilitate an adaptive management approach, the planning process must be flexible and responsive to institutional learning and contextual changes. In this way, the planning and design process will be closely linked with policy priorities and feedbacks from the monitoring and evaluation system.¹

5.a.4 Monitoring and Evaluation: Comprehensive and Participatory Assessment

Both sustainable resource management and cultural preservation in an era of rapid change depend on processes of learning and adaptation. A core component of successful adaptive management is integrated assessment of social, cultural/religious and environmental goals. Such assessment involves participation from the broad spectrum of stakeholders and resource users. Consequently, management of the Bali World Heritage property will be built upon a foundation of comprehensive and participatory assessment. Preparation of the nomination dossier and management involved numerous consultative meetings with government and non-government stakeholders, including *subak* and community representatives. The Governing Assembly will extend this consultative approach to comprehensive and systematic assessments of the status of each *subak*, its vulnerability to social and environmental threats, and the broader needs for support and preservation of each cultural landscape. These assessments will be linked to a participatory planning process at each site, as well as the design, implementation and ongoing monitoring and evaluation of specific activities at each site (Figure 5.2). In designing and implementing the assessments, the Board will draw on best practices in adaptive governance assessment methodologies, in consultation with relevant experts from institutions such as the Stockholm Resilience Center. Along with the economic and environmental viability of the *subaks*, the Governing Assembly is charged with

¹ Thomas Elmqvist et al. (2003). Response diversity, ecosystem change, and resilience. *Front Ecol Environ* 1(9): 488–494; Carl Folke et al. (2005). Adaptive governance of socio-ecological systems. *Annual Review of Environmental Resources* 30:441–73.



responsibility to support the religious and cultural institutions that are associated with Tri Hita Karana in the Balinese countryside. As is already customary in Bali, this will include support for the rituals performed by the *subaks* in the water temples, and the annual cycles of pilgrimages and rites in the forests, fields, mountain lakes and seaside.²

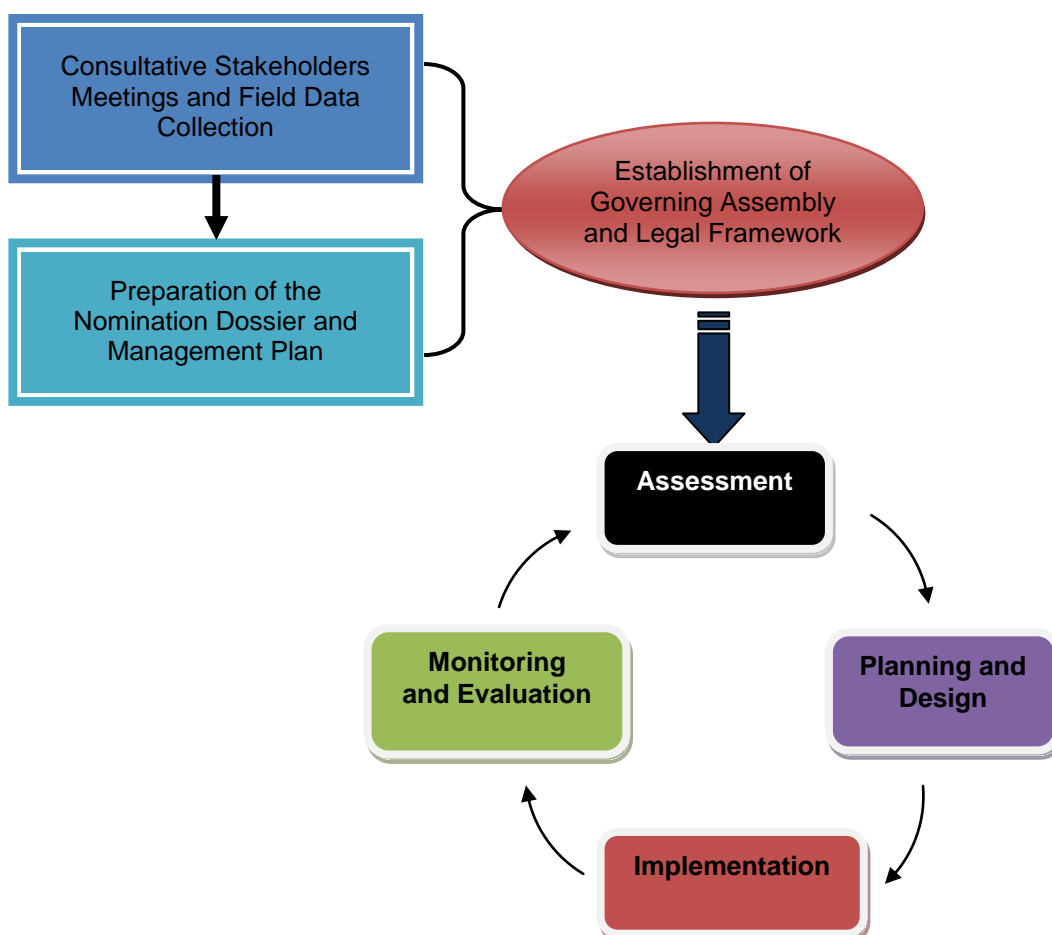


Figure 5.2 Cultural Landscape of Bali Adaptive Management Framework
 Displays the iterative phases of program implementation that resulted in the governance structure described in this chapter. In future, the project will draw on the nomination document and management plan to guide an ongoing process of comprehensive and participatory assessment (see section 4.2 of the attached Management Plan); participatory planning and design of activities (section 4.3); implementation of those activities (section 4.4); and implement a monitoring and evaluation system to assess and utilize social and ecological feedbacks (section 4.5 of the attached Management Plan).

² Several government offices including Social Welfare, Culture and Religion routinely provide financial support for the upkeep of temples and the performance of rites. These are not restricted to the Hindu-Balinese religion: financial support is also provided for other religious groups.



5.a.5 Ongoing Participatory Site Mapping

Bali's Departments of Agriculture (BPTP) and Culture, the Regional Planning Board (*Bappeda*), and the Office of Archaeological Heritage Conservation at the provincial and national levels, have initiated compilation of detailed site maps, in consultation with *subaks* and local community leaders. These maps will supplement and enhance those included in this nomination dossier, which were prepared by Professor Sarah Gergel and Dr Christopher Bater; Habib Subagio from the Indonesian National Survey and Mapping Agency (BAKOSURTANAL), and the staff of P.T. Sekala, an Indonesian consulting firm specializing in remote sensing and GIS. Participatory mapping as a management tool will be extended in the future in two ways. First, the Governing Assembly will consult with *subaks*, community leaders, and government authorities to review appropriate zoning laws for each site. The Provincial Decree of 2008 establishes the legal basis for conservation zoning of Bali's proposed World Heritage landscape, including rice terraces, forests, and lake regions. For temple monuments, the designation of protected zones will be based on National Law No.5/1992 concerning The Conservation of Cultural Property. The process of delineating and mapping protected zones will continue to draw on the experience of similar processes at other World Heritage properties in Indonesia (e.g., Borobudur and Prambanan).

Second, the existing legal statutory framework will be used to interpret the results of participatory mapping by the Working Group on Law of the Governing Assembly. In this way, the results of the mapping and remote sensing studies can be inserted into the planning process of the *subaks*, communities and relevant government agencies.



Participatory Mapping
with the Head of Subak Jatiluwih



Participatory Mapping
with the Head of Subak Pulagan

5.a.6 Strategic Priorities for Implementation

Managing the World Heritage site will require implementation at two principal levels. First, the Governing Assembly in Bali will be responsible for implementing the policy and institutional components discussed in this chapter. These components establish a solid legal framework, organizational structure, and programmatic elements for effective and integrated World Heritage site management. Second, the Board will oversee implementation of activities within each strategic priority area presented in Chapter 5 of the attached management plan. These activities are proposed to strengthen the capacity of *subaks* as the primary institution involved in the management of the rice terraces and guardians of ecosystem services and the temple hierarchy. The key strategic priorities were already listed in the introduction to this chapter. We repeat them here with the observation that it is expected that the specific activities and means of implementation will vary at each of the five individual sites (per participatory planning processes discussed above):

- Ongoing support for the role of *subaks* in sustaining Tri Hita Karana
- Livelihood protection and enhancement
- Conservation and promotion of ecosystem services
- Conservation of material culture
- Appropriate development of cultural tourism and education
- Infrastructure and facility development

The composition of the Governing Assembly reflects the collective expertise necessary to implement activities in each of these programmatic areas.



However, these areas are inextricably linked and successful implementation will require multi-sectoral partnership, guided by the Board in collaboration with respective government agencies and local communities. Selection and implementation of specific activities at each site will strengthen *subaks* and existing management schemes to promote resilient social and ecological systems.

5.a.7 Adaptive Monitoring and Evaluation System

Effective co-management of Bali's proposed World Heritage property requires a consistent and comprehensive flow of information that can be readily synthesized and utilized—for both the short-term implementation of the program and for longer term planning. The Monitoring, Evaluation, and Reporting Unit housed within Bali's proposed World Heritage Governing Assembly will work with the Governor's appointed Chair of the Governing Assembly to design a dynamic and adaptive monitoring system to collect and manage data on social and ecological variables, as well as contextual changes that potentially affect the conservation and enhancement of the World Heritage site. To that end, it is necessary to compile existing baseline data on key social and ecological indicators. The known sources of such data are reviewed in Chapter 7 (Documentation).

The system will also include a participatory monitoring component involving *subaks* and other stakeholders. It will be important to monitor and report on regular program outputs (i.e., the provision of goods and services such as distribution of organic fertilizer and training in organic farming). Periodic evaluations will be conducted to assess the overall social and ecological impacts of the program, against baseline data.

Because the property includes a diverse cluster of sites, each with different attributes, it will be necessary to choose a small set of core sociocultural-ecological variables for overall program monitoring. Output level indicators will be tailored to each individual site, to monitor the site-specific activities. The system will be closely linked to the participatory planning process and implementation of specific activities at each of the three sites in the proposed cluster. To develop a system that effectively integrates and responds to social and ecological feedback, the Governing Assembly and the Monitoring, Evaluation, and Reporting Unit may seek guidance from the Stockholm



Resilience Center. In addition, the official State Party may request expert advice from the World Heritage Advisory Bodies and the Secretariat. As mandated by UNESCO, periodic reports will be submitted to the UNESCO World Heritage Centre.

5.a.8 Capacity Building for Adaptive Co-Management

Effective and adaptive management of the proposed World Heritage Cultural Landscape of Bali will require the ability to observe and interpret social and ecosystem dynamics and develop the social capacity to respond to feedback and change.³ The Governing Assembly is designed to function as a learning institution, with the capacity to mobilize, synthesize, and make decisions based on different knowledge and operational systems, ranging from the traditional management systems of the *subak* to recent and successful work by Bali's Office of Agriculture to promote organic rice farming and monitor the social and ecological outcomes of these efforts. This requires fostering a dynamic learning environment that recognizes policy decisions and implementation of World Heritage programs are "ongoing learning experiments" that will be monitored, evaluated, and adapted over time.⁴ The Governing Assembly will also seek training and capacity building in management of World Heritage properties, including risk management, climate change, and site conservation from relevant agencies, such as International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM).

5.a.9 Identification of Potential Serial Sites

The selection of sites proposed for inscription as the Cultural Landscape of Bali World Heritage Sites was based on their representative outstanding universal value. But as was mentioned in the context of site selection in chapter four, there are other cultural landscapes in Bali that also exemplify outstanding cultural value, and are worthy of consideration for inclusion in a future serial nomination process. These include the ancient *subaks* and water temples located immediately to the west of the Pakerisan site, where fourteen *subaks* form the

³ See Folke, C. et al. (2005) Adaptive Governance of Sociocultural-ecological Systems. *Annual Review of Environmental Resources* 30:441-73.

⁴ Ostrom, E. (2005). *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.



congregation of an important regional water temple, the Pura Masceti Pamos Apuh. A location map of this temple is shown below (Fig. 5.3). The royal copper-plate inscription Mantring C, provisionally dated to the twelfth century, mentions contributions from several *subaks* that still exist today (e.g. Sabtu, Kedisan) to a temple that may have been the ancestor of the present Masceti water temple. Along with the antiquity of this site, the enduring beauty of the rice terraces and water temples situated downstream from the Masceti temple make them an attractive candidate for inclusion in an expanded World Heritage site at Pakerisan. This group of *subaks* have been extensively studied by archaeologists and anthropologists.⁵

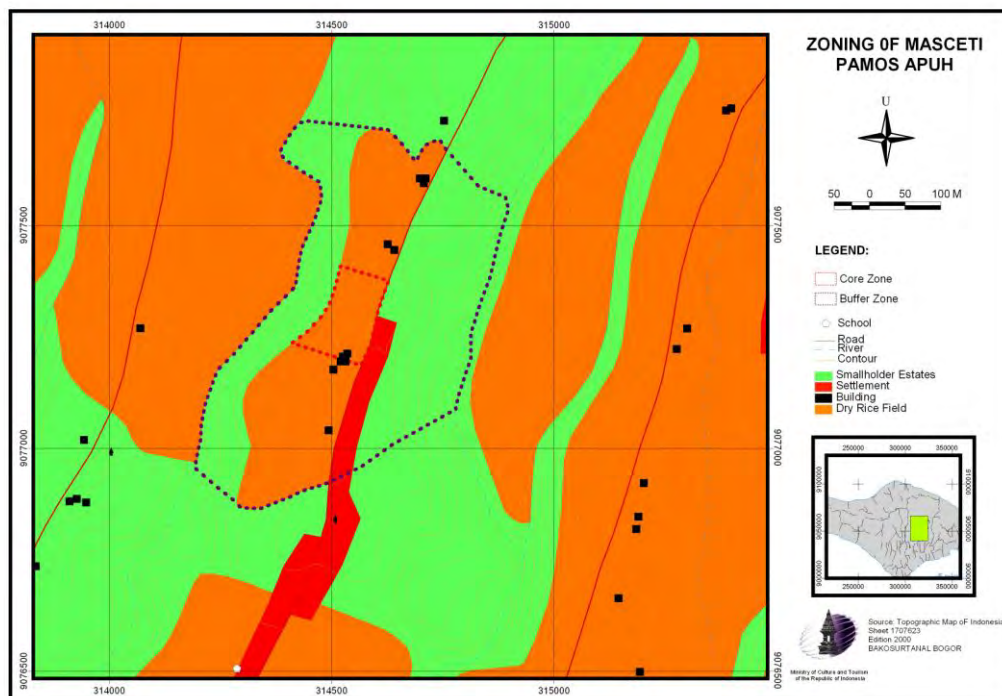


Fig. 5.3 Location Map of the Regional Water Temple Pura Masceti Pamos Apuh

⁵ Lansing, J.S. 2006. *Perfect Order: Recognizing Complexity in Bali*. Princeton, NJ: Princeton University Press. Archaeological studies include: Scarborough, V. L., Schoenfelder, J. W. and Lansing, J. S. 1999. Early statecraft on Bali: the water temple complex and the decentralization of the political economy. *Research in Economic Anthropology*, 20: 299–330. Scarborough, V. L., Schoenfelder, J. W. and Lansing, J. S. 2000. Ancient water management and landscape transformation at Sabtu, Bali. *Bulletin of the Indo-Pacific Prehistory Association*, 20: 79 – 92.



Photograph of the temple Pura Gunung Kawi Sebatu, which encloses a spring that provides irrigation water for the *subak* Delod Blumbang. This temple and associated rice terraces is located within the domain of the Masceti temple Pamos Apuh, which might be considered for inclusion in a later expansion of the Pakerisan component part of this nomination. An extensive archaeological study of this temple has been published.⁶

Additional sites that could be considered for future serial nomination include the fourth crater lake (Lake Beratan); the *subak* landscape of the former principedom of Sidemen in eastern Bali; and other sites that may be identified by the research staff of the Governing Assembly.

5.b.1 Ownership

No	Name of Property	Core Zone		Buffer Zone	
		Land	Building	Land	Building
1.	Supreme Water Temple <i>Pura</i> Ulun Danu Batur	Customary community of Batur	Customary community of Batur	<i>Desa Adat</i> Batur	Customary community of Batur
Temples and archaeological monuments in Pakerisan valley					
2.	Pura Pegulingan	<i>Desa Adat</i> Basangambu	OAHC, <i>Desa Adat</i> Basangambu	<i>Desa Adat</i> Basangambu	<i>Desa Adat</i> Basangambu

⁶ Scarborough, V. L., Schoenfelder, J. W. and Lansing, J. S. 2000. Ancient water management and landscape transformation at Sebatu, Bali. *Bulletin of the Indo-Pacific Prehistory Association*, 20: 79 – 92.



3.	Pura Tirtha Empul	<i>Desa Adat</i> Manukaya, OAHC	OAHC, <i>Desa Adat</i> of Manukaya, Water Management of Gianyar Regency, Tourism Agency of Gianyar Regency	Wisma Negara National Palace, <i>Desa Adat</i> of Manukaya, Private owners	<i>Desa Adat</i> of Manukaya
4.	Pura Mengening	<i>Desa Adat</i> Saraseda, OAHC	OAHC, <i>Desa Adat</i> of Saraseda	<i>Desa Adat</i> Saraseda, private owner	Private owners
5.	Pura Gunung Kawi	<i>Desa Adat</i> Penaka, OAHC, Private owners	OAHC, <i>Desa Adat</i> Penaka, Tourism Agency of Gianyar Regency	<i>Desa Adat</i> Penaka, private owners	Private owners, OAHC
Water Temples in Catur Angga Batukaru					
6.	Pura Luhur Batukaru	Customary community of Wangaya Gede	Community of Bali	State, community of Bali	Community of Bali
7.	Pura Luhur Pucak Petali	Customary community of Utu	Community of Bali	<i>Desa Adat</i> Yutu	Customary community of Utu
8.	Pura Luhur Besikalung	Customary community of Babahan	Community of Bali	<i>Desa Adat</i> Babahan	Customary community of Utu
9.	Pura Luhur Muncaksari	Customary community of Sangketan	Community of Bali	<i>Desa Adat</i> Sangketan	Customary community of Sangketan
10.	Pura Luhur Tamba Waras	Customary community of Sangketan	Community of Bali	<i>Desa Adat</i> Sangketan	Customary community of Sangketan
Pura Taman Ayun (Royal Water Temple)					
11.	Pura Taman Ayun	<i>Puri Agung</i> Mengwi	<i>Puri Agung</i> Mengwi	<i>Desa Adat</i> Mengwi	Customary community of Mengwi



No	Name of Property	Conservation Zone	
		Land	Building
Subaks of Pakerisan			
1.	Pulagan	<i>Desa Adat</i> Tampaksiring	Customary community of Tampaksiring
2.	Kulub Atas	<i>Desa Adat</i> Tampaksiring	Customary community of Tampaksiring
3.	Kulub Bawa	<i>Desa Adat</i> Tampaksiring	Customary community of Tampaksiring
Subaks of Catur Angga Batukaru			
1.	Bedugul	<i>Desa Adat</i> Jatiluwih	Customary community of Jatiluwih
2.	Jatiluwih	<i>Desa Adat</i> Jatiluwih	Customary community of Jatiluwih
3.	Kedampal	<i>Desa Adat</i> Mangesta	Customary community of Mangesta
4.	Keloncing	<i>Desa Adat</i> Keloncing	Customary community of Keloncing
5.	Penatahan	<i>Desa Adat</i> Penatahan	Customary community of Penatahan
6.	Pesagi	<i>Desa Adat</i> pesagi	Customary community of Pesagi
7.	Piak	<i>Desa Adat</i> Wongaya Gede	Customary community of Wongaya Gede
8.	Piling	<i>Desa Adat</i> Mangesta	Customary community of Mangesta
9.	Puakan	<i>Desa Adat</i> Puakan	Customary community of Puakan
10.	Rajasa	<i>Desa Adat</i> Rajasa	Customary community of Rajasa
11.	Sengketan	<i>Desa Adat</i> Sengketan	Customary community of Sengketan
12.	Tegal Linggah	<i>Desa Adat</i> Tegal Linggah	Customary community of Tegal Linggah
13.	Tengkudak	<i>Desa Adat</i> Tengkudak	Customary community of Tengkudak
14.	Wongaya Betan	<i>Desa Adat</i> Mangesta	Customary community of Mangesta

Notes : *Desa Adat* : Customary village
Puri Agung : Royal Palace
 OAHG : Office for Archaeological Heritage Conservation in Gianyar

5.b.2 Protective Designation

Legal statuses of the properties established by government regulation and traditional custom, as follows:

No	Name of Property	Legal Status	
		Customary law	Government
1.	Pura Ulun Danu Batur	Pura Kahyangan Jagat	2/14-06/b/3
2.	Pura Pegulingan	Pura Kahyangan Jagat	No: 131/M/1995
3.	Pura Tirtha Empul	Pura Kahyangan Jagat	2/14-04/TB/105b
4.	Pura Mengening	Pura Kahyangan Jagat	No: 131/M/1995
5.	Pura Gunung Kawi (Rock Cut Temple)	Pura Kahyangan Jagat	2/14-04/TB/15
6.	Pura Luhur Batukaru	Pura Kahyangan Jagat	2/14-02/B/8



7.	Pura Luhur Pucak Petali	Pura Kahyangan Desa/ <i>Subak</i>	In process
8.	Pura Luhur Besikalung	Pura Kahyangan Desa/ <i>Subak</i>	In process
9.	Pura Luhur Muncaksari	Pura Kahyangan Desa/ <i>Subak</i>	In process
10.	Pura Luhur Tamba Waras	Pura Kahyangan Desa/ <i>Subak</i>	In process
11.	Pura Taman Ayun	Royal Family of Mengwi	2/14-03/TB/4
12.	<i>Subaks</i>	Member of <i>Subak</i> organization	Regulation of the Government of Bali No. 02/DPRD/1972

5.c.1 Means of Implementing Protective Measures

Four different levels of government are involved in the protection and conservation of the nominated properties. Below the level of the national government, Indonesia is divided into provinces, with a Governor at the head of each provincial government. Provinces in turn are made up of Regencies (*kabupaten*), of which there are eight in Bali. Each Regency contains many villages (*desa dinas*) and municipal areas (*kota*). All four levels of government have imposed laws and regulations which collectively determine the legal framework for the conservation of the cultural landscape of Bali. Here we summarize the effects of the key laws and regulations at each level of governance, within the nominated sites. This is immediately followed by a description of the legal foundation and rationale for each of the five buffers surrounding the five component parts of the nomination.

The most important piece of legislation pertaining to the project was signed into law by the Governor as *Provincial Regulations of Bali 32* in 2010. These regulations establish the governance structure of the proposed World Heritage sites. Because of its importance for the overall management of the project, an English translation of the entire document is provided as an annex 4. This law provides a legal charter for the management system and conservation activities described above in this chapter, which is described in greater detail in the Management Plan in the Annex 5. They supplement an earlier law, *Provincial Decree of Bali 2008*, which mandates conservation and spatial planning for the component parts of this nomination.



The Provincial Decree of 2008 is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for the conservation of critical cultural landscapes. These laws are in turn based on The Republic of Indonesia Act No. 5 of 1992, concerning Cultural Properties. This law replaced the colonial Dutch laws (*Monumenten Ordinance No. 19* of 1931 and No. 21 of 1934) after Indonesia's independence. It defines a "cultural heritage object" as a man-made or natural object which has significance for history, science or culture and represents a style or value that has lasted at least 50 years. Cultural heritage sites are defined as the environments that contain cultural heritage objects. The law specifies that cultural heritage objects may be used for tourism as well as religious, social, educational, scientific and cultural reasons.

With regard to the allocation of responsibility for various aspects of conservation, protection and management at different levels of government, it is relevant to note that in 1999 the respective roles of National, Provincial, Regency and local bodies in the conservation of cultural heritage lands and objects was redefined in *Republic of Indonesia Act No. 22* of 1999 on Autonomy of Provinces. This important law (known as the Reformation or *Reformasi*) reorganized the governance structure of Indonesia. Prior to its ratification, the majority of Indonesian government functions and services were nominally under the administrative control of the national government. Before 1999, this included most cultural heritage sites. Today, however, as a consequence of this law and those that followed it, provincial, regency and municipality governments are mostly responsible for the governance of villages, lands and heritage sites. Act 5 of 1992 specifically states that while cultural heritage objects and sites are considered part of the shared patrimony of Indonesia, if local communities are integral to the functioning, protection and preservation of heritage sites, their ownership and control remains with local communities. This Act of 1992 was supplemented by another law in 2010, *Undang-undang (UU) No. 11* (2010) to clarify the role of local governance of cultural properties. Article 34 (1) states that cultural properties or cultural sites located within two or more regencies or municipalities are subject to regulation at the gubernatorial level as Provincial Cultural Properties. Because the nominated properties are located in several regencies, this Act empowers the Governor to implement conservation and protective measures via the Governing Assembly (as described above).



A second tier of laws is relevant to the management of the landscape within the nominated properties. The overall legal framework is defined by National Law UU No 26 (2007), which specifies the respective role of different levels of government in spatial planning. This law is in force for 20 years and mandates reviews every five years or in case of major changes to the landscape. In accordance with this law, Bali issued a set of provincial regulations on spatial planning (RTRWP No. 16) in 2009. In the same year, another national law (UU No. 41, 2009) states that if sustainable agricultural land needs special protection, it can be designated as a national strategic area. Article 1 (17) of National Law No. 26 (2008) further states that world heritage areas are designated as National Strategic Areas. Consequently, the component parts of this nomination all fall within the category of National Strategic Areas. Thus they are entitled to the same protections now in place for the buffer zone around the Borobudur World Heritage site. Designation as a National Strategic Area gives the national government broad powers to implement protective measures for conservation and preservation. The implementation of specific conservation plans is entrusted to the Provincial governments. Of particular importance for the nominated properties of Pakerisan and Catur Angga Batukaru, Article 44(1) of National Law UU No. 41 (2009) states that the management of agricultural lands within National Strategic Areas can include regulations preventing the conversion of these lands to non-agricultural uses. Article 78 of National Law UU No. 41 (2009) empowers provincial, regency and municipal governments to create regulations for spatial planning in sites containing cultural properties. On the basis of these national and provincial laws and planning documents, all of the rice terraces enclosed within the nominated properties should be designated “permanent or inalienable rice lands” (*sawah abadi*). A formal proposal to so designate the rice terraces within the Catur Angga Batukaru component part now awaits the signature of the head of the Tabanan Regency.

With this historical background on the relevant laws and overall governance structure for cultural heritage in post-1999 Indonesia, we turn now to the respective role of the national, provincial, regency and local branches of government. At the highest (National) level, an umbrella of national laws provide protection for lakes, forests, rivers and other landscape features. These laws have already been mentioned; relevant sections will be discussed in detail in the next section on buffer zones. By the Provincial Regulation 32 of 2010 described



above, responsibility for managing the nominated properties is conferred to the Governing Assembly. Other relevant national laws are as follows:

1. The Republic of Indonesia Government Regulation No. 10 of 1993, concerning Implementation of the Republic of Indonesia Act No.5 of 1992 (see above).
2. Decree of Ministry of Education and Culture of the Republic of Indonesia No. 087/P/1993, concerning Registration of Cultural Properties, which includes regulation on:
 - (a) The collection of data concerning culture heritage properties owned by private
 - (b) Obligation for heritage owner to take measures on conservation and management of cultural properties owned
3. Decree of Ministry of Education and Culture of the Republic of Indonesia No. 062/P/1995, concerning Ownership, Authority, Removal, and Eliminate Status of Cultural Properties.
4. Decree of Ministry of Education and Culture of the Republic of Indonesia No. 063/P/1995, concerning Protection and Conservation of Cultural Properties, especially for education purposes and national character building.
5. Decree of Ministry of Education and Culture of the Republic of Indonesia No. 064/P/1995, concerning Research and Justification of Cultural Properties which includes the procedures to arrange research on cultural properties, to save cultural properties from danger, and to mitigate the impacts of infrastructure development on cultural properties.
6. Indonesian Charter for Heritage Conservation of 2003, as moral foundation on the heritage conservation activities within the Indonesian archipelago which appeals to advocates and practitioners of Indonesian heritage conservation to work hard together in healthy partnership for a holistic, systemic, and sustainable heritage conservation.
7. The Republic of Indonesia Act No.24, 1992, concerning Landscape Arrangement Regulation for Settlement, Agriculture, Livestock, Industry, and Others under the Territory of the Republic of Indonesia.
8. The Republic of Indonesia Act No.22 of 1999, concerning the Autonomy of Provincial Government which gives the right for the provincial government to manage cultural resource under their territory.



9. The Republic of Indonesia Government Regulation No. 16, 2004, concerning the Arrangement of Land-use in Order to Provide a Healthy Environment.
10. Presidential Decree of the Republic of Indonesia No. 32, 1993 concerning Management of Special Conservation Zone.
11. Presidential Decree of the Republic of Indonesia No. 75, 1993 concerning Coordination of Management of Landscape.

We turn now to the role of the Provincial government of Bali in the implementation of protective measures in the nominated properties. As noted above, the key document is Provincial Regulation 32 of 2010, which empowers the Governing Assembly. Importantly, this legal structure provides a means for ongoing coordination of research, monitoring and evaluation, and planning by representatives of both provincial and Regency-level staff of relevant government offices such as Culture, Agriculture, Forestry etc. The powers of the Governing Assembly are further defined by the Provincial Regulations of Bali Province (RTRWN No.16, 2009), which among other effects prioritizes the provision and utilization of greenbelts. This set of regulations provides minimum standards for conservation, which the Governing Assembly is expected to exceed because of its role in managing a National Strategic Area that includes both cultural heritage sites and objects, and important landscape features including permanent rice terraces, national forests and lakes. Further details on the implementation of protective measures at the Provincial level are articulated in these additional Provincial decrees and regulations:

1. Regulation of the Government of Bali No. 6, 1989, concerning Guideline for the Planning of Landscape Arrangement within the Bali.
2. Provincial Decree of 2008 for Conservation and Spatial Planning for the proposed World Heritage sites named in this nomination document.
3. Regulation of the Government of Bali No. 17, 2010 concerning the creation of the Governing Assembly of Bali Cultural Heritage.
4. *Awig-awig* or traditional customary laws and regulations, including *subak* management and the traditional protection and conservation of cultural properties. Regulations of Bali Province Number 5 (2005) Section 19, clarify zoning for protected sacred sites such as temples, based on local *awig-awig* (customary law).



5. Decree of the Head Office for Archaeological Heritage Conservation of Bali-NTB-NTT on the Implementation of Protection and Management of Sites and Cultural Properties within its Command Area.

Finally, we conclude with the role of Regency (*Kabupaten*) governance in the implementation of protective measures. In general, each Regency conducts ongoing research, monitoring and planning for important Heritage objects and sites within their respective territories. From time to time these are formulated as planning documents. Examples include:

- *Regulation of the Government of Tabanan Regency No. 9, 2005 concerning Detail Plan for the Conservation of Subak Batukaru and Its Surrounding Areas Including the Conservation of Batukaru Mountain.*
- *Regulations of the Government of Badung Regency No 14, 2002, concerning Technical Spatial Plans for the Taman Ayun Sector of Mengwi District*
- *Decision 11/II/PHDIP/1994 by the Parisada Hindu Dharma Indonesia Pusat concerning sacred zones around temples*

These documents and regulations are the result of ongoing planning activities by various levels of governance in Bali. They provide an ongoing basis for monitoring, evaluation and implementation of protective measures in accordance with Indonesian law.

5.c.1.a Role of Buffer Zones

The buffer zones around each component part of this nomination vary in their dimensions and restrictions, depending on the character of each site. Here we explain the cultural rationale, legal basis and protective role of the buffers surrounding each site. For the sake of clarity this analysis follows the same order in which the maps and tabular information have been presented throughout the dossier. Accordingly we begin with the first component part, the supreme water temple.

001: Supreme Water Temple Pura Ulun Danu Batur

This temple was categorized as one of Bali's ten supreme temples (*Sad Kahyangan*) in a report to the Governor of Bali and the President of Indonesia from the Governing Board of the organization that legally represents Balinese



Hindus in Indonesia, the *Parisada Hindu Dharma Indonesia Pusat*, dated 25 January 1994.⁷ The 1994 memorandum proposes a radius of sacred lands (*Apaneleng agung*) extending five kilometers around each of the supreme temples of the island. The Batur temple is one of the temples specifically named in this list.⁸ With regard to zoning restrictions within these “sacred lands”, the memorandum also affirms the right and responsibility of village communities to manage both temples and buffer areas. Subsequently the five kilometer radius of *apaneleng* buffer around the supreme temples has been interpreted to be largely symbolic, though it has recently been invoked by the provincial government of Bali to prevent the construction of new commercial developments (e.g. hotels and villas) in the vicinity of the temple Ulu Watu on the south coast of Bali.⁹

The second key point of the 1994 memorandum, which refers to the role of local communities in the protection and maintenance of temples, has been affirmed by later regulations (as will be described below). The general principle is that designated communities bear primary responsibility for specific temples; this relationship of support is termed *pengempon* in Balinese. Thus while the congregation of the ten supreme (*Sad Kahyangan*) temples includes all Hindu Balinese, each temple is directly managed by a specific local community—in this case, the village community (*desa pakraman*) of Batur. To understand this relationship, it is relevant to know that the land on which Balinese families build their homes is seldom owned by individuals. Instead, the village or *desa pakraman* usually owns most or all of the land used for houses. This land is made freely available to families by *desa pakraman*, but in return they must fulfill certain responsibilities, many of which have to do with support for the temples for which the village is collectively responsible (the *pengempon* relationship). All Balinese Hindu villages require that their inhabitants care for their own “village temples” (*kahyangan tiga*), following the principles of *Tri Hita Karana*. In addition, some villages (like Batur) are also responsible for major temples like Ulun Danu Batur that are located within their domain, and have significance for all of Bali.

⁷ Bhisama Parisadha Hindu Dharma Indonesia mengenai Kesucian Pura Nomor 11/Kep/I/PHDI/1994 tertanggal 25 Januari 1994.

⁸ The ten *Sad Kahyangan* temples are listed on page 266 of Regulations of Bali Province Number 5 (2005) Section 19, which clarifies zoning for protected sacred sites, based on local *awig-awig* (customary law).

⁹ Until recently this temple stood alone and isolated at the southernmost tip of the island. In contrast, most other temples are close to inhabited areas.



The responsibilities of village communities for the upkeep of these major temples was further defined in Regulation of Bali Province Number 5 (2005) Section 19, which affirms the rights of local communities to impose zoning restrictions within sacred sites and buffer zones, based on their local customary law (*awig-awig*). This empowers communities to interpret the meaning of regulations such as the 5 kilometer perimeter around the most important temples. *Awig-awig* laws may be written or unwritten, and the legal status of unwritten *awig-awig* has been recognized throughout the colonial and post-colonial eras.¹⁰ Specifically, Article 108 (2005) states that “fixing the outer boundaries of each zone within the radius of the sacred site(s) is based on natural or artificial borders appropriate to the geographic condition(s) of each site.”¹¹ The article distinguishes between various types of zones, such as natural forest, cultivated areas, large buildings without walls used for meetings, ashrams and areas used for commercial purposes like shops or local markets.

The Batur temple is located on the rim of the caldera in the midst of the village land of the village of South Batur. **As explained in Chapter Two, the temple and village were resettled to this location by the Dutch colonial government in 1937 following the eruption of Mount Batur, which buried the old village and temple under several meters of lava.** The present-day temple on the rim of the crater is physically surrounded by the houses, shrines, small shops and alleys of the village of South Batur, facing the main road linking north and south Bali. The village community of Batur is in a relationship of *pengempon* (mandatory support) for the temple, a source of great pride for the people of Batur. From a legal standpoint, the *desa pakraman* or village community of South Batur has full ownership and authority to manage the land on which their village is built, which also constitutes the designated buffer zone. Thus the buffer zone for the temple corresponds to the village community that is recognized both locally and by the Government of Indonesia as responsible for the conservation and upkeep of the temple. Decisions about any changes to the temple or within the buffer zone (e.g.

¹⁰ For a comprehensive analysis of Balinese traditional law, see V. E. Korn, *Het Adarecht van Bali*. The Hague: Nijhoff, 1932.

¹¹ “...penentuan batas-batas terluar tiap zona radius kawasan tempat suci didasarkan atas batas-batas fisik yang tegas berupa batas alami atau batas buatan, disesuaikan dengan kondisi geografis masing-masing kawasan...” Article 108, Regulations of Bali Province Number 5 (2005) Section 19.



the lands owned collectively by the village) are the responsibility of the *desa pakraman* (village community). However, because of the status of Batur as one of the ten supreme temples of Bali, the Parisada Hindu Dharma (which represents all Balinese Hindus) reserves the right to challenge changes or conditions which they deem inappropriate.

002: *Lake Batur*

Two regulations pertain to the buffer area around Lake Batur. The provincial regulation described above, which establishes zoning restrictions for sacred sites, also specifically categorizes the four crater lakes of Bali as sacred regions (*kawasan suci*) which require protective buffers. However, the size of the required buffer is not defined in this regulation. This provincial regulation is supplemented by three national laws which define buffers for lakes, forests and springs.¹² These laws mandate a protective buffer of 100 meters around lakes. Presently the buffer zone around Lake Batur encompasses a variety of land uses, including several shrines and temples, sections of several villages, agricultural lands, fish farms, hotels and tourist facilities, and uncultivated land. Unlike temples, Balinese lakes are not the direct responsibility of specific villages (there is no *pengempon* relationship). Consequently, while the current land use practices within the designated buffer zone are not disallowed, in future it will be necessary for the Governing Assembly to carefully monitor conservation within the buffer zone and the lake. With regard to the buffer around the other two crater lakes included in the nominated property, see the discussion below for Part 004: Catur Angga Batukaru,

003: *Subak* Landscape of Pakerisan Watershed

A protective buffer zone encircles this component part. Along most of the perimeter of the site, it extends for a radius of 100 meters, in keeping with the national law which mandates such a buffer for watershed catchments.¹³ In this

¹² Three national laws define protective buffer zones for forests, lakes and rivers. The Republic of Indonesia Act No.5 of 1990 concerning environmental conservation; the Republic of Indonesia Act No. 41 of 1991 concerning forest conservation, and The Republic of Indonesia Act No.32 of 1990 concerning conservation establish the following protected buffer zones: for lakes 100 meters; springs 200 meters; rivers from 50 to 100 meters; catchments 100 meters and conservation forests 500 meters.

¹³ The Republic of Indonesia Act No.32 of 1990.



case the catchment pertains to the section of the Pakerisan river within the site. The buffer zone widens at two locations, east of the temple Pura Pegulingan and west of the temple Pura Tirtha Empul. As explained above, provincial laws create protected zones around Balinese temples, the size of which depends on the status of the temple.¹⁴ The temple Pura Pegulingan is located quite close to the eastern perimeter of the site. A buffer of radius 250 meters is mandated for temples of this type. Hence the radius of the buffer zone bulges eastwards 250 meters from the western entrance to this temple. This appropriately situates the small community of Basangambu within the buffer zone. Basangambu is the principal support (*pengempon*) for the temple Pura Pegulingan, and has primary responsibility for its day-to-day upkeep.

The buffer zone is also extended westwards from the temple Pura Tirtha Empul, to include the *Wisma Negara* (National Retreat), a mansion built by former President Sukarno in the 1960's which is now used by the national government for official functions. The grounds of the *Wisma Negara* form a natural extension to the buffer zone because they are already carefully conserved by the Provincial government. Including the grounds of the *Wisma Negara* within the buffer zone of the proposed Heritage site also appropriately extends the buffer to the west of the Tirtha Empul spring temple, as required by Provincial Regulation 5 (2005). The village of Manukaya Let, which is the *pengempon* (principal support) for this temple, is located within site, as are the *pengempon* for the other temples included in this component part.

004: *Subak* Landscape of Catur Angga Batukaru

The boundaries of the site are based on the ancient region “Catur Angga Batukaru” (Four Components of Batukaru), defined by the four ancient water temples and Pura Batukaru. The region is bounded to the north by the crater lakes Tamblingan and Buyan and surrounding forests. The lakes and forests are already well managed as conservation areas by the Forestry Office. To the east the region is bounded by the Yeh Ho river, except for a region consisting of a cluster of *subaks* located to the east of the river, which belong to the congregation of the temple Besi Kalung and are part of the traditional sacred landscape of Catur Angga. The boundaries of the site are extended eastwards from the river in order to encompass these *subaks*. The southern boundary is

¹⁴ Regulations of Bali Province Number 5 (2005) Section 19.



defined by the downstream limits of the *subaks* that form the congregation of the Catur Angga temple system. Within this region, the nominated area consists of everything within the site, including temples, lakes, forests, villages, *subaks*, rice terraces and gardens. The entire site (component part) is surrounded by a protective buffer zone with a radius of 100 meters, in accordance with provincial and national law (as explained earlier).¹⁵

This component part includes many landscape features that are subject to the Regulations of Bali Province Number 5 (2005) Section 19 described above. Thus Lakes Tamblingan and Buyan are specifically are designed as sacred sites in this regulation. The great temple Pura Batu Karu is also listed as one of the ten supreme temples of Bali, like the supreme water temple Ulun Danu Batur. Fortunately, this temple and the two crater lakes are located in forested areas that have so far escaped commercial development. During participatory mapping, the protected buffer radius of 100 meters mandated by the national laws cited above was deemed appropriate, because the site itself is so large that it already functions as a buffer around the lakes, temples and forests.

005: Royal Water Temple of Taman Ayun

Like the first component part, the temple Pura Ulun Danu Batur, this site consists of a single temple. But unlike the Batur temple, it is surrounded by a wide moat. Beyond the perimeter of the moat, a protective buffer zone extends for 250 meters around the temple. The size of the perimeter is based on Regulations of Bali Province Number 5 (2005) Section 19, which (as described above) defines the size of buffer zones for Balinese temples. Pura Taman Ayun is not specifically mentioned in these regulations, and accordingly falls into the category of major temples that are not otherwise named. However, within this buffer zone a set of regulations come into play that were formulated by the Government of the Regency of Badung in 2002. Within this buffer zone, the Badung regional government implemented zoning restrictions based on a master plan adopted in 2002. The plan takes note of the large number of foreign visitors to the temple, and permits commercial activity along the entrance to the temple (located to the

¹⁵ The Republic of Indonesia Act No.5 of 1990 concerning environmental conservation; the Republic of Indonesia Act No. 41 of 1991 concerning forest conservation, and The Republic of Indonesia Act No.32 of 1990 concerning conservation establish the following protected buffer zones: for lakes 100 meters; springs 200 meters; rivers from 50 to 100 meters; catchments 100 meters and conservation forests 500 meters.



south on both sides of Jalan (Street) Gunung Semeru. This area is designated as a “utilization zone”. The plan also permits residential buildings and shops to the east and west of the moat, but restricts the height of new construction within this “supporting zone.” The surrounding village of Mengwi is not included within the existing buffer zone as designated by the Regency. Presumably this is because the village does not stand in a *pengempon* supporting relationship to the temple. Instead, primary responsibility for the temple belongs to the royal family of the house of Mengwi.

5.c.2. Parties Involved in Protection and Management

The following table lists the parties involved in the protection and management of the properties included in the Cultural Landscape of Bali, each designation, and the legal basis.

No	Name of Property	Agency	Authority	Regulation
1.	Pura Ulun Danu Batur	<i>Desa Adat Batur</i>	1. Management of ritual ceremony 2. Management of traditional irrigation 3. Management of tourism	1. <i>Awig-awig of Desa Adat Batur</i> 2. Decree of Bangli Regency
2.	Pura Pegulingan	1. <i>Desa Adat Basangambu</i> 2. OAHC 3. <i>Subak Basangambu</i> 4. Tourism Agency of Gianyar Regency	1. Management of ritual ceremony 2. Management of archaeological conservation 3. Management of traditional irrigation 4. Management of tourism	1. <i>Awig-awig of Desa Adat Basangambu</i> 2. Act No.5, 1992 3. <i>Awig-awig subak</i> 4. Decree of Gianyar Regency
3.	Pura Tirtha Empul	1. <i>Desa Adat Manukaya</i> 2. OAHC 3. <i>Subak Pulagan</i> 4. Tourism Agency of Gianyar Regency	1. Management of ritual ceremony 2. Management of archaeological conservation 3. Management of traditional irrigation 4. Management of tourism	1. <i>Awig-awig of Desa Adat Manukaya</i> 2. Act No.5, 1992 3. <i>Awig-awig subak</i> 4. Decree of Gianyar Regency
4.	Pura Mengening	1. <i>Desa Adat Saraseda</i> 2. OAHC 3. <i>Subak Kulub</i>	1. Management of ritual ceremony 2. Management of archaeological conservation 3. Management of traditional irrigation	1. <i>Awig-awig of Desa Adat Saraseda</i> 2. Act no. 5, 1992 3. <i>Awig-awig subak</i>
5.	Gunung Kawi Rock Cut Temple	1. <i>Desa Adat Manukaya</i> 2. OAHC 3. Tourism Agency of Gianyar Regency	1. Management of ritual ceremony 2. Management of archaeological conservation 3. Management of tourism	1. <i>Awig-awig of Desa Adat Manukaya</i> 2. Act no. 5, 1992 3. Decree of local government
6.	Pura Luhur Batukaru	<i>Desa Adat Wangaya Gede</i>	Management of ritual ceremony	<i>Awig-awig of Desa Adat Wangaya Gede</i>



7.	Pura Luhur Pucak Petali	<i>Desa Adat</i> Yutu	Management of ritual ceremony	<i>Awig-awig</i> of <i>Desa Adat</i> Yutu
8.	Pura Luhur Besikalung	<i>Desa Adat</i> Babahan	Management of ritual ceremony	<i>Awig-awig</i> of <i>Desa Adat</i> Babahan
9.	Pura Luhur Muncaksari	<i>Desa Adat</i> Sangketan	Management of ritual ceremony	<i>Awig-awig</i> of <i>Desa Adat</i> Sangketan
10.	Pura Luhur Tamba Waras	<i>Desa Adat</i> Sangketan	Management of ritual ceremony	<i>Awig-awig</i> of <i>Desa Adat</i> Sangketan
11.	Pura Taman Ayun	Royal Family of Mengwi; <i>Desa Adat</i> Mengwi	Management of ritual ceremony of the Royal Family of Mengwi	<ol style="list-style-type: none"> 1. <i>Awig-awig</i> of <i>Desa Adat</i> Mengwi 2. Act no.5, 1992 3. Decree of Badung Regency 4. Customary law of <i>Puri Agung</i> Mengwi
12.	Rice Field Terraces and irrigation of <i>Subaks</i>	<ol style="list-style-type: none"> 1. <i>Desa Adat</i> 2. <i>Subaks</i> 3. OAHC 4. Agency for Tourism of Tabanan Regency 5. Agriculture Agency of Tabanan Regency 6. Agency for Public Works of Tabanan Regency 	<ol style="list-style-type: none"> 1. Management of ritual ceremony 2. Management of traditional irrigation 3. Management of archaeological conservation 4. Management of tourism 5. Management of agriculture 6. Management of infrastructure development and modern irrigation 	<ol style="list-style-type: none"> 1. <i>Awig-awig</i> of <i>Desa Adat</i> 2. <i>Awig-awig</i> <i>Subak</i> 3. Act no.5, 1992 4. Decree of Tabanan Regency no.9/2005

Desa Adat : Customary village
Awig-awig : Customary laws or regulations
OAHC : Office for Archaeological Heritage Conservation in Gianyar
Subak : Balinese traditional irrigation organization
Awig-awig Subak : Customary laws relating to the management of *subak* organization
Puri Agung : Royal Palace

5.d Existing Plans Related to Municipality and Region in Which the Proposed Properties are Located (e.g. Regional or Local Plan, Conservation Plan, Tourism Development Plan)

(Note: It is anticipated that these plans will be revised through the planning processes now under way by the Governing Assembly of Bali's Cultural Heritage)

No	Name of Property	Existing Plans of Local Community
1.	Pura Ulun Danu Batur	n/a
2.	Pura Pegulingan	n/a
3.	Pura Tirtha Empul	Buffer zone: Construction of public bathing place and working place for ceremonial preparation Outside buffer zone: Build a restaurant



4.	Pura Mengening	Core zone: Build a <i>Bale Pengaruman</i> , <i>Bale Pawedan</i> , <i>Bale Pitasan</i> , <i>Gedong-gedong</i> , <i>Bale Pengenteb</i> (all of this building are shrines in <i>Jeroan</i>), Build <i>Candi Bentar</i> (Gate) and <i>penyengker</i> (wall) in <i>Jaba Tengah</i> , Build a <i>Bale Paebatan</i> and <i>Bale Penandingan</i> (both this building are shrines in <i>Jaba</i>) Buffer zone: Repairing and consolidation of street and stairs leading to the <i>Pura Mengening</i> , consolidation of track towards <i>Pura Pucak</i> and <i>Pura Mertasari</i> .; Build a footstep leading to public bathing place.
5.	Gunung Kawi Rock Cut Temple	Core zone: Construction of a <i>Bale Wantilan</i> (hall) in front of <i>Bale Lantang</i> (shrine)
6.	Pura Luhur Batukaru	n/a
7.	Pura Luhur Pucak Petali	n/a
8.	Pura Luhur Besikalung	n/a
9.	Pura Luhur Muncaksari	n/a
10.	Pura Luhur Tamba Waras	n/a
11.	Pura Taman Ayun	Since 2002, construction and maintenance within the buffer zone have been regulated by Regulation 1400 of the Bupati Badung. There is ongoing improvement of the nearby roads, parking areas and small shops and restaurants

The Office of Archaeological Heritage Conservation in Gianyar has a comprehensive plan for the protection and conservation of ancient temples, including those within the nominated sites. The table below lists the planned activities (which may be revised by the Governing Assembly):

No	Sites	Existing Plans of the Office of Archaeological Heritage Conservation In Gianyar				
		Rescue	Protection	Restoration	Conservation	Development
1.	Pura Ulun Danu Batur	-	-	-	-	-
2.	Pura Pegulingan	-	-	-	-	-
3.	Pura Tirtha Empul	-	Protection of buffer zone by regulation to protect the landscape of its object.	Restoration and consolidation the structure of bathing pool and its wall.	Manual dry cleaning and chemistry conservation on the bathing place, its wall, <i>tapasana</i> and the gateway.	Socialization about health lives. Arrangement on the public bathing place.
4.	Pura Mengening	Building a dike for preserve from land slide danger.	Protection of buffer zone by regulation to protect the landscape of its object.	Restoration and consolidation of wall structure.	Manual dry cleaning and chemistry conservation on the <i>Prasada Agung</i> , wall and gate.	Socialization about health lives. Arrangement on the public bathing place.



5.	Pura Gunung Kawi (Rock Cut Temple)	Drainage arrangement above the rock cut temple and meditation shelter	Land free around the rock cut temple to protect the landscape of its object. Protection of buffer zone by regulation.	Restoration and consolidation the structure <i>gapura</i> and footstep into the <i>candi sepuluh</i> complex.	Manual dry cleaning and chemistry conservation on the rock cut temple and meditation shelter.	Controlling of the art shop around the stairs into the rock cut temple (Zone I).
6.	Pura Luhur Batukaru	-	Protection of buffer zone by regulation to protect the landscape of its object.	Restoration of the historical temple on the Batukaru area.	Conservation of the historical temple on the Batukaru area.	Plan arrangement and development of tourism infrastructure
7.	Pura Luhur Pucak Petali	-	Site inventory	-	-	-
8.	Pura Luhur Besikalung	-	-	-	-	-
8.	Pura Luhur Muncaksari	-	-	-	-	-
9.	Pura Luhur Tamba Waras	-	-	-	-	-
10	Pura Taman Ayun	-	Daily maintenance	-	-	-

5.e Property Management Plan: Other Management Systems

The detailed property management plan is available in Annex 5 of this dossier. Section 5 above describes the principal components of the plan. In addition, the main aims of the management plan are to:

1. ensure that all the cultural and natural assets included in the Cultural Landscape of Bali are preserved for future generations through appropriate social and ecological conservation and support schemes;
2. enhance public awareness, appreciation, and participation in conservation of the Cultural Landscape of Bali through education and improved site presentation;
3. help bring together interests of diverse stakeholders in the conservation and enhancement of the Cultural Landscape of Bali;
4. establish specific management guidelines that can be used by stakeholders for participation in the conservation and enhancement of the outstanding significance and values of the Cultural Landscape of Bali;
5. identify priorities for the allocation of available resources in order to protect and conserve the Cultural Landscape of Bali;



6. guarantee that the cultural landscapes are continuously monitored and regularly evaluated; and
7. provide a basis for future plans so that all changes within the nominated heritage can be managed.

5.f Sources and Levels of Finance

The Governing Assembly will be initially funded by the Provincial Government of Bali through the Office of Culture, providing a clear channel for accounting purposes. Major sources of funding are as shown below:

Code:

NB= National Annual Budget

PB= Provincial Annual Budget

RB= Regency Annual Budget

CMC= community and membership contributions

Sources and Levels of Financial Support

No	Purpose	Number of sites	Objects	Total expenditure	Sources
1	Conservation, restoration and temple rituals	11	Temples	\$330,000	NB, PB, RB, CMC
2	Forest Conservation	1	Forests	100,000	PB
3	Assistance to villages	21	Villages	105,000	PB
4	Assistance to villages	21	Villages	42,000	RB
5	Empowering <i>subaks</i>	18	<i>SUBAK</i>	36,000	PB & RB
6	Support for farmers	18	<i>SUBAK</i>	360,000	NB, PB & RB
7	Infrastructure (roads, drainage, bridges etc)	30	Kilometer	1,500,000	NB, PB & RB
8	Tourism Development	4	Each site	100,000	PB & RB
10	Governing Assembly	1	Annual budget	20,000	PB
	TOTAL			\$2,593,000	USD



Details of budget items:

1. Conservation, restoration and educational activities

In addition to the regular annual contributions to each major temple that specific villages are obliged to make, the eleven major temples included in this nomination receive support from private contributions (*nyungsung*) and from the Office of Religion at the National, Provincial and Regency levels. The figure of \$330,000 is an estimate based on information provided by staff of the Provincial Office of Religion.

2. Forest Conservation

The entire forest included withing the Catur Angga Batukaru site is protected forest that is already managed by the Indonesian government. The share of the annual budget of the Forestry Office of Bali that is allocated to the conservation and monitoring of these forests is estimated to be approximately \$100,000 by the Head of the Office.

3. Assistance to Villages

Each village (*desa pakraman*) in Bali is presently entitled to annual assistance totalling \$5000 from the Provincial government. These funds are normally spent on conservation of village temples and local infrastructure improvement.

4. Empowering *subaks*

The Provincial government allocates \$2000 per year to assist each *subak*.

5. Support for farmers

The Provincial office of Agriculture receives subsidies for agriculture from the national government, and support for wet rice agriculture and rice production is a high priority. US \$20,000 has been allocated for agricultural extension activities and direct support for farmers in each of 18 *subaks* for 2011.

6. Infrastructure

The National Ministry of Public Works allocates funds to the Provincial level, which in turn carries out collaborative work on infrastructure with the Regency offices of Public Works. This includes repairs, maintenance and new construction of roads, bridges, drainage canals and irrigation works.



7. Tourism Development

The Dept of Culture and Tourism has branches at the national, provincial and regency levels. Funds are promised to support the activities of the Governing Assembly to improve the tourist facilities within the nominated areas, which require major new investment to accommodate the anticipated master plans.

8. Support for Governing Assembly

The Office of Culture and Tourism has requested and received \$20,000 to support initial activities of the Governing Assembly. Formulating a request for additional support will be on the early agenda of the Assembly.

In addition, contributions are expected from the Ministry of Culture and Tourism and the Regency governments of Tabanan, Gianyar, Bangli and Buleleng. During its first year of operation, the Governing Assembly will develop comprehensive master plans for each site and the property as a whole. These plans will include projects designed to enhance revenue from visitors, which are expected to be substantial. Financial management will be in the hands of the Finance Unit of the Secretariat of the Governing Board.

The office of the Governor of Bali is now developing a comprehensive budget for 2011. Exact figures are still under discussion, but the Provincial Planning office (BAPPEDA) has clarified that the budget will include funds for initial staffing of the Secretariat; offices, materials, supplies and equipment for the Secretariat; funds for honoraria and expenses for members of the Governing Assembly; funds for monitoring and evaluation, and for design of new facilities.

5.g. Sources of Expertise and Training in Conservation and Management Techniques

Subaks and local communities will retain responsibility for the day-to-day site maintenance and conservation, based on existing institutional and legal structures of *subak awig-awig* and customary *adat* law. Daily maintenance utilizes traditional management systems and techniques to protect and maintain the landscape and its properties. Physical properties are maintained through traditional craftsmanship. *Subaks* maintain irrigation channels collectively using ancient techniques. In some cases, local management and maintenance techniques are supported by local government (e.g., irrigation works). While traditional protection and conservation methods have proved effective for



hundreds of years, recent developments call for integrated protection and conservation measures to cope with increasingly complex development pressures. Hence, training activities and expertise in conservation will complement traditional management of Bali's heritage.

There are many sources of expertise which will be helpful to enhance the capability of local people in the conservation and management of the properties.

1. The Office of Archaeological Heritage Conservation of Bali-NTB-NTT has some expertise and training in conservation and management technique. The office is staffed with archaeologists, anthropologists, historians, and architects who can help the local conservators through training and technical assistance.
2. The Department of Archaeology, Faculty of Arts, Udayana University, and the Departement of Archaeology, Faculty of Cultural Sciences, Gadjah Mada University offer training in Cultural Resource Management. Such institutions can help to establish the more detail conservation and development plans for the properties.
3. The Bali Heritage Trust has training and workshop for management of heritage. The institution is staffed scholars with good experience in bringing social awareness to the public on the need to conserve Balinese heritage.
4. The Borobudur Conservation Centre in Magelang, Central Java, may provide training and workshop especially on material conservation which are much needed by the local conservators.
5. The Directorate General of History and Archaeology in Jakarta facilitates and promotes the programs to enhance people's awareness on the heritage conservation, provide technical as well as financial support, and offers training in conservation and management of the heritage.
6. A principal external collaborator will be the Stockholm Resilience Center. The Center, a premier institution for environmental research and adaptive governance of sociocultural-ecological systems at Stockholm University, will support research, capacity building, and policy development.



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5.h Visitor Facilities and Statistics

Visitor Facilities

No	Name of Property	Road and Bridge	Guardian Post	Retribution post	Information Office	Art shop	Restaurant	Toilet	Parking	Shelter	Garden	Information Warning and Guide Board	Public Telephone
1	<i>Pura Ulun Danu Batur (Supreme Water Temple)</i>	-	1	2	1	35	25	2	1500m ²	1	-	1	2
2	<i>Pura Pegulingan</i>	500 m	-	-	-	-	-	3	150m ²	-	-	3	-
3	<i>Pura Tirtha Empul</i>	300 m	1	2	2	150	15	12	1000 m ²	3	1000 m ²	5	1
4	<i>Pura Mengening</i>	300 m	-	-	-	-	-	-	750 m ²	1	750 m ²	3	-
5	<i>Pura Gunung Kawi Rock Cut Temple</i>	700 m	1	1	-	90	1	3	500 m ²	1	500 m ²	5	-
6	<i>Pura Luhur Batukaru</i>	-	1	1	-	-	-	1	2000m ²	1	-	-	-
7	<i>Pura Luhur Pucak Petali</i>	-	-	-	-	-	-	-	1000m ²	-	-	-	-
8	<i>Pura Luhur Besikalung</i>	-	-	-	-	-	-	-	700m ²	1	-	-	-
9	<i>Pura Luhur Muncaksari</i>	-	-	-	-	-	-	-	2500m ²	1	-	1	-
10	<i>Pura Luhur Tamba Waras</i>	-	-	-	-	-	-	-	3000m ²	1	-	1	-
11	<i>Pura Taman Ayun</i>	700 m	1	2	-	50	-	-	500 m ²	8	2000 m ²	5	-



Statistics of Recreational Visitors

No	Name of Property	2002		2003		2004		2005		2006		2007		2008		2009	
		Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
1	Pura Ulun Danu Batur (Supreme Water Temple)	4700	7400	8300	16000	20000	21000	23000	21000	25900	26900	30700	23700	32200	24000	30750	25700
2	Pura Pegunungan	700	300	7150	350	800	400	760	390	975	451	925	475	1000	375	1150	500
3	Pura Tirtha Empul	4350	31601	38575	20602	48876	30848	30983	20756	21750	20750	30850	22800	31000	33700	22900	24000
4	Pura Mengening	1254	2431	983	1845	4109	3768	2548	1254	2045	1375	2590	1425	4900	2579	2125	1254
5	Pura Gunung Kawi (Rock Cut Temple)	4520	25740	6026	16813	15289	30899	8905	15663	8679	15925	8290	5967	9645	15947	9925	15965
6	Pura Luhur Batukaru	1600	300	1700	350	2000	3700	2200	3500	2700	325	3150	465	3250	510	3215	567
7	Pura Luhur Pucak Petali	1700	250	2500	275	2750	300	2950	375	3100	370	3450	35	3425	340	3567	340
8	Pura Luhur Besikalung	1500	75	1700	60	1900	70	2000	35	2500	45	2500	49	3000	67	31000	75
9	Pura Luhur Muncaksari	2700	80	3250	95	3791	175	3891	185	3961	221	4767	231	4975	251	4761	256
10	Pura Luhur Tamba Waras	3700	65	3900	75	3250	80	4075	67	4116	69	4250	76	4300	79	4700	675
11	Pura Taman Ayun	110149		100541		12750		13870		12000		12750		12800		14150	



Statistics of Pilgrimage Visitors

No	Name of Property	Number of Pilgrims	Season/Date
1	<i>Pura Ulun Danu Batur</i> (Supreme Water Temple)	2 villages +- 30,000 persons	Purnama sasih kedasa
2	<i>Pura Pegulingan</i>	1.025	Odelan Agung (fifth full moon)*, annual
3	<i>Pura Tirtha Empul</i>	10.655	Tumpek Wayang (shadow puppet anniversary), biannual Purnama Kapat (fourth full moon), annual
4	<i>Pura Mengening</i>	250	Sasih Karo (Second moon), annual
5	<i>Pura Gunung Kawi</i> (Rock Cut Temple)	2.824	Purnama ke 3 (Third full moon), annual
6	<i>Pura Luhur Batukaru</i>	2 villages +- 3000 persons	Wraspati umanis wuku dunggulan
7	<i>Pura Luhur Pucak Petali</i>	2 villages +- 3500 persons	Buda umanis wuku prangbakat
8	<i>Pura Luhur Besikalung</i>	1 villages +- 1000 persons	Buda Kliwon Wuku Sinta
9	<i>Pura Luhur Muncaksari</i>	2 villages +- 1000 persons	Anggara Kasih Wuku Medangsia
10	<i>Pura Luhur Tamba Waras</i>	1 villages +- 1000 persons	Buda Umanis Wuku Prabangkit
11	<i>Pura Taman Ayun</i>	37 Villages	Anggara Kasih, Wuku Medangsia, biannual



Sign Board at Pura Taman Ayun



5.i Policies and Programmes Related to the Presentation and Promotion of the Property

The policies and programs set up for the sites included in the nominated Cultural Landscapes of Bali cover ten important issues, as follows:

- 1) Boundaries and settings of the heritage
- 2) Conservation of cultural materials
- 3) Changing landscape and bio-diversity
- 4) Changing way of life
- 5) Tourism and visitor management
- 6) Infrastructure
- 7) Community development
- 8) Continuing research
- 9) Organizing body, and
- 10) Monitoring and evaluation

In this section, policies and programs will be summarized. Detailed programs are described in the Management Plan annex 5.

Policies

- (1) Boundaries and setting of the heritage
 - A. to maximize the protection of the heritage, protected zones will be clearly marked in each site.
 - B. Legal statutory will be applied to the protected zone for better management and appropriate regulations will be identified and implemented for each zone as needed by the Working Group on Law.
- (2) Conservation of Cultural Materials
 - A. Programs to conserve and preserve the easily deteriorated cultural materials will be a priority in the management plan to ensure the authenticity of the heritage.
 - B. Such conservation programs will consider Balinese traditional wisdom and techniques in this field and involve traditional/ local conservation specialists (*undagi*)
 - C. Detailed inventory and documentation of the heritage will be carried out to establish a base line for conservation by the Working Groups on Environment and Culture.



(3) Changing Landscape and Bio-diversity

- A. Particular statutory regulations will be modified as deemed necessary by the Governing Assembly to prevent changes in the settings of the sites and the cultural landscape as well as to maintain the authenticity, integrity, and enjoyment of the heritage
- B. Increasing awareness among the local population on the benefit of preserving their cultural landscape is an important means to prevent changes in the settings of the sites and the cultural landscape. This is a top priority for the Working Group on Visitors and Education.
- C. Recently altered parts of the sites and cultural landscape may be rehabilitated and restored to its original arrangement so that the Cultural Landscape of Bali can be perceived as a clear reflection of the Balinese cosmological doctrines. Such rehabilitation and restoration of the cultural landscape will include the original bio-diversity of the area. Plans for such changes will be evaluated by the Governing Assembly.

(4) Changing Way of Life

There is no significant change in the Balinese way of life. However, to anticipate long term changes, programs to anticipate harmful changes may be planned.

(5) Tourism and Visitor Management

- A. The policy for tourism development in Cultural Landscape of Bali adopts the guidelines set up by ICOMOS for sustainable tourism, in which the balance between heritage conservation and tourism is nurtured. Ongoing review and planning on this topic is the chief task of the Working Group on Visitors and Education.
- B. The goal of the tourism development plans for each site will be environmentally and economically sustainable for the benefit of the local economy as well as conservation and preservation of the heritage.
- C. The Working Group on Visitors and Education will develop comprehensive proposals for dramatic improvements to the educational information available to visitors and students at the Heritage sites.



(6) Infrastructure

- A. Plans and proposals for improvements to infrastructure will be developed and reviewed by the Working Group on Infrastructure. Any construction of infrastructure within the nominated Cultural Landscape of Bali will be based on thorough preliminary studies by the Secretariat staff, and approved by the Working Group and/or the entire Governing Assembly.
- B. Infrastructure development will not obstruct and damage the cultural landscape. An impact assessment study will be conducted before development is carried out by the Secretariat staff.
- C. Guidelines for infrastructure development within the areas included in the Cultural Landscapes of Bali will be drafted, approved by the Governing Assembly and published widely to provide guidance for any construction plan.

(7) Community Development Plan

The inscription of the Cultural Landscape of Bali will benefit local communities

- (8) By virtue of their representation on the Governing Assembly, all local communities will be involved in all stages of the heritage management, from assessment and planning & implementation to monitoring

(9) Continuing Research

- A. Ongoing research on aspects of social, economic and environmental conditions within the nominated properties will be carried out within the sites of Cultural Landscapes of Bali, both by the Secretariat and by academic partners and NGOs.
- B. The ultimate goal of the research is to enhance the quality of interpretation and presentation of the outstanding universal value of the heritage

(10) Organizing Body

- A. As stipulate by Provincial Decree, the organizing body is the Governing Assembly of Bali's Cultural Heritage.
- B. The Governing Assembly will receive support from the Provincial and National governments, as shown in Figure 5.1.



- C. The governing body will balance priorities for conservation, social welfare, heritage preservation and education, and will seek to sustain the Outstanding Universal Value of the nominated property.
- D. The organizing body will not depend entirely on the government for financial support.

(11) Monitoring and Evaluation

- A. Monitoring all the programs established in the management plan will be carried out on an ongoing basis by the Monitoring and Evaluation Unit of the Secretariat.
- B. Guidelines for monitoring and evaluation will be developed by the Secretariat in consultation with all parties involved in the management of the heritage.
- C. For the time being, the office of Archaeological Heritage Conservation in Gianyar will be responsible for monitoring the archaeological sites.
- D. *Bandasa Desa* (customary village leader) or *Pakaseh* (*subak* heads) and owners of the properties will monitor any site under their care and will report results to the Secretariat as needed.
- E. The Governing Assembly will meet at least twice a year.
- F. The Monitoring and Evaluation Unit of the Secretariat will provide continuing access to information using a Geographic Information System, and will provide reports annually or as requested by the Secretary or the Governing Assembly.

5.j Staffing Levels

- a. The Secretariat of the Governing Assembly consists of an appointed Secretary and a professional staff in each of three units: Planning, Finance and Human Resources, and Monitoring & Evaluation. Each of these units consists of one or more permanent staff. In addition, two units also include part-time staff from other government offices, who have been designated to serve as liason and part-time staff as needed by the Secretariat. For the Planning Unit, these part-time staff are drawn from the Planning Offices (BAPPEDA) at the Provincial and Regency levels. For the Human Resources and Finance Unit, these designated part-time



staff are seconded by the Regional Employment Authority (BKD) and the Finance Department (Biro Keuangan).

- b. Representatives to the Governing Assembly are reimbursed for their expenses and paid a small honorarium for attendance at meetings and participation in the activities of the Working Groups.
- c. At local community level, daily protection and maintenance of the properties nominated in the Cultural Landscape of Bali are undertaken by villagers who live around and actively use the properties. They are coordinated by the head of the village to carry out voluntary works to do simple cleaning and small repairs in the temples. *Subak* members manage and care for their irrigation systems and rice terraces. Each temple is cared for by its congregation. Larger repairs or refurbishments are carried out by traditional specialists including carpenters, masons, builders, as well as other craftsmen. Their skills have been inherited from generation to generation for centuries. With their skills they are capable to undertake proper preservation and renovation if necessary, as guided by *awig-awig* (customary law and regulations) and other Balinese ways of life.
- d. For the care of archaeological sites in the Pakerisan valley, the Office of Archaeological Heritage Conservation in Gianyar, as Coordinating Body, has six archaeologists, two anthropologists, and a number of technicians or conservators with good experiences in preservation and conservation. The office will provide technical assistance, expertise, training as well as financial support to the preservation and conservation of the properties. The Cultural Board of Bali has some experts in cultural and tourism management. The Office will provide training at local community level to deal with cultural and tourism development, especially in cultural and ecotourism. The Faculty of Arts at Udayana University in Denpasar may also provide assistance especially in developing intangible heritage related to the Cultural Landscape of Bali. The Faculty has many experts in Balinese cultural studies and also the *Subak* system. All these stakeholders have agreed to help with the management and conservation of the properties.



CHAPTER SIX

MONITORING



CHAPTER SIX

ADAPTIVE MONITORING, EVALUATION, AND REPORTING SYSTEM

Effective co-management of Bali's proposed World Heritage property requires a consistent and comprehensive flow of information that can be readily synthesized and utilized—for both the short-term implementation of the program and for longer term planning. This function is provided by the Monitoring & Evaluation Unit of the Secretariat of the Governing Assembly. Building on the Geographic Information System and databases collected in connection with the preparation of this nominating dossier, the Monitoring & Evaluation Unit will conduct ongoing studies of key social and ecological indicators, and the state of conservation of the World Heritage properties. Baseline data on livelihoods, *subak* institutional capacity, and environmental factors such as soil and water quality and environmental change have been collected to varying degrees in the Catur Angga Batukaru and Pakerisan areas (2006-2010). This baseline data will be reviewed to identify core indicators of sustainability and identify current knowledge gaps. Data will be collected to fill these gaps and the baseline study extended to the Mengwi site and any other future serial sites. It will be important to monitor and report on regular program outputs (i.e., the provision of goods and services such as distribution of organic fertilizer and training in organic farming). Periodic evaluations will be conducted to assess the overall social and ecological impacts of the program, against baseline data. The monitoring and evaluation process begins with the work of the professional staff of the Secretariat, and continues with consultation with Working Groups and stakeholders via the Governing Assembly.

6.a Key Indicators to Measure the State of Conservation

Because the property includes a diverse cluster of sites, each with different attributes, it will be necessary to establish a small set of core social-ecological indicators for overall program monitoring. Output level indicators will be tailored to each individual site, to monitor the site-specific activities. The system will be closely linked to the participatory planning process and implementation of specific



activities at each of the sites. To develop a system that effectively integrates and responds to social and ecological feedback, the Secretariat will seek guidance from the Stockholm Resilience Center. In addition, the Indonesian Ministry of Culture and Tourism, as the official State Party, may request expert advice from the World Heritage Advisory Bodies and the Secretariat. Periodic reports will be submitted to the UNESCO World Heritage Centre.

The table below presents potential key indicators for measuring the state of conservation and change in the social-ecological system. The indicators correspond with the five Strategic Priorities discussed in the Management Plan (Annex 5).

- I. Livelihood protection and enhancement** for *subak* institutions and their members, as guardians of Bali's unique cultural landscape;
- II. Conservation and promotion of ecosystem services** to ensure sustainable use of natural resources upon which *subaks* and their farming systems depend;
- III. Conservation of material culture** to preserve and enhance the authenticity of sites and structures as a living manifestation of Bali's heritage;
- IV. Appropriate tourism and educational development** within the site, to achieve a balance between public and visitor education, generation of tourism-based revenue, and conservation.
- V. Infrastructure and facility development** consistent with preservation and enhancement of the cultural landscape.

An additional set of indicators presented in the table will be used to monitor changes in context that potentially affect the conservation and enhancement proposed initiatives. Baseline data for the indicators and targets will be determined based on findings from comprehensive site assessments planned for year one of the initiative. Except for general monitoring of the Cultural Landscape of Bali Province, the protection and conservation of each site will be monitored and evaluated according to its state of conservation. This process will involve *subaks* and local communities via the Working Groups. Additional information on the conservation measures listed below is provided in Chapter Five of the Management Plan.



Acronym List of Responsible Authorities

BA	<i>Bendesa Adat</i> (Traditional Village Authority)
BPTP	Institute of Agricultural Research and Technology Assessment, Bali Ministry of Agriculture
OPW	Office of Public Works
COBP	Cultural Office of Bali Province
DGHA	Directorate General for History and Archaeology
GA	Governing Assembly of Bali Cultural Heritage
GBP	Government of Bali Province
IAUA	Individual Academic, University or Other Research Agencies (Stockholm Resilience Center, Udayana University)
IMA	Indonesian Ministry of Agriculture
IMCT	Indonesian Ministry of Culture and Tourism
IME	Indonesian Ministry of Education
IMEMR	Indonesian Ministry of Energy and Mineral Resource
IMEnv	Indonesian Ministry of Environment
IMF	Indonesian Ministry of Finance
IMFor	Indonesian Ministry of Forestry
IMH	Indonesian Ministry of Health
IMPU	Indonesian Ministry of Public Works
MONEV	Monitoring and Evaluation unit of Secretariat
NGO	Non-Government Organization
OAHC	Office for Archaeological Heritage Conservation in Gianyar
OARB	Office for Archaeological Research, Bali
ORHT	Office for Research on History and Traditional Values in Bali
RG	Regional Governments (<i>Kabupaten</i> : Badung, Bangli, Buleleng, Gianyar, Tabanan)
SBK	<i>Subaks/Pekaseh Subak</i>
SRC	Stockholm Resilience Centre
TOBP	Tourism Office of Bali Province
WGA	Working Group on Agriculture of Governing Assembly
WGC	Working Group on Culture of Governing Assembly
WGE	Working Group on Environment of Governing Assembly
WGSi	Working Group on Social & Infrastructure of Governing Assembly
WGL	Working Group on Law/Governance of Governing Assembly
WGVE	Working Group on Visitors & Education of Governing Assembly

No.	Key Indicators	Factors Affecting State of Conservation/ Social-Ecological System	Conservation Measures	Periodicity	Responsible Authority
I. Livelihood Protection and Enhancement for <i>subak</i> Institutions and Members					
1	% change in cultivated rice paddy land (ha)	Development pressures on households encourage sale and subsequent conversion of rice terraces	Provision of farm land tax relief	Annual	MONEV BA WGA
2	% change in farmers cultivating own land (v. sharecropped)	Farmers are unable to earn sufficient income from farming and migrate to urban areas; landless farmers work as sharecroppers	Provision of farm land tax relief	Annual	MONEV BA WGA
3	% change in sale of cultivated rice land (ha)	Development pressures on households encourage sale and subsequent conversion of rice terraces	Provision of farm land tax relief	Annual	MONEV BA WGA
4	% change in income from cultivated paddy	External factors such as pest outbreaks and falling rice prices affect farmer income from harvest; lack of familiarity with organic methods may delay uptake of higher value organic rice in Sebatu, Tampaksiring, and Mengwi areas	<ul style="list-style-type: none"> • Provision of farm land tax relief • Subsidies and technical assistance for organic rice production 	Annual	MONEV BA WGA



5	% change in utilization of basic health services	Insufficient income or lack of available services inhibit use of health care facilities	Provision of health care subsidy	Annual	MONEV BA WGSI
6	% change in educational attendance among primary school students, boys and girls	Inability to afford school fees precludes families from sending children to school	Provision of health care subsidy	Annual	MONEV BA WGSI
7	% change in graduation rate (SMA)	Inability to afford school fees precludes families from sending children to school	Provision of educational subsidy	Annual	MONEV BA WGSI
8	% change in functioning* <i>subaks</i> (e.g., maintenance of irrigation works, equitable distribution of water)	In some areas of Bali, excessive land conversion and change in principal occupation away from farming has led to the disintegration of the <i>subak</i>	<ul style="list-style-type: none"> • Double current level of annual government allocation to <i>subaks</i> • Capacity-building and training workshops 	Annual	MONEV BA WGA OPW
9	Qualitative change in ceremonial rituals at water temples	Outmigration, particularly among youth, reduces knowledge and awareness of ritual practices; various factors such including lack of fulfillment of ritual obligations leads to change in ceremonial practices (e.g., role of royal family in maintaining ritual obligations, change in traditional <i>subak</i> offerings of rice bundles)	<ul style="list-style-type: none"> • Educational programs to improve awareness and knowledge of traditional values and practices • Cultural exhibitions and exchange programs • Provide advising services to <i>subaks</i> to manage cost of ceremonial activities 	Annual	MONEV WGC BA
10	% change in awareness among local population of outstanding universal values of the property	Affects the local value and appreciation of the property, as well as active participation in conservation efforts	<ul style="list-style-type: none"> • Educational programs to improve awareness and knowledge of traditional values and practices • Cultural exhibitions and exchange programs 	Annual	MONEV BA WGC ORHT

functioning subak will be defined based on locally determined criteria attained during community assessments



II. Conservation and Promotion of Ecosystem Services

1	% change in violation of forest conservation regulations	Development pressure and livelihood insecurity lead to illegal use of forested areas, which in turn deteriorate water catchment services, increase soil erosion, and undermine sustainable supply of forest products	<ul style="list-style-type: none"> • Study formal and non-formal forest management • Socialization for forest conservation • Support for households relying on forest production • Enforcement of forest conservation regulations 	Annual	MONEV WGL BA IMFor
2	% change in forest cover	Population and development pressures lead to over use of forested areas, which in turn deteriorate water catchment services, increase soil erosion, and undermine sustainable supply of forest products	<ul style="list-style-type: none"> • Study formal and non-formal forest management • Socialization for forest conservation • Support for households relying on forest production • Enforcement of forest conservation regulations 	Annual	MONEV WGL BA IMFor
3	% change in forest species diversity	Population and development pressures lead to over use of forested areas, which in turn deteriorate water catchment services, increase soil erosion, and undermine sustainable supply of forest products	<ul style="list-style-type: none"> • Study formal and non-formal forest management • Socialization for forest conservation • Support for households relying on forest production • Enforcement of forest conservation regulations 	Biannual	MONEV WGL BA IMFor
4	% change in area cultivated with organic rice (ha)	Excessive use of chemical agricultural practices since the 1970s has deteriorated soil quality and rice paddy ecology	<ul style="list-style-type: none"> • Provide financial incentives to farmers to support costs of transition to organic farming • Implement training program for farmers in organic farming, post-harvest handling, processing and marketing • Provide 	Semi-annual	MONEV WGA BA



			ongoing extension services for organic farming		
5	Change in number of farmers cultivating organic rice	Excessive use of chemical agricultural practices since the 1970s has deteriorated soil quality and rice paddy ecology	Support transition to organic farming (see above)	Semi-annual	MONEV WGA BA
6	% change in area planted to local rice varieties	Modern agricultural practices introduced hybrid rice varieties, replacing traditional organic Bali rice	Provide assistance and incentives to certify organic Bali rice for export	Semi-annual	MONEV WGA BA
7	Change in soil fertility (NPK, soil organisms)	Excessive use of chemical agricultural practices since the 1970s has deteriorated soil quality and rice paddy ecology	Support transition to organic farming (see above)	Annual	MONEV WGA
8	Change in post harvest crop pesticide residue	Excessive use of chemical agricultural practices since the 1970s has deteriorated soil quality and rice paddy ecology	Support transition to organic farming (see above)	Annual	MONEV WGA
9	Change in rate of irrigation flow (litre/sec.)	Development and population pressures reduce spring flow	Prohibit deep well construction; enforce existing restrictions	Semi-annual	MONEV WGA
10	% change in levels of dissolved reactive phosphate (PO ₄) in springs, river water, and lakes	Excessive use of chemical agricultural practices since the 1970s has deteriorated water	<ul style="list-style-type: none"> •Support transition to organic farming thereby decreasing use of chemical fertilizers •Develop composting facilities for livestock waste 	Annual	MONEV WGA
11	Number of key government staff and farmers trained in ecosystem services concepts and practices	Forestry, agricultural, and water resource sectors operate as separate and non-integrated sectors; training in ecosystem services will enhance linkages among agencies and encourage focus on watershed scale	Train government agencies and farmers in ecosystem services concepts and conservation practices	Annual	MONEV WGA BA

III. Conservation of Material Culture

1	Change in presence of micro-organisms cover on structures (moss, lichen, fungi, algae, <i>pteridophyta</i> , spermatophyte,	Deterioration of structures and materials due to rapid growth of microorganisms, noted in particular at Pura Tirtha Empul, Pura Gunung Kawi, and Pura Mengening in Tampaksiring	Inspect and treat/ restore damaged parts of properties and replace new fabricated materials which do not conform to the	Monthly	MONEV OAHC BA WGC
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	and bryophyte)		conservation policy		
2	Change in chemical deterioration of structures (salting)	Deterioration of structures and materials due to chemical deterioration	Inspect and treat/ restore damaged parts of properties and replace new fabricated materials which do not conform to the conservation policy	Monthly	MONEV OAHC
3	Change in physical deterioration of structures (cracks, length, width, depth)	Deterioration of structures and materials due physical deterioration; particularly problematic at Pura Mengening, Tampaksiring	Inspect and treat/ restore damaged parts of properties and replace new fabricated materials which do not conform to the conservation policy	Monthly	MONEV OAHC
4	Change in deterioration of structures from human factors (looting, graffiti, over-use)	Deterioration of structures and materials due to heavy use and increasing tourism pressure, particularly at Pura Gunung Kawi and Tirtha Empul in Tampaksiring and Pura Taman Ayun in Mengwi; damage to stones from graffiti or theft of ancient relics occurs, though rarely	<ul style="list-style-type: none"> Inspect and treat/ restore damaged parts of properties and replace new fabricated materials which do not conform to the conservation policy Establish guidelines for use of highly significant buildings and cultural materials 	Monthly	MONEV OAHC
5	Number of local conservation specialists (<i>undaqi</i>) trained in integrated local and contemporary material preservation	Local knowledge and practice of local conservation techniques is threatened by youth outmigration and modern techniques that interfere with traditional methods	<ul style="list-style-type: none"> Integrate research on local knowledge and modern conservation techniques into training materials Conduct training workshops with local conservation specialists 	Semi-annual	MONEV OAHC



6	Extent of structures and landscape rehabilitated with traditional materials	Modern rehabilitation practices undermine use of local materials and expertise in restoring structures; deforestation and high demand leads to lack of available local materials; development pressures from increasing tourism, population growth leads to conversion of the land, road development, or extension of commerce (retail shops) or services (electrification) in a manner that alters the traditional character of the landscape. Restoring structures and landscapes while respecting the ongoing process of dynamic change (livelihoods, change in living heritage) presents a challenge.	<ul style="list-style-type: none"> • Rehabilitate and restore altered cultural landscapes in sites, as needed • Restore damaged parts of properties and replace new fabricated materials which do not conform to the conservation policy • Provide incentives to local communities for the restoration and maintenance of traditional architecture • Conserve forested areas above and surrounding the sites to ensure supply of local materials 	Annual	MONEV OAHC BA
7	Number of public meetings conducted on maintenance of cultural landscape	Development pressures undermine appreciation of local population for their cultural landscape heritage	Provide public education via traditional flora to enhance awareness among the local population of the benefits of maintaining their original cultural landscape	Annual	MONEV OAHC

IV. Appropriate Tourism Development

1	Number of community consultative workshops held on sustainable tourism development	Present rate of tourism development is rapid and unplanned, often leading to a deterioration of the quality of the site and subsequent visitation. Changes or regulations regarding tourism development should be in consultation with community members and stakeholders	Hold consultative workshops on Sustainable Tourism in Bali involving the local population living surrounding the heritage sites	Annual	MONEV WGVE TOBP BA
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2	Change in number of visitors to World Heritage sites	Findings from consultative meetings will provide a basis for tourism development plans	<ul style="list-style-type: none"> Establish a new tourism management plan Establish visitor management plan for individual sites 	Annual	MONEV WGVE TOBP BA
3	Change in number of visitors to visitor centre and trail networks	Presently there is a lack of visitor facilities and access to sites. Development of facilities and trail networks based on traditional architecture and design will manage the flow of visitors to sites	Establish visitor centers and trail networks through rice terraces and to select water temples at each site (initial consultation and landscape planning in 2008)	Monthly	MONEV WGVE TOBP BA
4	Change in visitor appreciation of site (visitor surveys)	It is anticipated that increasing visitor appreciation will also enhance the sense of public responsibility for maintaining the sites	Enhance visitor facilities, access, and interpretive materials	Semi-annual	MONEV WGVE TOBP BA
5	Tourism revenue transferred to <i>subaks</i> and site conservation funds	Presently, revenue from visitor entrance fees to rice paddy areas (e.g., Jatiluwih) is distributed to communities and local governments. Revenue from entrance to temple sites is distributed to government agencies and communities responsible. Entrance fees can be increased for international visitors and a portion allocated to site conservation and to <i>subaks</i> .	Establish and maintain a mechanism to redistribute tourism revenue for conservation of the heritage sites	Annual	MONEV WGVE TOBP BA
6	Change in number of scientific and educational publications on the cultural landscape (as basis for interpretive materials)	Current gaps in knowledge of history and archaeological significance of sites is in some cases limited; further study is required.	Carry out scientific studies on the property to fill information gaps and increase knowledge of history and living traditions in the areas	Annual	MONEV WGVE BA

V. Infrastructure and Facility Development

1	Change in vehicle flow to sites	In some areas, roads are poorly developed (e.g., Jatiluwih); elsewhere traffic congestion inhibits access and enjoyment of the area	<ul style="list-style-type: none"> Identify problems and potential of transportation leading to each site Establish and maintain a well-marked 'Cultural Landscape' route to link all sites together with a central 	Semi-annual (seasonal)	MONEV OPW WGSI BA
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			visitor center		
2	Change in availability of quality interpretive materials	Sites lack interpretive kiosks that could improve appreciation without interfering with the aesthetics or function of the site	Provide comprehensive information on the properties for each site	Annual	MONEV OPW WGS BA
3	Number of World Heritage facilities constructed and maintained	Current visitor facilities vary greatly by site and will require improvement or development in a manner that does not lead to a deterioration of the cultural and ecological value of the sites	<ul style="list-style-type: none"> • Provide facilities for the comfort, safety and well-being of visitors that enhance the enjoyment of their visit • Establish guidelines for the development of environment- and heritage-friendly infrastructure • Enforce the implementation of an impact assessment on the heritage sites prior to infrastructure construction 	Annual	MONEV OPW WGS BA
4	Change in visitor numbers to World Heritage Visitor Centre	Sites are selected to represent social-ecological systems. A central visitor facility will be necessary to describe the sites as a coherent network, and to explain the linkages between <i>subaks</i> , rice terraces, water temples, and watersheds	Develop and maintain a comprehensive World Heritage visitor center (existing Volcano museum facility)	Monthly	MONEV OPW BA TOBP
5	Number of studies conducted on retail establishments	At some sites, tourist retail shops extend beyond the entrance to the site. It will be necessary to review the current constraints and opportunities for adapting retail establishments.	Conduct studies on retail establishments within and leading to the sites	Annual	MONEV
6	Number of retail establishments adapted to Cultural Landscape of Bali Province standards	Based on findings of above studies, support can be provided to modify tourist shops, without jeopardizing livelihoods of retailers.	<ul style="list-style-type: none"> • Adapt the layout and location of retail shops based on findings of the study and in accordance with standards for maintaining an authentic Cultural Landscape • Provide training and support services to enhance the quality of retail within and 	Annual	MONEV



			surrounding the sites		
VI. External Context Monitoring					
1	Level of volcanic activity	Level of volcanic eruption influence into the properties and its landscape condition	Develop measures to anticipate and mitigate effects of volcanic disturbance	Monthly	MONEV
2	Level of tectonic activity	Level of tectonic earth quake influence into the properties and its landscape condition	Develop measures to anticipate and mitigate effects of tectonic disturbance	Monthly	MONEV
3	Climate change	Changes in climate conditions may influence functioning of the <i>subaks</i> and rice production, or affect structures or visitation	Develop measures to anticipate and mitigate effects of climate change	Annual	MONEV
4	Occurrence of pest outbreaks	Outbreaks of pests (e.g., rat infestation in Tabanan in 2008) may negatively affect rice yields and impede transition to organic farming	Promote traditional coordination among <i>subaks</i> to manage pests	Semi-annual	MONEV BA WGA
5	Change in political and policy environment	Political reforms (e.g., decentralization) or policy changes (e.g., zoning laws) may affect the coordination of the site, cooperation among government agencies, the rate of legal reforms, or the flow of resources needed for site management	Maintain a flexible and institutional structure to facilitate the capacity to anticipate and respond to political change	Periodically	MONEV GBP
6	Change in economic conditions, policies, and markets	Current economic constraints may negatively effect the ability to implement initiative or result in lower numbers of visitors to the sites; Increasing costs of fuel, or unfavorable market prices for rice may negatively effect rice production and farm-based livelihoods	Develop the capacity to monitor economic and market changes and respond	Periodically	MONEV GBP



6.b Administrative Arrangement for Monitoring Property

1. **Government of Bali Province**
Jl. Basuki Rahmat Denpasar
Tel: +62 361 224671
2. **Governing Assembly for Bali Heritage**
Cultural Office of Bali Province, Jalan Juanda No. 1, Denpasar, Bali,
Tel: +62 (0)817861442669
3. **Office for Archaeological Heritage Conservation Province of Bali, West Nusa Tenggara and East Nusa Tenggara**
Jl. Raya Tampaksiring, Bedulu, Blahbatu, Gianyar,
Bali 80581, Po Box 145
Tel: +62 361 942354, 942347
4. **Board of Regional Planning and Development**
Jl. Juanda No.1 Denpasar
5. **Board Of Irrigation, Province of Bali**
Jl. Cok Agung Tresna Denpasar
6. **Agriculture Office of Bali Province**
Jl. W.R. Supratman, No 71 Denpasar
Tel: +62 361 22716
7. **Cultural Office of Bali Province**
Jl. Juanda No.1 Denpasar
Tel: +62 361 264471
8. **Tourism Office of Bali Province**
Jl. Puputan Renon Denpasar
Tel: +62 361 226578
9. **Meteorology and Geophysics Board, Province of Bali**
Jl. Raya Tuban
Tel: +62 361 757975
10. **Forestry Office of Bali Province**
Jl. Puputan Renon Denpasar
Tel: +62 361 237039
11. **Office for Archaeological Research in Bali**
Jl. Raya Sesetan No.64 Denpasar
Tel: +62 361 228661
12. **Office for Research on History and Traditional Values in Bali**
Jl. Raya Dalung, Abian Base No.107 Kuta Badung
Tel: +62 361 439546
13. **Public Works Office of Bali Province**
Jl. Cok Agung Tresna
Tel: +62 361 227208



6.c Result of Previous Reporting Exercises

Agung, A.A Gede dkk.,
Laporan Pemetaan dan Pendataan Benda Cagar Budaya/Situs Sepanjang Aliran Sungai Pakerisan di Kabupaten Gianyar (tidak diterbitkan), Balai Pelestarian Peninggalan Purbakala Bali, NTB, NTT, 2002.

(Report: Inventory and Mapping of Archaeological Sites along the Pakerisan River)

Proyek Pemugaran Taman Ayun, 1983/1984.

(Report: Restoration of Pura Taman Ayun)

Proyek Pemugaran Pura Mengening, 1983/1987.

(Report: Restoration of Pura Mengening)

Proyek Konservasi Candi Tebing Gunung Kawi, 1992/1997.

(Report: Conservation on Pura Gunung Kawi)

Wiguna, AAI

Laporan Akhir Pengkajian Eko-farming, "Transformasi Inovasi Pertanian dengan Pendekatan Eko-farming pada Ekosistem Subak di Bali", 2006/2007/2008.

(Report: Transformation of Agriculture Innovation with Eco-farming Approach in Subak Ecosystem Bali)

Dinas Pertanian Tanaman Pangan Provinsi Bali

Laporan Pelaksanaan Kegiatan Pertanian Tanaman Pangan, 2008.

(Report: Activities of Food Crop Services)

Dinas Pertanian Tanaman Pangan Provinsi Bali

Laporan Pelaksanaan Penyaluran Pupuk, 2007/2008.

(Report: Distribution of Fertilizer)



CHAPTER SEVEN

DOCUMENTATION



CHAPTER SEVEN

DOCUMENTATION

7.a Overview of Existing Documentation

We begin with a brief overview of the existing documentation for each site.

001. Supreme water temple Pura Ulun Danu Batur

002. Lake Batur

There are two major sources of documentation for this temple. The first consists of the traditional Balinese lontar manuscripts kept in the temple, which document its history and ritual relationships with specific communities. These manuscripts, inscribed on lontar palms, were translated by the eminent Balinese philologist Putu Budiastira in 1975. Copies of the translations are kept in the Bali Museum in Denpasar: Rajapurana Pura Ulun Danu Batur, Kintamani, Bangli: vol. 1 (1975), 2 (1979). Denpasar: Museum Bali.

The second source is the archives of the Koninklijk Instituut voor Taal-, Land en Volkenkunde (KITLV) at Leiden University in the Netherlands. Relevant documents include photos from the colonial era, of which about 65 are currently available online, and many reports and publications on the Batur region (spelled Batoer in the KITLV archives. Summaries of some relevant documents and photos are included in the publications of J. Stephen Lansing and Thomas Reuter, as summarized in chapter two of this nomination. Concerning documentation on the environment of Lake Batur, see below.

Addresses:

Pura Ulun Danu Batur
Bangli, Bali

Bali Museum
Jalan Let Kol Wisnu
Bali, Indonesia
Tel 62361 235 059

Koninklijk Instituut voor Taal-, Land- en Volkenkunde
(Royal Netherlands Institute of Language, Geography and Ethnology)
Reuvenplaats 2, 2311 BE Leiden
Postbus 9515, 2300 RA Leiden
Netherlands



Web archive: www.kitlv.nl (many photos of Bali)

003. Subak Landscape of Pakerisan Watershed

This landscape has been extensively studied by archaeologists since colonial times. Many photographs and publications are accessible online from the KITLV archives described above. Archaeological surveys begin with the work of Stutterheim in the 1920's, as described in chapter two. The Office of Archaeological Heritage Conservation for Bali is located just to the south of the Pakerisan site. It contains a small library and archaeological museum, primarily focused on the antiquities of the Pakerisan site. Photographs, written publications and reports on site conservation dating from the colonial era are kept in the library.

Address:

Balai Pelestarian Peninggalan Purbakala
Province of Bali, West Nusa Tenggara and East Nusa Tenggara
Jl. Raya Tampaksiring, Bedulu, Blahbatu, Gianyar,
Bali 80581, Indonesia. Po Box 145
Tel: +62 361 942354, 942347
Fax: +62 361 942354

004. Subak Landscape of Catur Angga Batukaru

This component part includes a large forested area and two lakes, as well as villages, temples and agricultural lands. With regard to the forests, extensive ongoing mapping and environmental studies since the 1970's are kept at the Forestry Regional Office for Bali. Records of the lakes and catchments, including studies of water quality, are avail.

Addresses:

Lakes and river catchments:
Dinas Pekerjaan Umum Bali
Jalan Beliton No. 1
Denpasar, Bali

Forests
Balai Pemantapan Kawasan Hutan Wilayah 8
Jalan Kapten Tantular
Renon, Denpasar Bali
Tel 0411-436059; Fax 0411-436-059

005. Royal Water Temple Pura Taman Ayun

A small collection of photos and other documentation are kept in the Puri Mengwi (Royal palace of Mengwi), adjacent to the Temple. The history of



the temple is recounted in Henk Schulte Nordholt, *The Spell of Power: A History of Balinese Politics 1650-1940*. Leiden: KITLV Press, 1996.

7.b Photograph, Slide, Image, Inventory, and Authorization Table and Other Audiovisual Materials

Id. No.	Format	Caption	Date of Photo	Photographer	Copyright Owner	Contact Detail of Copyright Owner	Non Exclusive Cession of Right
II. DESCRIPTION							
Introduction: Subaks, Rice Terraces and Water Temple							
P1	JPG	Mount and Lake Batur	n/a	Ministry of Culture and Tourism	Ministry of Culture and Tourism	Directorate of Archaeological Heritage Tel: 62 21 5725512	yes
P2	JPG	Mount and Lake Batur, 1920	1920	n/a	J.M.G. Schaafsma	KITLV, Netherlands	yes
P3	JPG	Control of Rice pests by flooding the paddies at Batukaru	n/a	John Lansing	John Lansing	Directorate of Archaeological Heritage Tel: 62 21 5725512	yes
II. DESCRIPTION							
Criteria for Selection: Overview							
P4	JPG	Pura Ulun Danu Batur	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
II. DESCRIPTION							
Overview of the Proposed Sites							
P5	JPG	Forest and terraced landscape below Mount Batu Karu	ibid	John Lansing	John Lansing	ibid	yes
2.a. Description of the Property							
A. Supreme Water Temple <i>Pura Ulun Danu Batur</i>							
P6	JPG	Pura Ulun Danu Batur	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
2.a. Description of the Property							
B. Subak Landscape of Pakerisan Watershed							
P7	JPG	Subak Meeting in Pakerisan	ibid	John Lansing	John Lansing	ibid	yes



2.a. Description of the Property
B.1 Pura Pegulingan

P8	JPG	Pura Pegulingan	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
P9	JPG	Harvest Offerings in a Pakerisan Subak Temple	ibid	John Lansing	John Lansing	ibid	yes

2.a. Description of the Property
B.1 Pura Tirtha Empul and Subaks Pulagan

P10	JPG	Water reservoir of Pura Tirtha Empul	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
P11	JPG	Another view of terraced fields and forest north of spring temple Tirtha Empul, Pakerisan Site	ibid	John Lansing	John Lansing	ibid	yes
P12	JPG	Terraced fields and forests north of spring temple tirtha empul, Pakerisan Site	ibid	John Lansing	John Lansing	ibid	yes

B. 3. Pura Mengening and Subak Kulub

P13	JPG	Architecture of Prasada agung (Pura Mengening) represents a sacred mountain	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
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B. 4. Pura Gunung Kawi (Rock Cut Temple)

P14	JPG	Bridge to Pura Gunung Kawi Temple	ibid	ibid	ibid	ibid	yes
P15	JPG	Rock cut temple of Gunung Kawi	ibid	ibid	ibid	ibid	yes



P16		Pakerisan River with 12 th century tombs of Gunung Kawi	ibid	John Lansing	John Lansing	ibid	yes
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B. 5. Subaks Pulagan and Kulub

P17	JPG	Rice Field at Village of Kulub	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
P18	JPG	Water temple of Pura Luhur Batukaru	ibid	ibid	ibid	ibid	yes

C. Subaks Landscape of Catur Angga Batukaru

P19	JPG	Lakes Buyan and Tamblingan	ibid	n/a	n/a	n/a	yes
P20	JPG	Subak Landscape of Sangketan in Catur Angga Batukaru	ibid	John Lansing	John Lansing	Directorate of Archaeological Heritage Tel: 62 21 5725512	yes
P21	JPG	Rice Terraces of Subak Wongaya	ibid	ibid	ibid	ibid	yes
P22	JPG	Pura Ulun Danu Tamblingan	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
P23	JPG	Offerings at a Shrine in Lake Tamblingan	ibid	John Lansing	John Lansing	ibid	yes
P24	JPG	Temple Pura Luhur Besikalung. Shrines in the inner courtyard	ibid	ibid	ibid	ibid	yes
P25	JPG	Pura Luhur Pucak Petali	ibid	ibid	ibid	ibid	yes
P26	JPG	View of Lake Buyan	ibid	John Schoenfelder	John Schoenfelder	ibid	yes

D. Royal Water Temple Taman Ayun

P27	JPG	Shrine to the Deity of Lake Beratan in	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
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		the temple Pura Taman Ayun					
P28	JPG	The head of the Subak Batan Badung stands beside the altar where his subak gives thans for the water from the moat of the temple Pura Taman Ayun, which irrigated their fields	ibid	ibid	ibid	ibid	yes
P29	JPG	Flooded paddy fields, where rice pests are deprived of their habitat	ibid	ibid	ibid	ibid	yes

2.b. History and Development

1.a Supreme Water Temple Pura Ulun Danu Batur

P30	JPG	View of the village of Batur circa 1920 when it was located on the floor of the caldera	1920	n/a	KITLV, Netherlands	KITLV, Netherlands	yes
P31	JPG	Baris dancers in front of the temple Pura Ulun Danu Batur, circa 1920	1920	ibid	KITLV, Netherlands	KITLV, Netherlands	yes

2.b.1.b.5 Subaks Pulagan and Kulub

P32	JPG	The main irrigation canal from the spring at Tirtha Empul, branching into Flows for Pulagan and Kulub Atas	n/a	John Lansing	John Lansing	Directorate of Archaeological Heritage Tel: 62 21 5725512	yes
P33	JPG	Rice Terraces of Subak Kumba Bawa	n/a	John Lansing	John Lansing	Directorate of Archaeological Heritage Tel: 62 21 5725512	yes



2.b.2 History of the Subak Landscape of Catur Angga Batukaru

P34	JPG	<i>Cili, Cau</i> (harvest offering) dedicated to goddess Sri, placed in the field during harvest time	ibid	ibid	ibid	ibid	yes
P35	JPG	Rice granaries; the higher called <i>gelebeg</i> , and the smaller one <i>klumpu</i> , <i>Wongaya-Gede</i> , on the slope of the Watukaru Mountain	ibid	n/a	KITLV, Netherlands	KITLV, Netherlands	yes
P36	JPG	Photos of the construction of the large dam of Pejeng by local subaks, taken during a visit by the Governor of Netherlands Indie in 1925	1925	n/a	KITLV, Netherlands	KITLV, Netherlands	yes

III. JUSTIFICATION FOR INSCRIPTION

P37	JPG	Architecture of Prasada Agung (Pura Mengening) represents a sacred mountain	ibid	ibid	ibid	ibid	yes
P38	JPG	<i>Piodalan</i> ceremony at Pura Taman Ayun, 1950	ibid	ibid	ibid	ibid	yes
P39	JPG	Relief depicting the Hindu God Visnu meditating on the Re-creation of the World, at the Kbal Spean Site on the Russei River in Cambodia	ibid	John Lansing	John Lansing	ibid	yes



P40	JPG	Aerial photograph of Pura Gunung Kawi (Rock Cut Temple)	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	yes
P41	JPG	Local Community of Mengwi bring offering at Piodalan Ceremony at Taman Ayun	ibid	ibid	ibid	ibid	yes

IV. STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY

P42	JPG	Subak Jatiluwih Rice Terrace Field	ibid	ibid	ibid	ibid	yes
P43	JPG	Ponds used for ritual bathing in Tirtha Empul Temple	ibid	ibid	ibid	ibid	yes
P44	JPG	Retail shops along the path to the Pura Gunung Kawi Temple	ibid	ibid	ibid	ibid	yes
P45	JPG	Restoration work in the temple, 1983	ibid	ibid	ibid	ibid	yes
P46	JPG	Main road within the Jatiluwih area	ibid	ibid	ibid	ibid	yes
P47	JPG	<i>Pura</i> Ulun Datu Batur located by the main street in Bangli Regency	ibid	ibid	ibid	ibid	yes
P48	JPG	Scenic view of Subak Jatiluwih Rice Terrace	ibid	ibid	ibid	ibid	yes
P49	JPG	Condition of Pura Tirtha Empul after earthquake disaster, 1972	ibid	ibid	ibid	ibid	yes



P50	JPG	Tourist at the Ancient Spring Temple of Tirtha Empul	ibid	ibid	ibid	ibid	yes
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V. PROTECTION AND MANAGEMENT OF THE PROPERTY

P51	JPG	Participatory Mapping with the Head of Subak Jatiluwih	ibid	John Lansing	John Lansing	ibid	ibid
P52	JPG	Participatory Mapping with the Head of Subak Pulagan	ibid	John Lansing	John Lansing	ibid	ibid
P53	JPG	Temple Pura Gunung Kawi, Sebatu, which encloses a spring that provides irrigation water for the Subak Delod Blumbang	ibid	John Lansing	John Lansing	ibid	ibid
P54	JPG	Sign board at Pura Taman Ayun	ibid	Ministry of Culture and Tourism	Ministry of Culture and Tourism	ibid	ibid



7.c Text Relating to Protective Designation, Copies of Property Management Plan or Documented Management System and Exact of Other Plan Relevant to the Property (see annex 5)

7.d Form and Date of Most Recent Record or Inventory of Property

Subak

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7.e Address Where Inventory, Record and Archive are Held

The inventory, record and archive are kept in the Library Division Office for Archaeological Heritage Conservation, Province of Bali-NTB-NTT.

For contact person:

I Wayan Sumartika

Head of Office for Archaeological Heritage Conservation,

Province of Bali, West Nusa Tenggara and East Nusa Tenggara

Jl. Raya Tampaksiring, Bedulu, Blahbatu, Gianyar,

Bali 80581, Indonesia. Po Box 145

Tel: +62 361 942354, 942347

Fax: +62 361 942354

E-mail: bp3_bali@yahoo.com

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CHAPTER EIGHT

CONTACT INFORMATION OF RESPONSIBLE AUTHORITIES

8.a Preparer

National

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Title : Director of Archaeological Heritage,
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Telephone : +62 21 5725512
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Local Bureau

Name : I Ketut Suastika
Title : Head of Cultural Office of Bali Province
Address : Jl. Ir. Haji Djuanda No. 1
Niti Mandala, Denpasar, Bali 80235, Indonesia
Telephone : +62 361 245294, 245297
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Email : -



8.b Official Local Institutions

1. The Coordinating Board for the Management of the Cultural Landscape of Bali Province
2. Cultural Office of Bali Province
3. Tourism Office of Bali Province
4. Office for Archaeological Research, Bali
5. Office for Research on History and Traditional Values in Bali
6. Office for Archaeological Heritage Conservation in Gianyar
7. Institute for Agriculture Assessment Technology in Denpasar
8. Non-Government Organization
9. Individual Academic or University or Other Research Agencies
10. Government of Gianyar Regency
11. Government of Tabanan Regency
12. Government of Badung Regency
13. Government of Buleleng Regency
14. Government of Bangli Regency
15. Udayana University, Denpasar



8.c Other Local Institutions

Pura Ulun Danu Batur

Desa Adat Batur

Pura Pegulingan

1. Desa Adat Basangambu
2. Subak Basangambu

Pura Tirta Empul

1. Desa Adat Manukaya
2. Subak Pulagan

Pura Mengening

1. Desa Adat Saraseda
2. Subak Kumba

Pura Gunung Kawi

1. Desa Adat Penaka
2. Subak Kulub

Pura Luhur Batukaru

1. Desa Adat Wangaya Gede
2. Subaks

Pura Luhur Pucak Petali

1. Desa Adat Yutu
2. Subaks

Pura Luhur Besikalung

1. Desa Adat Babahan
2. Subaks

Pura Luhur Muncaksari

1. Desa Adat Sangketan
2. Subaks

Pura Taman Ayun

1. Desa Adat Mengwi
2. Subak Batan Badung



Signed on behalf of State Party

Aurora Tambunan
Full Name

Director General of History and Archaeology
Ministry of Culture and Tourism

Title

January, 17, 2011

Date



LIST OF ANNEXES

1. Decree No. 131/M/1998
2. Certificate Regarding Protected Cultural Properties in the Area of Province of Bali
3. Memorandum of Understanding between Bali Provincial Government and Regency/Municipality Government of Bali No. 075/06/KB/B.PEM/2008
4. Regulation of the Governor of Bali Number 32 in 2010 about Bali Cultural Heritage Management Board
5. Cultural Landscape of Bali Province: Management Plan
6. Memorandum of Understanding between the United Nations Educational, Scientific, and Cultural Organization (UNESCO) and the Stockholm Resilience Centre (SRC) of Stockholm University
7. Collection of Old Photographs

DECREE

ABOUT

ESTABLISHMENT OF PROTECTED CULTURAL SITES AND OBJECTS
IN THE AREA OF PROVINCE OF BALI

No: 131/M/1998

**THE MINISTER OF EDUCATION AND CULTURE
OF THE REPUBLIC OF INDONESIA**

1998

DUPLICATE

**DECREE OF
THE MINISTER OF EDUCATION AND CULTURE
OF THE REPUBLIC OF INDONESIA**

No: 131/M/1995

REGARDING

**ESTABLISHMENT OF PROTECTED CULTURE SITES AND OBJECTS
IN THE AREA OF THE PROVINCE OF BALI**

THE MINISTER OF EDUCATION AND CULTURE,

Considering : a. that Pura Pegulingan, Mengening, Goa Gajah, and Pengukur-ukuran posses values which are important for history and culture;
b. that in connection with the above mentioned in paragraph a it is deemed necessary to establish the aforesaid as protected culture sites and objects;

Considering : 1. Law No. 5 of 1992;
2. Regulation of the Government of the Republic of Indonesia No. 10 of 1993;
3. Decrees of the President of the Republic of Indonesia;
a. No. 44 of 1974
b. No. 61 of 1998
c. No. 122/M of 1998
4. Decrees of the Minister of Education and Culture;
a. No. 022e/O/1980;
b. No. 0255/O/1981;
c. No. 087/U/1993;
d. No. 062/U/1995;
e. No. 063/U/1995;
f. No. 064/U/1995;

DECREES

Establishes :
Firstly : Sites and monuments comprising:
1. Pura Pegulingan in the village of Manukaya, Tampaksiring Subdistrict, Gianyar District;
2. Pura Mangening in the village of Tampaksiring, Tampaksiring Subdistrict, Gianyar District;
3. Pura Goa Gajah in the village of Bedahulu, Tampaksiring Subdistrict, Gianyar District;
4. Pura Pengukur-ukuran in the village of Sawo Gunung, Tampaksiring Subdistrict, Gianyar District;
are declared as Protected Culture Sites and Objects.

- Secondly : The area and boundaries of the Protected Culture Sites and Objects mentioned in the First Dictum above are recorded in the Annex of this Decree
- Thirdly : This Decree shall become valid from the date that it is decreed.

Decreed in Jakarta
On the 16th of June 1998
MINISTER OF EDUCATION AND CULTURE,

signed

Prof. Dr. Juwono Sudarsono, M.A.

Copies of this Decree are delivered to:

1. The Secretary-General of the Department of Education and Culture,
2. Inspector General of the Department of Education and Culture,
3. Director General of Culture, Department of Education and Culture,
4. Head of the Research and Development of Education and Culture Body of Department of Education and Culture,
5. Secretaries of the Inspectorate General, Directorate General of Culture and the Research and Development of Education and Culture Body of Department of Education and Culture,
6. Head of the Provincial Office of the Department of Education and Culture of Bali Province,
7. Local office of the State Treasury and Cashier,
8. Financial Audit Body,
9. Directorate General of Budget of the Department of Finance,
10. Commission VII of the Peoples' Representative Council of the republic of Indonesia.

Duplicate according to the original
Law and Public Relation Bureau
Department of Education and Culture,
Head of Section for Compilation and Drafting
Of Regulations and Laws,

Signed

Muslikh, S.H.
NIP 131479478



CERTIFICATE

REGARDING
PROTECTED CULTURAL PROPERTIES
IN THE AREA PROVINCE OF BALI
No. UM.001/ /Dir.iv/SP/IX/09

THE DIRECTORATE OF ARCHAEOLOGICAL HERITAGE
MINISTRY OF CULTURE AND TOURISM
OF THE REPUBLIC OF INDONESIA
2009

**MINISTRY OF CULTURE AND TOURISM
DIRECTORATE OF ARCHAEOLOGICAL HERITAGE**

Depdiknas Complex Building E 11th floor
Jl. Jend. Sudirman – Senayan Jakarta 10270

Website
<http://www.depbudpar.go.id>

Telp/Fax
(021) 5725512, 5725048

CERTIFICATE

No. UM.001/ /Dir.IV/SP/IX/09

The undersign below:

Name : Drs. Junus Satrio Atmodjo, M.Hum.
NIP : 19561110 198403 1 001
Position : Director for Archaeological Heritage
Address : Depdiknas Complex, Building E, 11th floor,
Jalan Jenderal Sudirman, Senayan, Jakarta

By this letter certify that objects:

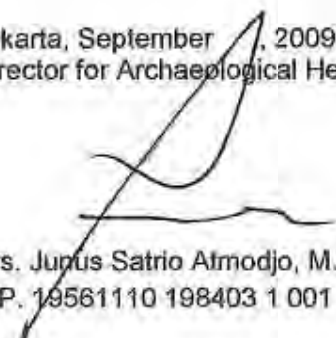
1. Pura Ulun Danu Batur in the village of Batur, Kintamani Subdistrict, Bangli District;
2. Pura Tirta Empul in the village of Basangambu, Tampaksiring Subdistrict, Gianyar District;
3. Gunung Kawi Rockcut Temple in the village of Tampaksiring, Tapaksiring Subdistrict, Gianyar District;
4. Pura Luhur Batukaru in the village of Beraban, Kediri Subdistrict, Tabanan District;
5. Pura Luhur Pucuk Petali in the village of Penebel, Penebel Subdistrict, Tabanan District;
6. Pura Luhur Bsikalung in the village of Babahan, Penebel Subdistrict, Tabanan District;
7. Pura Luhur Muncak Sari in the village of Sangketan, Penebel Subdistrict, Tabanan District;
8. Pura Luhur Tambawaras in the village of Sangketan, Penebel Subdistrict, Tabanan District;
9. Pura Taman Ayun in the village of Mengwi, Mengwi Subdistrict, Badung District;

are listed in our inventory of archaeological remains based on the criteria on article 1 of the regulation of the Republic of Indonesia No. 5/1992 about Cultural Property. The inventory number of the cultural properties are recorded in the Annex.

As a consequence, the government and society are obliged to protect and perpetuate the cultural property, and may use it, as long as it is not in contradiction with the regulation No. 5/1992 about Cultural Property.

This certificate is released for the appropriate use, if there is an appropriate explanation in the near future, it will be evaluated later.

Jakarta, September . 2009
Director for Archaeological Heritage,



Drs. Junus Satrio Atmodjo, M.Hum.
NIP. 19561110 198403 1 001

Copies of this Decree are delivered to:

1. Minister of Culture and Tourism
2. Director General of History and Culture, Ministry of Culture and Tourism

Annex: CERTIFICATE
No. : UM.001/ /Dir.iv/SP/IX/09
Date : September , 2009

**LIST OF CULTURAL PROPERTIES
PROVINCE OF BALI**

NO.	NAME OF PROPERTIES	LOCATION	INVENTORY NUMBER
1	Pura Ulun Danu Batur	village of Batur, Kintamani Subdistrict, Bangli District	2/14-06/b/3
2	Pura Tirta Empul	Basangambu, Tampaksiring Subdistrict, Gianyar District	2/14-04/TB/105b
3	Gunung Kawi Rockcut Temple	village of Tampaksiring, Tapaksiring Subdistrict, Gianyar District	2/14-04/TB/15
4	Pura Luhur Batukaru	village of Beraban, Kediri Subdistrict, Tabanan District	2/14-02/B/8
5	Pura Luhur Pucuk Petali	village of Penebel, Penebel Subdistrict, Tabanan District	in process
6	Pura Luhur Bsikalung	Village of Babahan, Penebel Subdistrict, Tabanan District	in process
7	Pura Luhur Muncak Sari	village of Sangketan, Penebel Subdistrict, Tabanan District	in process
8	Pura Luhur Tambawaras	village of Sangketan, Penebel Subdistrict, Tabanan District	in process
9	Pura Taman Ayun	village of Mengwi, Mengwi Subdistrict, Badung District	2/14-03/TB/4

MEMORANDUM OF UNDERSTANDING

BETWEEN

BALI PROVINCIAL GOVERNMENT

AND

REGENCY / MUNICIPALITY GOVERNMENT OF BALI

NUMBER: 075/06/KB/B.PEM/2008

NUMBER : 130/3505/T.Pem

NUMBER : 316/2303/T.Pem

NUMBER : 188/7783/Sekret

NUMBER : 316/1815/PEM. UM

NUMBER : 188/6442/Sekret

NUMBER : 126/3895/Bupati Krg.

NUMBER: 188/2757/Sekret (Um)

NUMBER : 316/737/Pem

NUMBER : 316/2480/T. Pem

ON

STIPULATION OF BALI PROVINCE STRATEGIC ZONES

On this day, Tuesday, the thirtieth of December Year two thousand and eight in Denpasar, we are the persons undersigning the following document:

1. Made Mangku Pastika. : Bali Governor, herein acts upon and on the name of Government of Bali Province, official address at Jalan Basuki Rahmat Niti Mandala Denpasar, further referred to as **“THE FIRST PARTY.”**

2. Drs. Putu Bagiada, MM. : Regent of Buleleng, herein acts upon and on the name of Buleleng Regency Government, official address at Jalan Pahlawan Number 1 Singaraja.

3. N. Adi Wiryatama, S. Sos, M. Si. : Regent of Tabanan, herein acts upon and on the name of Tabanan Regency Government, official address at Jalan Pahlawan Number 19 Tabanan.
4. I Nengah Arnawa, S. Sos, MM. : Regent of Bangli, herein acts upon and on the name of Bangli Regency Government, official address at Jalan Ngurah Rai Number 30 Bangli.
5. Anak Agung Gede Agung, SH. : Regent of Badung, herein acts upon and on the name of Badung Regency Government, official address at Jalan Raya Sempidi Mengwi Badung.
6. DR. Ir. Tjok Oka Artha Ardhana Sukawati M. Si. : Regent of Gianyar, herein acts upon and on the name of Gianyar Regency Government, official address at Jalan Ngurah Rai Number 5-7 Gianyar.
7. I Wayan Geredeg : Regent of Karangasem, herein acts upon and on the name of Karangasem Regency Government, official address at Jalan Ngurah Rai Amlapura.
8. I Wayan Candra : Regent of Klungkung, herein acts upon and on the name of Klungkung Regency Government, official address at Jalan Untung Surapati Number 2 Semarapura.
9. Prof. Dr. Drg. I Gede Winasa : Regent of Jembrana, herein acts upon and on the name of Jembrana Regency Government, official address at Jalan Surapati Number 1 Jembrana.
10. Ida Bagus Rai Dharmawijaya Mantra SE, M. Si. : Mayor of Denpasar Municipality herein acts upon and on the name of Denpasar Municipality Government, official address at Jalan Gajah Mada Number 1 Denpasar.

Number 2 until number 10 further on referred as “**THE SECOND PARTIES**”.

THE FIRST and **THE SECOND PARTIES**, further on referred as **THE PARTIES** agreed upon to conduct Memorandum of Understanding on Bali Province Strategic Zones with the following provisions:

AGREEMENT GROUNDWORK

Article 1

1. Law Number 64 Year 1958 on the structuring of the Provincial Government, Bali, West Nusa Tenggara and East Nusa Tenggara (State Gezatte of Republic of Indonesia Year 1958 Number 115, Addendum State Gezatte of Republic of Indonesia Number 1649).
2. Law Number 69 Year 1958 on the Structuring of the Regency Government within the provincial Government of Bali, West Nusa Tenggara and East Nusa Tenggara (State Gezatte of Republic of Indonesia Year 1958 Number 122, Addendum State Gezatte of Republic of Indonesia Number 1655).
3. Law Number 1 Year 1992 on the Structuring of Municipality of Denpasar (State Gezatte of Republic of Indonesia Year 1992 Number 9, Addendum State Gezatte of Republic of Indonesia Number 3469).
4. Law Number 25 Year 2004 on National Development Planning System (State Gezatte of Republic of Indonesia Year 2004 Number 104, Addendum State Gezatte of Republic of Indonesia Number 4421).
5. Law Number 32 Year 2004 on Local Government (State Gezatte of Republic of Indonesia Year 2004 Number 125, Addendum State Gezatte of Republic of Indonesia Number 4437) which have been amended several times, the latest Law Number 12 Year 2008 on the Second Amendement on Law Number 32 Year 2004 of Local Government (State Gezatte of Republic of Indonesia Year 2008 Number 59, Addendum State Gezatte of Republic of Indonesia Number 4844).
6. Law Number 26 Year 2007 on Spatial Planning (State Gezatte of Republic of Indonesia Year 2007 Number 68, Addendum State Gezatte of Republic of Indonesia Number 4725).
7. Government Regulation Number 38 Year 2007 on The Division Affairs among The Governments, and Provincial Governments and Regencies /Municipality (State Gezatte of Republic of Indonesia Year 2007 Number 82, Addendum State Gezatte of Republic of Indonesia Number 4737).

8. Government Regulation Number 50 Year 2007 on Implementation Procedure of Local Cooperation (State Gezatte of Republic of Indonesia Year 2007 Number 112, Addendum State Gezatte of Republic of Indonesia Number 4761).
9. Government Regulation Number 26 Year 2008 on National Spatial Planning of National Zone (State Gezatte of Republic of Indonesia Year 2008 Number 48, Addendum State Gezatte of Republic of Indonesia Number 4833).

OBJECTIVES

Article 2

This Memorandum of Understanding aims at stipulating of the Bali Province Strategic Zones which will be pursued in the spatial planning of Bali Provincial Zone and as reference in the Spatial planning zone of the Regencies/Municipality.

SCOPE

Article 3

- (1) The Scope of The Memorandum of Understanding on the Stipulation of Bali Province Strategic Zones covers:
 - a. defense and security
 - b. economic growth
 - c. social culture
 - d. empowerment of natural resources and/ or high technology, and
 - e. utility and environment potency.
- (2) The Criteria of Strategic Zones as stated on paragraph (1) covers:
 - a. Strategic Zones based on the defense interest and security, is utilized for military based, military practice, ammunition waste zone, and other military apparatus, ammunition warehouse, missile systems testing area, and/or zone of industrial defense system.
 - b. Strategic Zone based on economic growth interest, covers: potency of economic rapid growth, and supported by infra structures and economic facilities.
 - c. Strategic Zone based on social and cultural interests, as preservation area and development of customs or local culture, area of heritage conservation and as an asset which shall be protected and preserved.

- d. Strategic Zone based on empowerment of natural resources and/or high technology, is utilized for the interest of development of science and technology, hold strategic natural resources, and
 - e. Strategic Zone based on utility and environment potency, as fauna and flora conservation, national asset as protected zone which stipulated as ecosystem protection, flora and/ or fauna that are almost extinct or which are presumed to be extinct that should be protected and /or conserved. These determines the changes on nature ecosystem and has wide impact towards the life, gives protection macro weather balance, protection to water utilization system, natural disaster threat and coastal area protection.
- (3) The spread of Strategic Zones as it stated on paragraph (2) on the Attachment and as part of bound document of this Memorandum of Understanding.

AUTHORITY AND RESPONSIBILITY

Article 4

- (1) **THE FIRST PARTY** has the authority and responsibility of:
- a. granting recommendation towards the result of consultation, and
 - b. conducting evaluation.
- (2) **THE SECOND PARTIES** have the authority and responsibility of:
- a. planning draft of Spatial Zones of the Regency/Municipality in accordance with the Memorandum of Understanding
 - b. implementing the result of the Memorandum of Understanding, and
 - c. executing consultation and evaluation in accordance with the law.

OTHERS

Article 5

In case there is an amendment on this Memorandum of Understanding, there will be addendum agreement based on the agreement of **THE PARTIES**, who are bound and as part of the bound affairs of this Memorandum of Understanding.

END

Article 6

This Memorandum of Understanding is composed and signed on Tuesday, the thirtieth of December year two thousand and eight in Denpasar, as stated initially in this agreement in duplicate (2) of each has the same legal right under the sufficient government seal to be utilized wherever necessary.

SECOND PARTIES

FIRST PARTY

Drs. Putu Bagiaada, MM

Made Mangku Pastika

N. Adi Wiryatama, S.Sos, M.Si.

I Negah Arnawa, S.Sos. MM

Anak Agung Gede Agung, SH.

Dr.Ir. Tjok Oka Artha Ardhana Sukawati, M.Si

I Wayan Geredeg

I Wayan Candra , SH, MH, MBA, MBL

Prof. Dr.Drg. I Gede Winasa.

Ida Bagus Rai Dharmawijaya Mantra, SE, M.Si

ATTACHMENT

MEMORANDUM OF UNDERSTANDING STIPULATION OF BALI PROVINCE STRATEGIC ZONES

1. Location of Bali Province Strategic Zones
2. The map of Bali Province Strategic Zones
 - a. The map of Strategic Zones based on the defense security
 - b. The map of Strategic Zones based on economic growth interest
 - c. The map of Strategic Zones based on social cultural interest
 - d. The map of Strategic Zones based on empowerment of natural resource and/or high technology
 - e. The map of Strategic Zones based on utility and environment potency interests:
 - 1). Map of forest zones, National Park of West Bali, Benoa Bay, **Marine Natural Tourism**, Batukaru Forest Conservation, Mountains and Hills
 - 2). Map of Volcanic Natural Disaster
 - 3). Map of Under-Grown natural resources
 - 4). Map of Potential River Streams through regencies/municipality
3. Exposure and width of Forest conservation spread
4. Exposure of natural Lakes and coverage of fishing zones
5. River Streams of rivers which covered the area of Bali Province Strategic Zones

1. Location of Bali Province Strategic Zones

No	Classification of Strategic Zones	Criteria of Strategic Zones	Location Exposure
1	Strategic Zones based on the defense security	Utilize for military practice area (not utilize as ammunition waste and other apparatus defense, ammunition warehouse, missile system testing area and/or industrial defense system area and other practices which contaminate and alarm surrounding environment).	Pulaki Military Practice Area
2	Strategic Zones based on economic growth interest	- Rapid Growth of Economy Potency. - Supported by infrastructure and economic facilities	1. Harbours: Gilimanuk, Padangbai Harbour, Benoa Harbour, Celukanbawang Harbour, Gunaksa Harbour, Amed Harbour, Sangsit

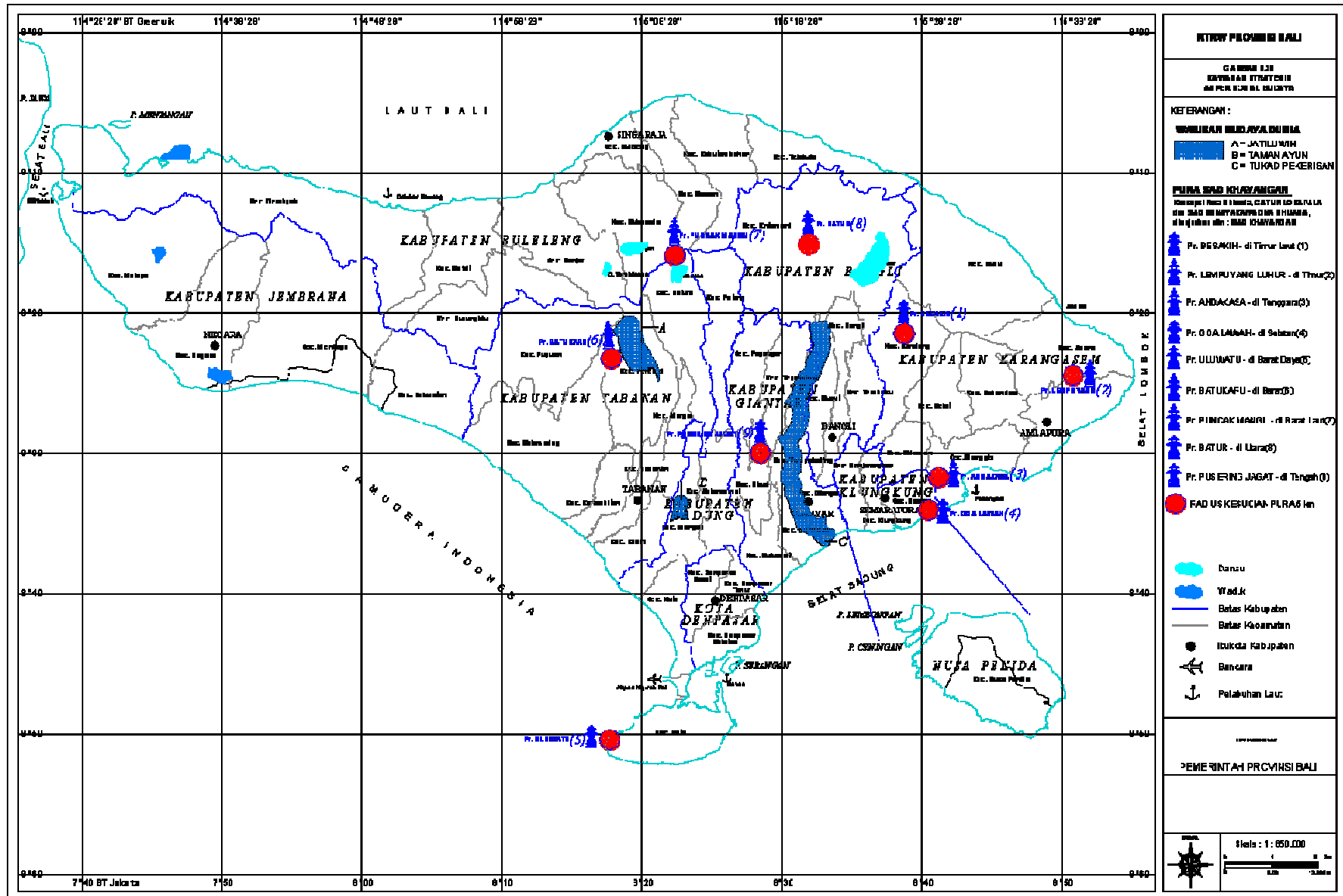
			<p>Harbour, Pegametan Harbour, Tanah Ampo Tourism Harbour, Pengembangan Fishing Area, Labuan Amuk Fuel Storage Harbour.</p> <p>2. Airports: Ngurah Rai Airport, Colonel Wisnu Airport.</p> <p>3. Tourism Zones:</p> <ul style="list-style-type: none"> - Nusa Dua, Tuban, Kuta, Sanur, Ubud, Lebih, Soka, Perancak, Candikusuma, Batuampar, Kalibukbuk, Nusa Penida, Candidasa, Ujung, Tulamben, Air Sanih. - Particular Tourism Attractions, Kintamani, Bedugul-Pancasari, Tanah Lot, Palasari, Gilimanuk. <p>4. Industrial Zones: Celukanbawang Industrial Zone, Pengembangan Industrial Zone.</p> <p>5. Metropolitan Zones Sarbagita and Renon Civic Centre.</p> <p>6. National Road along the Zone.</p> <p>7. Passengers Terminal Type A Mengwi.</p>
3	Strategic Zones based on social cultural interest	- The place of conservation and development of custom or local culture.	Sacred Area Zone of Sad Kahyangan Temple and Dewata Nawa Sanga, based on Rwa Bhineda Concept, Tri Guna, Catur Lokapala, Sad Winayaka/Padma Bhuana cover: Lempuyang Luhur Temple (The peak of Mount Lempuyang Karangasem

			<p>Regency), Anadakasa Temple (Peak of Mount Andakasa Karangasem Regency), Batukaru Temple (The slope of Mount Batukaru Tabanan Regency), Batur Temple (peripheral crater of Mount Batur Bangli Regency), Goa Lawah Temple (Klungkung Regency), Luhur Uluwatu Temple (Bukit Pecatu Badung Regency), Puncakmangu Temple (Badung Regency), Besakih The Mother Temple (Slope of Mount Agung Karangasem Regency), Pusering Jagat Temple (Pejeng, Gianyar Regency), and Kentel Gumi Temple at Banjarangkan district Klungkung Regency.</p>
		<p>- Conservation Zone of Cultural Heritage. -Conservation and Protection Assets.</p>	<p>Cultural Heritage Zone covers: - Jatiluwiuh Area comprises of: Tamblingan Lake Zone, Buyan, and The surrounding Forest as well as Jatiluih Area, Wangaya Gede and the surrounding Subak (Jatiluih Subak, Gunung Sari Subak, Umadui Subak, Kedamaian Subak, Kusambi Subak, Soka Subak, Gelagateba Subak, Wangaya Betan Subak, Paselatan Subak, Piling Subak) and Wangaya Betan Zone with its entire temple related to Subak system in the zone. -Taman Ayun Zone covers: Taman Ayun Temple, Subak Batan Badung, and Subak Beringkit. -Tukad Pakerisan River Stream Zone covers: Ulun Danu Batur Temple, irrigation</p>

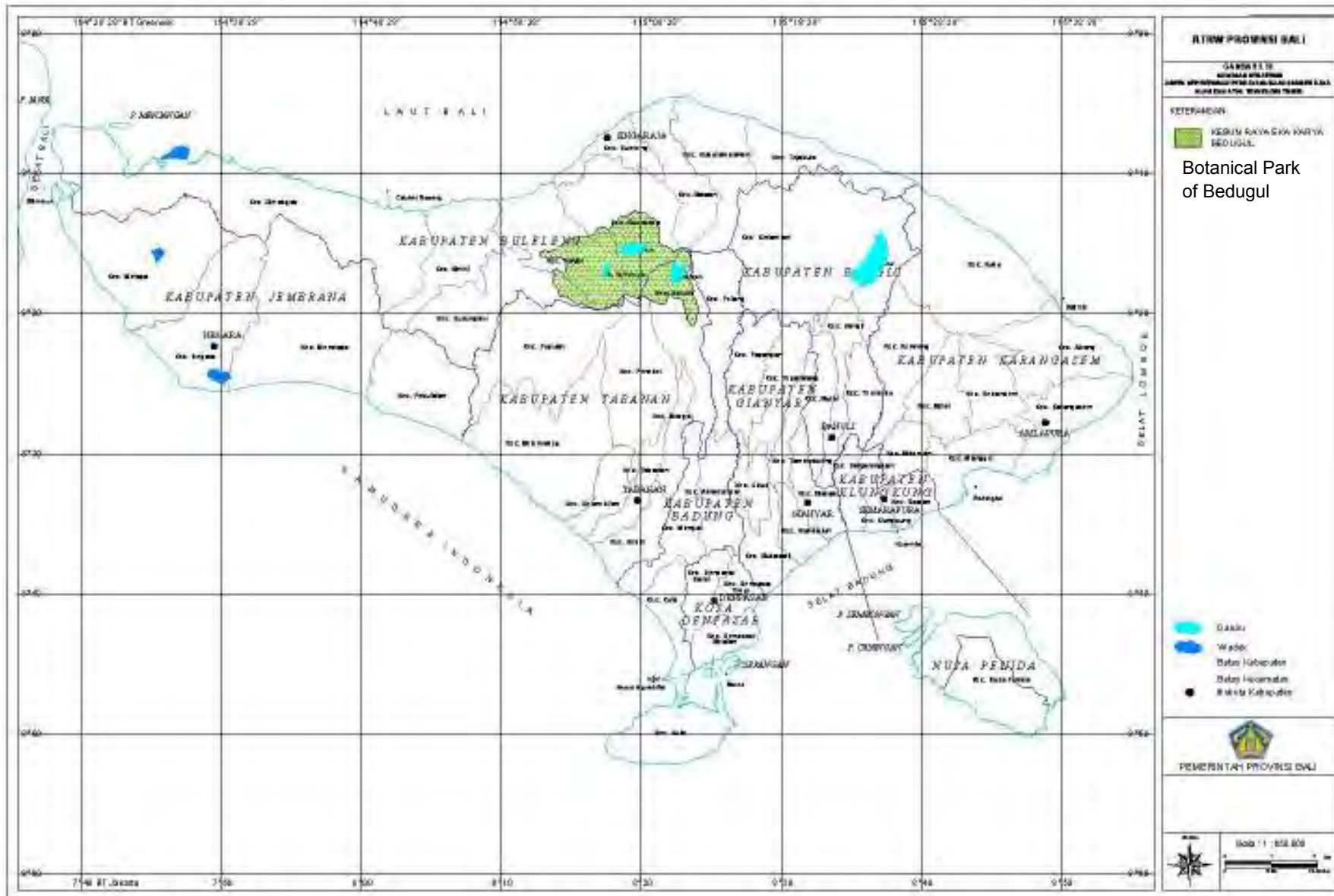
			and its subak in Tampaksiring (Tirta Empul Temple, Gunung Kawi Temple, Mengening Temple, Pegulingan Temple, Pulagan Subak, Kumba Subak, Pulu Subak), Subak Temple along Sebatu area (Sebatu Subak, Kedisan Subak, Jasan Subak, Jati Subak, Bonjaka Subak, Timbul Subak, Calo Subak, Pujung Subak, and Pakudul Subak).
4	Strategic Zones based on empowerment of natural resource and/or high technology	- utilize for Science and Technology Development interests	Eka Karya Botanical Garden Bedugul.
		- Strategic Natural Resources.	Offshore Oil Exploration Plan in South-West Bali Island.
5	Strategic Zones based on utility and environment potency interests	- Protection of diverse kinds of flora and fauna	1. West Bali National Park 2. Benoa Bay 3. Marine Natural Tourism at Nusa Lembongan and Menjangan Island 4. Coastal Area 5. Wild life Conservation/Batukaru Forest Conservation
		- National Assets in the form of Protection area which stipulated as ecosystem protection flora and/or fauna which are almost extinct or presumed will be extinct that shall be protected and/or conserved. - determining the changes on nature and has wide effect on life sustainability. - provide protection towards macro climate	1. The entire forest Zone 2. Mountains and hills 3. The entire coastal areas.

		balance.	
		- Provide protection on the balance of water system utilization.	1. River Stream (DAS) for potential river flows through regencies/municipality 2. Natural Lake at Bali Province 3. Underground water basin potency (based on Hydrogeology)
		- Natural Disaster Threat	Volcanic Disaster Threat Zones (Mount Agung and Mount Batur)

Bali Province Strategic Area for Cultural Heritage and Temples



Bali Province Strategic Area for empowerment of natural resources and/ or high technology



GOVERNOR OF BALI
REGULATION OF THE GOVERNOR OF BALI
NUMBER 32 IN 2010
ABOUT
BALI CULTURAL HERITAGE MANAGEMENT BOARD

BY THE GRACE OF GOD ALMIGHTY, GOVERNOR OF BALI,

Considering:

- a. That the cultural heritage of Bali is the result of the process of civilization of the Balinese community that grows and develops from local wisdom, inspired by the teachings of Hinduism, it should be kept and maintained in order to further the development of civilization, identity and sustainability, for the benefit of the present generation and for the future;
- b. That the cultural heritage of Bali has become an identity and provides moral and material benefits for the people of Bali;
- c. That based on the considerations referred to in points a and b it is appropriate to create the Governor of Bali Cultural Heritage Management Council.

Given:

1. Law Number 64 Year 1958 on the Establishment of Level I Areas of Bali, West Nusa Tenggara and East Nusa Tenggara (Indonesian State Gazette Year 1958 Number 115, Republic of Indonesia State Gazette Number 1649);
2. Law No. 5 of 1992 Objects of Cultural Property (Indonesian State Gazette No. 27 of 1992, Gazette of the Republic of Indonesia Number 3470);
3. Act No. 10 of 2004 on the establishment of legislation (Republic of Indonesia Year 2004 Number 53, Supplement to the Republic of Indonesia Number 4389);
4. Law Number 32 Year 2004 regarding Regional Government (State Gazette of the Republic of Indonesia Year 2004 Number 125, Supplementary State Gazette of the Republic of Indonesia Number 4437) as amended several times, most recently by Law Number 12 Year 2008 regarding Second

Amendment Act No. 32 of 2004 on Regional Government (State Gazette of the Republic of Indonesia Year 2008 Number 59, Supplementary State Gazette of the Republic of Indonesia Number 4844);

5. Government Regulation No. 6 of 1988 on the Coordination of Vertical Office in the Region (State Gazette of the Republic of Indonesia Year 1988 Number 10, Supplementary State Gazette of the Republic of Indonesia Number 3373);
6. Government Regulation No. 10 of 1993 on the Implementation of Law No. 5 of 1992 Objects of Cultural Property (State Gazette of the Republic of Indonesia Year 1993 Number 14, Supplementary State Gazette of the Republic of Indonesia Number 3561);
7. Government Regulation Number 58 Year 2005 on Regional Financial Management (State Gazette of the Republic of Indonesia Year 2005 Number 140, Supplementary State Gazette of the Republic of Indonesia Number 4578);
8. Regulation of the Minister of Home Affairs No. 13 of 2006 on Regional Financial Management Guidelines, as amended by the Minister of Home Affairs Regulation No. 59 of 2007 on the Amendment to the Minister of Home Affairs Regulation No. 13 of 2006 on Regional Financial Management Guidelines.

IT IS ORDERED:

**REGULATION OF THE GOVERNOR OF THE BOARD OF MANAGING
CULTURAL HERITAGE BALI**

**CHAPTER I
GENERAL PROVISIONS**

Article 1

In this Governor's Regulation references are defined as follows:

1. Governor is the Governor of Bali;
2. The Board is the Board of Management of Cultural Heritage in Bali that have an organizational structure;
3. Chairman of the Board is the Head of the Bali Provincial Cultural Office;
4. The Secretary is the Secretary of the Board of Management of Cultural Heritage in Bali;
5. Working Group, hereinafter referred to working group is a collection of related agencies and community components that handle specific areas in the management of Cultural Heritage in Bali;
6. Heritage Area Bali, hereinafter referred to as Area Heritage Area, is proposed to be the World Cultural Heritage by the Government of the Republic of Indonesia, covering the area Jatiluwih, Pura Taman Ayun, Pakerisan Watershed region, Ulun Danu Batur and Lake Batur;

7. Bali Cultural Heritage Preservation is the process of management (rehabilitation, maintenance, utilization, and development) and protection (prevention of damage and destruction, and / or adverse treatment, which destroys the quantity and / or quality) of Bali Cultural Heritage.

CHAPTER II FORMATION

Article 2

- (1) By this Regulation the Board of Governors is created.
- (2) The Board referred to in paragraph (1) includes:
 - a. Adviser;
 - b. Chairman;
 - c. Secretary;
 - d. The fields consist of:
 1. Field Program;
 2. Finance and human resources; and
 3. Field Monitoring and Evaluation.
 - e. The Working Group consists of:
 1. Cultural Preservation Working Group;
 2. Preservation of Ecosystems and Environment Working Group;
 3. Tourism Working Group and Education;
 4. Agricultural Development Working Group;
 5. Social and Infrastructure Development Working Group; and
 6. Working Group on Law and Legislation.
- (3) Organizational Chart Board referred to in paragraph (1) as listed in the Appendix of this Governor Regulation.
- (4) Membership of the Council as referred to in paragraph (1) stipulated by the Decree of the Governor.

CHAPTER III TASKS AND FUNCTIONS

Part One

Article 3

Chairman of the Board has the tasks:

- a. Plan the work program of the Board;
- b. Coordinate the preparation of plans and work programs of the Board;
- c. Formulating public policy and administration of the Council on the basis of the authority;
- d. Distribute tasks to subordinates;
- e. Assess subordinates work performance;

- f. Implement internal control systems;
- g. Perform other duties assigned by the supervisor; and
- h. Report the results of the performance of duties to the Governor.

Part Two Secretary

Article 4

The Secretary has the task:

- a. Plan the secretarial work program;
- b. Coordinate the activities of the Council in formulating a plan of work programs;
- c. Coordinates the Programme Division, Division of Human Resources and Field Kuangan and Monitoring and Evaluation;
- d. Guiding and giving instructions to each field and subordinates;
- e. Implement and supervise activities and personnel management of public affairs, planning, finance, monitoring and evaluation;
- f. Compile and prepare reports on the Secretariat and the field as material statements of the Council;
- g. Implement internal control systems; and
- h. Report the results of the performance of duties to the Chairman of the Board.

Part Three Field Program

Article 5

Programme Division has the task:

- a. Plan program areas;
- b. Provide guidance to subordinates;
- c. Execute internal needs plan;
- d. Conducting business correspondence, distribute, perform shipping, copying, and archives;
- e. Make organizing libraries, and documentation;
- f. Implement internal control systems; and
- g. Report the results of the performance of duties to the Secretary.

Part Four Finance and Human Resources

Article 6

For Finance and Human Resources has the task:

- a. Plans and implements field work programs;
- b. Implement financial and administrative management;
- c. Analyze needs and improve the quality of human resources;

- d. Conduct the salary and other allowances;
- e. Prepare materials and letters of response to reports of examination;
- f. Implement internal control systems; and
- g. Report the results of the performance of duties to the Secretary.

Part Five
Field Monitoring and Evaluation

Article 7

Field Monitoring and Evaluation has the following tasks:

- a. Plans and implements field work program;
- b. Implement monitoring and evaluation;
- c. Implement internal control systems; and
- d. Report the results of the performance of duties to the Secretary.

Part Six
Cultural Preservation Working Group

Article 8

Cultural Preservation Working Group has the task:

- a. Plan and implement work program of Preservation of Culture Working Group;
- b. Preservation Working Group conducts field of Culture;
- c. Coordinate the activities of members of the Working Group of the Cultural Preservation area; and
- d. Report the results of the performance of duties to the Chairman of the Board.

Part Seven
Preservation of Ecosystems and Environment Working Group

Article 9

Preservation of Ecosystems and Environment Working Group has the task:

- a. Plan and implement work program of Preservation Working Group Ecosystem and Environment;
- b. Preservation Working Group conducts field Ecosystems and Environment;
- c. Coordinate the activities of members of the WG field Ecosystems and Environment Preservation, and
- d. Report the results of the performance of duties to the Chairman of the Board.

Part Eight
Tourism Working Group and Education

Article 10

Tourism and Education Working Group has the task:

- a. Plan and implement work program of Tourism and Education Working Group;
- b. Carry out activities of Tourism and Education Working Group;
- c. Coordinate the activities of members of the Working Group of Tourism and Education; and
- d. Report the results of the performance of duties to the Chairman of the Board.

Part Nine
Working Group on Agricultural Development

Article 11

Agricultural Development Working Group has the task:

- a. Plan and implement work program areas Agriculture Development Working Group;
- b. WG conducting field Agricultural Development;
- c. Coordinate the activities of members of the Working Group on Agricultural Development field; and
- d. Report the results of the performance of duties to the Chairman of the Board.

Part Ten
Social Development and Infrastructure Working Group

Article 12

Social Development and Infrastructure Working Group has the task:

- a. Plan and implement work program of the Social Development Working Group and Infrastructure;
- b. Working Groups conducting the field of Social Development and Infrastructure;
- c. Coordinate the activities of members of the Working Group of Social Development and Infrastructure; and
- d. Report the results of the performance of duties to the Chairman of the Board.

Part Eleven
Working Group on Law and Legislation

Article 13

Working Group on Law and Legislation has the task:

- a. Plan and implement work program working group on Legal Affairs and Legislation;

- b. Working Groups conducting the field of Law and Legislation;
- c. Coordinate the activities of members of the Working Group on Legal Affairs and Legislation; and
- d. Report the results of the performance of duties to the Chairman of the Board.

CHAPTER IV FINANCING

Article 14

Any costs incurred as a result of enactment of this governor are charged to the budget of the Province of Bali and other sources of legitimate and non-binding.

CHAPTER V FINAL PROVISIONS

Article 15

This Governor's Regulation comes into force on the date of promulgation.

For every person to know, the Governor ordered the promulgation of regulations by publishing it in the Provincial Gazette of Bali.

Executed in Denpasar
on 6 September 2010

GOVERNOR OF BALI,

Made Mangku Pastika

Enacted in Denpasar
on 6 September 2010

SECRETARY OF BALI PROVINCE,

I Nyoman Yasa

REGIONAL NEWS BALI PROVINCE IN 2010 NUMBER 32

Nomination for inscription on
The UNESCO World Heritage List

Cultural Landscape of Bali Province

Management Plan



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 - 1.4 The status of the Management Plan
 - 1.5 The Preparation of the Management Plan
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 - 2.6 Statement of Outstanding Universal Value

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 - 4.7 Identification Serial Sites to Extend Ecosystem Conservation and Livelihood Objective

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- 5.1 Legal, institutional, and Administrative Policies and Structure
- 5.2 Comprehensive and Participatory Assessment
- 5.3 Participatory Planning and Design
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- 5.5 Adaptive Monitoring and Evaluation System
- 5.6 Capacity Building for Adaptive Co-Management of Complex Social Ecological System
- 5.7 Identification Serial Sites to Extend Ecosystem Conservation and Livelihood Objective

CHAPTER ONE INTRODUCTION



CHAPTER 1

INTRODUCTION

1.1 The Main Aims of the Management Plan

The management plan for the Cultural Landscape of Bali Province provides a framework for the long-term adaptive co-management of the site, as presented in the World Heritage nomination dossier. This document outlines the policies, institutional framework, and principal strategies that guide the conservation of the site's social and ecological outstanding universal value. These policies and strategies pertain to the living traditions of the *subak* institutions, the physical temple sites, and the ecological landscape at the watershed scale including the irrigated rice terraces as well as the forested catchment areas and lake regions that feed the terraced 'water mountains'.

The nominated Cultural Landscape of Bali Province comprises both natural and cultural aspects of the Balinese living tradition. The nominated sites are representative of the Balinese *subak* system, encompassing the rice terraces, the *subak* temple networks, and the tangible and intangible attributes of the *subak* institutions that maintain this unique social-ecological landscape. The Balinese-Hindu philosophy of Tri Hita Karana, which emphasizes harmony among humans, nature, and God, governs the *subak* system in its daily activities and long-term maintenance of Bali's cultural and natural heritage.

The nominated cluster of sites includes:

- A. Supreme Water Temple Pura Ulun Danu and Lake Batur**
- B. Subak Landscape of Pakerisan Watershed**
- C. Subak Landscape of Catur Angga Batukaru**

Site under consideration for future serial nomination:

- D. Royal Water Temple of Pura Taman Ayun**

These sites are presently vulnerable to competing development pressures and demands on ecosystem services to support tourism, urban consumption, and industrial agricultural production. Together, these pressures threaten to undermine the long-established maintenance of Bali's unique cultural and ecological

landscape. For this reason, the long-term management of the cultural landscape of Bali involves many government agencies, institutions, the local population, and other interested parties, represented by the Governing Assembly (described below). Accordingly, this management plan will guide the Governing Assembly, so that all programs related to the conservation and enhancement of the outstanding universal values of the Cultural Landscape of Bali Province can be carried out in a coordinated and integrated manner.

The main aims of the management plan are to:

1. Ensure that all the cultural and natural assets included in the Cultural Landscape of Bali Province are preserved for future generations through appropriate social and ecological conservation and support schemes;
2. Enhance public awareness, appreciation, and participation in conservation of the Cultural Landscape of Bali Province through education and improved site presentation;
3. Help bring together interests of diverse stakeholders in the conservation and enhancement of the Cultural Landscape of Bali Province;
4. Establish specific management guidelines that can be used by stakeholders for participation in the conservation and enhancement of the outstanding significance and values of the Cultural Landscape of Bali Province;
5. Identify priorities for the allocation of available resources in order to protect and conserve the Cultural Landscape of Bali Province;
6. Guarantee that the cultural landscapes are continuously monitored and regularly evaluated; and
7. Provide a basis for future plans so that all changes within the nominated heritage can be managed.

1.2 Approach

This management plan is based on principles of adaptive co-management by diverse stakeholders of a complex social-ecological landscape (Folke et al 2002a, 2005; Berkes and Folke 1998; Adger 2006). This system of adaptive governance connects individuals, agencies, and institutions at multiple institutional levels and across autonomous regional authorities (Young 2002; Pretty 2003; Galaz 2005; Hahn et al. 2006). It is based on the principles of dynamic learning, collaboration across institutional levels, and flexible management systems—features that

characterize the *subaks* of Bali as proposed in the Cultural Landscape of Bali nomination dossier.

The role of Bali's *subak* institutions as ecological and cultural stewards is well-established (Wiguna et al. 2006; Lansing 2006; Sutawan 2005; Lorenzen and Lorenzen 2005). Thus, by strengthening the control of the *subaks* over their local environments, the survival of several important clusters of *subaks* and water temples will be assured. The approach fosters transparent and collaborative decision-making among diverse stakeholders to support effective long-term management of ecosystem services and living cultural heritage. This involves participatory and community-based design and management of initiatives for the dual objectives of conservation and livelihood enhancement. In addition, the programs developed for these World Heritage sites will provide models for emulation in neighboring communities.

1.3 Outcomes

The principle outcomes of the management plan for the Cultural Landscape of Bali Province World Heritage Site include:

1. Continuous improvement of legal, institutional, and administrative structures to coordinate the adaptive co-management of the site among inter-sectoral policy makers and diverse stakeholders;
2. Comprehensive and participatory assessment of the social and ecological components of the property;
3. Participatory planning and design of master plans for each of five individual sites within the broader cluster of World Heritage properties;
4. Implementation of activities to support strategic priorities (presented in Chapter 5) for comprehensive and effective social-ecological conservation and livelihood enhancement within the proposed World Heritage site;
5. Support for the research and reporting system of the Governing Assembly for ongoing monitoring and evaluation to ensure implementation that is sensitive to social and ecological feedback;
6. Capacity building for adaptive co-management of Bali's complex social-ecological systems among diverse stakeholders; and,

7. Identification of serial sites to extend the conservation and livelihood objectives of the Cultural Landscape of Bali Province to other areas in Bali that exhibit outstanding universal value.

1.4 The Status of the Management Plan

- ✦ The broad legal framework for the management of the proposed World Heritage property was established by Provincial Decree of 2008 for conservation and spatial planning for the proposed sites named above. The Provincial Decree is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for conservation of critical cultural landscapes. The legal framework and management plan demonstrate a strong commitment among stakeholders at the national, provincial, and regency levels to ensure the conservation and enhancement of the nominated sites.
- ✦ A Governing Assembly for the Cultural Heritage of Bali (Dewan Pengelola Warisan Budaya Bali) was established by decree of the Governor of Bali in August 2010. This assembly has responsibility for the governance of the proposed World Heritage property, which is presently designed as a Strategic Area (Kawasan Strategis) by the Governor. Staffing and budgeting plans for the Governing Assembly are now in process at the office of the Governor. The organizational structure, functions and goals of the Governing Assembly are defined by this management plan.
- ✦ Consequently this management plan establishes an institutional and policy framework to guide all relevant parties in the coherent and adaptive management of the heritage sites. All efforts taken to preserve and enhance the outstanding universal value of the nominated sites will adhere to this framework.
- ✦ The Management Plan provides a foundation document for the activities of the Governing Board, mandating ongoing consultation among stakeholders at all levels including government agencies, *subaks* and local communities, local foundations, non-governmental organizations, academics, tourism operators and other private sector actors to develop site-specific master plans for each individual site in the World Heritage cluster and annual work plans.

1.5 The Preparation of the Management Plan

This management plan builds on a long-term consultation and planning process initiated in 2002. At that time, the Cultural Landscape of Bali Province was proposed for inscription into the World Heritage List by the Directorate General of Culture, Department of Education of The Republic of Indonesia. In response to the proposal, UNESCO acknowledged receipt of the dossier, registration number C1194. Following this response, fieldwork to record and document the nominated sites was carried out in January 2003 and August 2004. All properties within the proposed Cultural Landscape of Bali Province were recorded and conservation zones were determined. Consultations with the local population, government authorities at all levels, non-governmental organizations, and academics, were conducted to obtain the necessary data to draft a management plan. A consultative stakeholder meeting was held in Denpasar, Bali in July 2004 to discuss various aspects of the management of the proposed Cultural Landscape of Bali Province. Participants included representatives of government agencies at all levels (central, regional, and local), local foundations, non-governmental organizations, academics, and prominent figures (informal leaders). The discussion culminated in the approval of a number of policies for the preservation and conservation of the Cultural Landscape of Bali Province, submitted to UNESCO in a nomination proposal and Management Plan in July 2007.

ICOMOS deferred the nomination to allow the state party to reassess the nomination of sites. ICOMOS recommended the selection of sites to display the close relationships between the local *subak* institutions, rice terraces, water temples, and forested water catchment areas. Furthermore, ICOMOS recommended the elaboration of a management system to effectively sustain the integrity of the cultural landscape and deflect inappropriate development (ICOMOS Response, Cultural Landscape of Bali, No 1194, p. 10). In response to these recommendations, two steps were taken. First, at the National level: at the request of the Director General for History and Archaeology, in 2008 the Coordinating Ministry for People's Welfare agreed to create an oversight committee within the Ministry of Culture and Tourism, called the National Focal Point for World Heritage. The purpose of this committee is to provide integrated cross-sector advice and planning for the management of World Heritage cultural landscapes across Indonesia. The head of the committee is the Minister for Culture and Tourism. Its

membership consists of representatives from the following ministries and departments: the Ministry of Culture and Tourism, the Ministry of the Environment, the Ministry of People's Welfare, and the Secretaries General of Forestry, Agriculture and Public Works.

Second, in 2008 the Governor of Bali created a new Planning Committee for the Governance of Proposed World Heritage Sites. This 27-member committee included representatives of all relevant government departments at both the Provincial and Regency levels, including Agriculture, Forestry, Culture, History and Archaeology, Public Works, Legal Affairs and Planning. In addition the committee included four academic experts. There were a series of stakeholder meetings culminating in a daylong public meeting with 150 invited representatives of all relevant government agencies, along with water temple priests, *subak* leaders and the press, under the auspices of the Ministry of Culture, on December 3, 2008 at the Puputan Memorial in Denpasar, Bali. On December 22, 2008, the Office of Archeological Heritage Conservation hosted a follow up exhibition and discussion forum in Ubud, attended by over 100 representatives of all relevant government offices and departments, from local to provincial levels and customary village authorities. Subsequently, the committee held nine more meetings from 2008-2010, to which village leaders, *subak* heads and water temple priests were invited as well as representatives of NGOs.

After extensive discussion, the committee ultimately agreed to model the governing body on the democratic Assembly (Dewan) structure that presently manages the Bunaken National Marine Park in Sulawesi, suitably modified to fit the different circumstances of Bali's *subak* landscape. The Bunaken Park is governed by a multi-stakeholder management board comprised of villagers from the 30 villages in the park, local tourism, fisheries and environmental government agencies, the North Sulawesi Watersports Association, and the local university's marine sciences department. The governing board or assembly at Bunaken has evolved several features that were deemed to be attractive for Bali. First, the assembly includes representatives from all relevant government departments, but they are outnumbered by representatives of local communities and stakeholders. This helps to ensure community empowerment. Second, the Assembly can call on the assistance of the relevant government departments to implement their decisions. Third, the Assembly structure also provides a clear channel of communication between governmental agencies and stakeholders.

Fourth, the Assembly structure facilitates involvement with NGOs, donors and consultants. Fifth, the Assembly receives annual reports on monitoring, evaluation and budgetary matters, which are used to create a yearly work plan that prioritizes the most urgent conservation issues in the park for funding. This system has been so effective that the national Department of Nature Conservation has designated Bunaken as one of its "centers of excellence" for training for other parks. However, the cultural landscape program for Bali creates additional challenges for effective management. In 2010 the Governor of Bali accepted the committee's recommendation and created a Governing Assembly for Bali's Cultural Heritage (Dewan Pengelolaan Warisan Budaya Bali), tasked with the management of the sites that have been nominated for World Heritage status.

1.6 The Current Management of the Heritage Sites

As a result of the Governor's decree, the nominated sites are now designed as Strategic Areas, which may receive unusual levels of support from the Provincial government. The goal of this designation is to help support and strengthen the subaks and water temples of Bali, which are felt to be best represented by these sites. *Subak* is a unique Balinese social and religious institution; a self-governing, democratic organization of farmers who share responsibility for the just and efficient use of irrigation water to grow paddy rice. Most *subaks* possess written legal codes, called *awig-awig*, which detail the rights and responsibilities of *subak* membership. *Subaks* are entrusted with the management of irrigation water, a gift from the Goddess Dewi Danu. Each *subak* maintains a local network of shrines and water temples, where farmers make offerings to the gods. Traditionally, *subak* are also responsible for the maintenance of irrigation networks. *Subak* social arrangements, religious rites, and management of temples, irrigation works, and rice terraces are guided by the principle of Tri Hita Karana. Tri Hita Karana is the Balinese-Hindu philosophy that emphasizes harmony among God, humans, and nature.

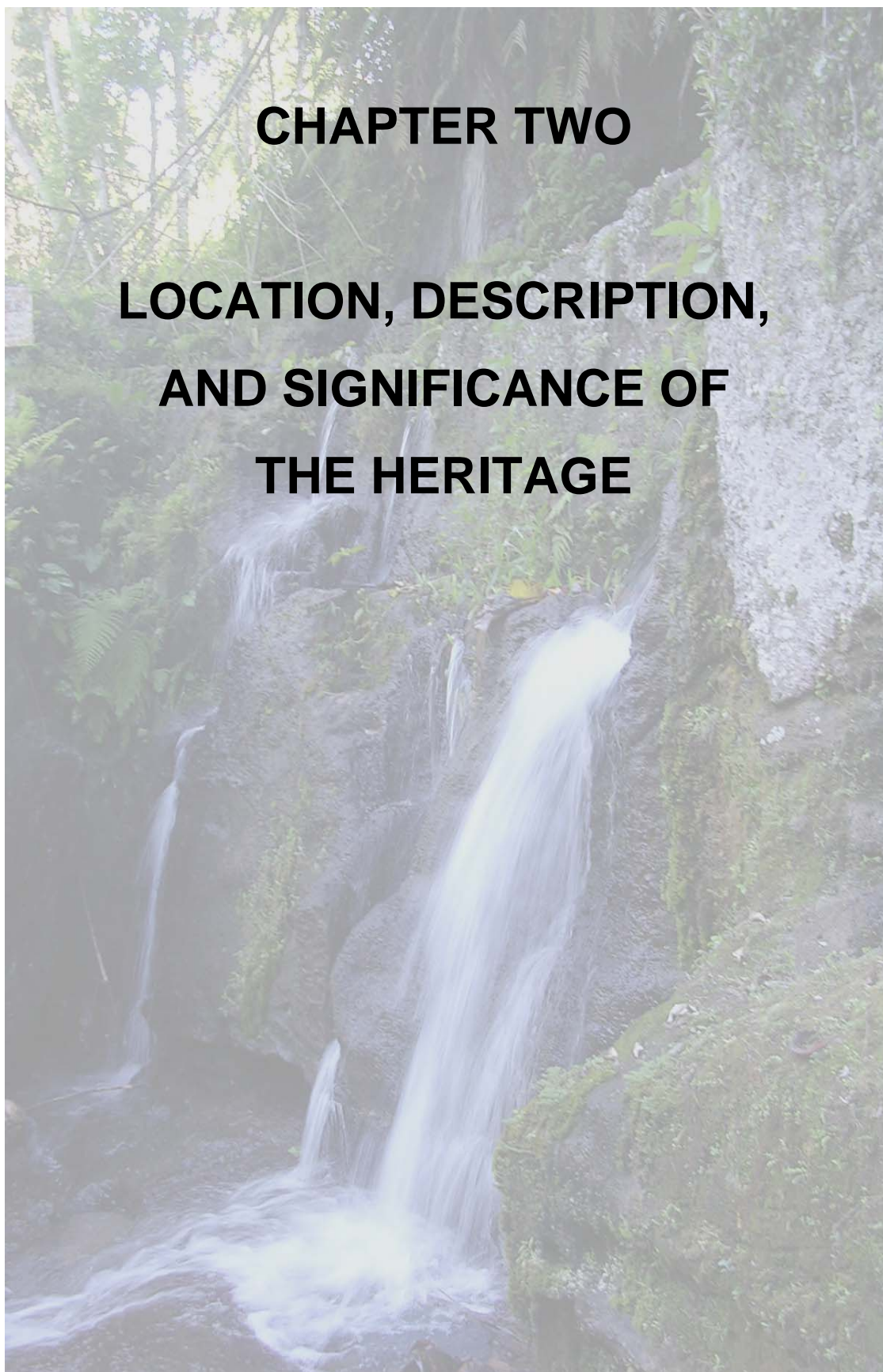
By law and Balinese tradition, subaks have responsibility for the management of their irrigation infrastructure and the environment of the rice terraces. They share responsibility with the customary villages (*desa pakraman*) for the support of temples, including water temples, and more generally for the environment in accordance with the concept of Tri Hita Karana. In some cases, the *subak* shares responsibility for the management of temples and irrigation infrastructure with

traditional village and sub-village units, or official government entities at the local, regency, or provincial level.

At the present time, while the Governing Assembly is coming into existence, the nominated property is legally administered by the Provincial Office of Agriculture, the Crop Service Office, the Provincial Office of Public Works, the Provincial Office of Forestry, and the Provincial Office of Environment. These government agencies operate under direct jurisdiction of the Governor. The central government, including the Department of Agriculture, Department of Public Works, Department of Forestry, the Ministry of Environment, Directorate General of History and Archaeology in the Department of Culture and Tourism of the Republic of Indonesia, provide necessary funding for the maintenance, support of and conservation of heritage properties through their respective provincial offices. The lead agency for managing cultural heritage properties is Directorate General of History and Archaeology. The Directorate General office also has responsibility to monitor and assess the conservation work in the heritage sites.

The temples and archaeological sites included in the nomination are currently protected under National Law No.5/1992 concerning Items of Cultural Heritage and have been declared Listed Heritage under the authorization of the Ministry of Culture and Tourism through the Office for Archaeological Heritage Conservation in Gianyar, Bali. This office is responsible for protecting, maintaining, and renovating heritage assets. The Office provides expertise and technical assistance in heritage conservation management. In cooperation with the local government, the Office also provides funding and other facilities to carry out renovation of heritage properties.

Whether or not this nomination results in the listing of the property as a UNESCO World Heritage Cultural Landscape, the future management of the sites will be carried out by the Governing Assembly, as will be described in detail below. As the Governor of Bali observed, whether or not the subaks and temples are deemed a World Cultural Heritage, they are certainly worthy of support and protection by the Balinese people.



CHAPTER TWO

LOCATION, DESCRIPTION, AND SIGNIFICANCE OF THE HERITAGE

CHAPTER 2

LOCATION, DESCRIPTION, AND OUTSTANDING UNIVERSAL VALUE

- 2.1 Country** : Indonesia
2.2 Region : Bali Province
2.3 Name of Property : The Cultural Landscape of Bali Province
2.4 Location: :

- A. Supreme Water Temple Pura Ulun Danu Batur and Lake Batur**
District of Kintamani, Bangli Regency
- B. Subak Landscape of Pakerisan Watershed**
District of Pakerisan, Gianyar Regency
- C. Subak Landscape of Catur Angga Batukaru**
District of Penebel, Tabanan Regency and District of Sukasada,
Buleleng Regency
- D. For Serial Nomination: Royal Water Temple Pura Taman Ayun**
District of Mengwi, Badung Regency

2.5 Description

The sites included in the Cultural Landscape of Bali Province are briefly described as follows.

A. Supreme water temple Pura Ulun Danu Batur and Lake Batur

Perched dramatically on the rim of Mount Batur overlooking the crater lake, the supreme water temple Pura Ulun Danau Batur is a collection of nested stone courtyards enclosing an array of towering shrines and pavilions dedicated to the worship of a pantheon of 45 deities, foremost among them the Goddess of the Lake, who is said to make the rivers flow and bring prosperity to the land. The temple's supremacy reflects the structural logic of water temples. In general, the congregation of a water temple consists of all the farmers who share water from a particular source, such as a weir or spring. Because the crater lake is regarded as the ultimate origin of every

spring and river, its congregation appropriately includes all *subaks*. As a water temple, the Ulun Danu temple is endowed with a unique collection of attributes: it is at once the most universal *subak* temple, the sacred summit of the cosmic mountain, the sole source of the most potent holy water and the only temple where the priesthood is selected by the gods themselves.



B. Subak Landscape of Pakerisan Watershed

This site will take in the lands and watercourses of two *subaks*, as well as three ancient water temples and Bali's most important archaeological remains from the era of the earliest wet-rice kingdoms. The proposed World Heritage site, which administratively falls within District Pakerisan in the Regency of Gianyar, will encompass the following features:

B.1. The spring and associated water temple Tirtha Empul that is the preeminent symbolic source of the Pakerisan river, as well as an important hydrological source. One of the earliest royal inscriptions that refers to irrigation, dated



962 AD, mentions a dam at this site, arguably among the first canal irrigation structures in Bali. Tirtha Empul remains important today both as a *subak* temple and as a regional pilgrimage destination.

B.2. The impressive rock-cut royal memorial *candi* monuments and monasteries located along the Pakerisan at Gunung Kawi, dating to the 11th century AD. These royal tombs and monastic retreats testify to the prosperity attained by early Balinese wet-rice kingdoms.



B.3. Pura Mengening, where a restored free-standing *candi* temple of the 11th or 12th century AD stands above another holy spring that is the water source for the irrigation channels of *subak* Kulub.



B.4. The *subak* that utilizes the flow which originates at the springs of Pura Tirtha Empul (*Subak* Pulagan) and Pura Mengening (*Subak* Kulub).

Collectively, the sites of the Pakerisan watershed constitute an ancient and still functioning water temple network that played a formative role as one of the cradles of Balinese kingship and religious traditions. As a cultural landscape that bears witness to past as well as present practices, Pakerisan is an exemplary manifestation of the Balinese reverence for water in both sacred and practical contexts.



C. Subak Landscape of Catur Angga Batukaru

Situated primarily in north Tabanan Regency and extending into the forests and lakes of Buleleng, this site descends from a mountainous water catchment zone to highland rice terraces at the upper edge of Tabanan's irrigated rice paddies. The area encompasses the forests of Bali's second highest volcano, Mount Batukaru (2276 m) as well as Lake Tamblingan in Buleleng Regency, which is considered to be the source of water for the many upland springs that feed Tabanan's "water mountains", or irrigated terraces. Tabanan is widely regarded as the "rice-barn" or *lumbung* of Bali, where fertile volcanic soils have long supported the cultivation of highly-valued local varieties of red, white, and black rice. Collectively, the subaks of this region (Catur Angga Batukaru) maintain the traditional farming and irrigation systems over a large part of Bali's most important ricebowl.



The *subaks* in the area maintain a strong connection with Pura Gubug Tamblingan, whose goddess Ida

Batara Danu Tamblingan is believed to supply water for fields throughout the Tabanan region. The 11th century Pura Luhur Batukaru, nestled in the forest above the rice terraces, sits at the apex of Batukaru's temple microcosm. The Batukaru area also is spiritually protected by the Pura Luhur Petali, situated at the edge of the forest above the villages and *subak* of Batukaru and Gunung Sari.

The Batukaru site has particular significance as a pilot area for implementation of the livelihood and ecosystem conservation initiatives proposed in this management plan. In 2005, a small group of farmers from area and a research team from the Bureau of Agricultural Research and Technology Assessment (BPTP) in Bali's Department of Agriculture initiated

a new project of organic rice production, by creating a nongovernmental organization they named *Somya Pertiwi*, which means “*Fruits of the Earth Goddess*”. Today, farmers from *subaks* throughout the Batukaru area have transitioned to organic



rice production, recognizing both the environmental and economic benefits. *Somya Pertiwi* has established a field training center, where farmers and agricultural extension agents from Bali and throughout Indonesia are coming in growing numbers to acquire traditional rice varieties, and learn organic farming practices. *Somya Pertiwi* and its training centre provide a model to support the transition to organic rice production proposed throughout World Heritage Cultural Landscape sites in Bali.

2.6 Statement of Outstanding Universal Value

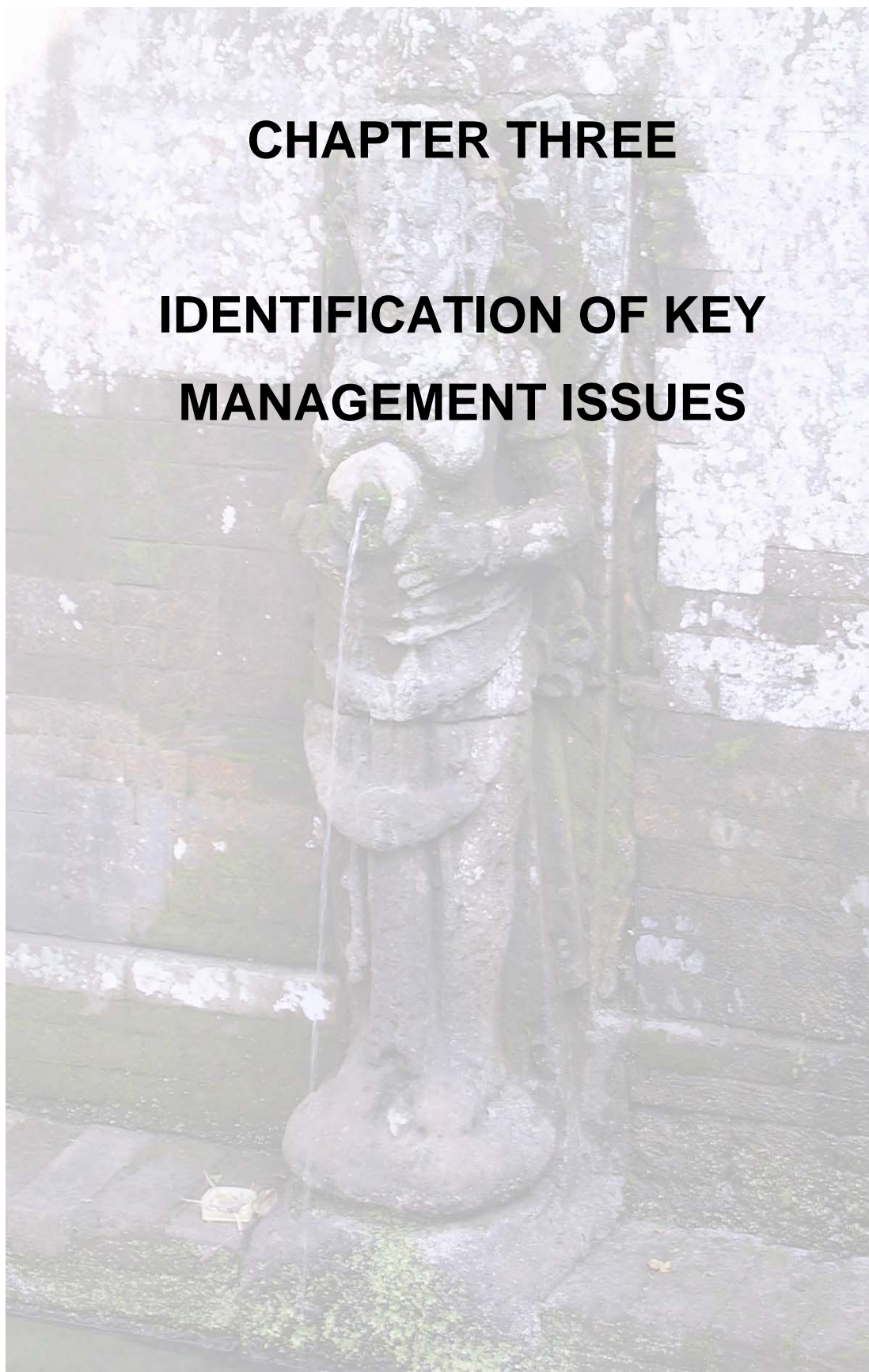
The Statement of Outstanding Universal Value (SOUV) of the proposed World Heritage Site provides a guideline for the preservation and enhancement of the property.

The *subaks* and water temple networks of Bali reflect the Balinese philosophical principle ***Tri Hita Karana*** (“three causes of goodness”), which promotes an harmonious relationship between the individual and the realms of the spirit (*parhyangan*), the human world (*pawongan*) and nature (*palemahan*). This abstract idea is given concrete realization in the lives of the Balinese through the institutions of *subaks* (ancient, democratic self-governing farmer’s associations) and water temples, which give spiritual meaning to the governance of the rice terrace ecology. Each year, the congregations of the water temples perform an intricate series of rituals, offerings and artistic performances that are intended to sustain an harmonious relationship with their natural and spiritual existence. Over the centuries, the physical landscape of Bali has been reshaped in conformity with these philosophical ideas. Water temple networks have expanded to manage the ecology of rice terraces at the scale of whole watersheds, transforming the

volcanic landscape into faceted terraces whose jewel-like perfection creates general prosperity.

Balinese water temples are unique institutions, which for more than a thousand years have drawn inspiration from several ancient religious traditions including *Saivasiddhanta* and *Samkya Hinduism*, *Vajrayana Buddhism* and Austronesian cosmology. The focus of water temple rites is the maintenance of harmonious relationships between humans and the natural world. This is achieved through active engagement with spiritual concepts, emphasizing the dependence of the human community on the life-sustaining forces of the natural world. These ideas are expressed through the musical traditions of various types of orchestra; dramatic performances such as *topeng*, *gambuh*, *wayang*, *rejang* and *baris*; the reading of poetry in four languages (Sanskrit, Balinese, Old and Middle Javanese); the creation and dedication of offerings made of flowers, fruits and rice; and the performance of rituals by priests and the congregation. The temples themselves are continually repaired and embellished by stone masons, sculptors, woodcarvers and painters.

The temple networks represent a unique response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area. The mountainous nature of the island with deep ravines and seasonal rains has created an ecosystem that is prone to water scarcity and threats of disease and pests. Water temple networks traditionally cope with these problems by enabling clusters of *subaks* to adjust irrigation schedules at the watershed scale, controlling pests by inducing synchronized fallow cycles. Although each *subak* focuses on the management of its own rice terraces, a global solution to water allocation emerges from the temple networks, optimizing irrigation flows for all. This thousand-year-old system is now threatened with collapse, due to development pressure, fragmentation of the landscape, and pollution from agricultural chemicals.



CHAPTER 3

IDENTIFICATION OF KEY MANAGEMENT ISSUES

This chapter elaborates key issues and challenges that will be addressed in Chapters 4 and 5 of the management plan.

3.1 Institutional Coordination

Many parties have interests and are involved in the management of the sites included in the Cultural Landscape of Bali Province. These parties come from various sectors and backgrounds, each with different visions, missions, and lines of accountability, which may or may not conform to the conservation policy of World Heritage properties. Hence, a well-structured coordinating body is one of the key issues addressed in the management plan.

3.2 Boundaries and Setting of the Heritage Sites

The nominated World Heritage Cultural Landscape of Bali Province consists of three sites, which are situated in three geographic zones, in order to reflect the full historical and geographical scope of Bali's system of subaks and water temples. The diversity of sites and institutional arrangements presents a challenge for coherent and integrated management of these serial sites. Thus, the management plan proposes a coordinating institution and implementation approach to accommodate this diversity. An adaptive co-management framework will guide the management and monitoring of the cluster of sites, while individual Master Plans will address site-specific management issues and plans.

Most of the sites included in the Cultural Landscape of Bali Province nomination are living heritage sites, which are owned by traditional villages (*desa adat* or *banjar*) and private farmers, and managed by *subaks*. However, local landowners face significant pressure to sell and subsequently develop property that is currently designated for rice farming. Although the Governor's Provincial Decree of 2008 establishes the legal basis for conservation of the World Heritage property, it is necessary to pro-actively maintain the authenticity and integrity of the water temples and surrounding landscape. Development restrictions within the sites must maintain the outstanding universal value

of the area, while allowing farmers and community members to sustain their livelihoods. Achieving consensus on development restrictions within the sites is an immediate challenge the Governing Assembly will undertake.

Site A consists of two components: the supreme water temple and Lake Batur. The water temple is a walled structure that is stringently guarded and maintained by the people of the village of Batur. The physical boundaries of the nominated area of the temple extend from the outer perimeter wall of the temple for a distance of 50 meters. This buffer zone is based on provincial zoning restrictions which establish a protected area of this size around all temples that have been designated *sad kahyangan*, the most important temples of Bali.¹ Lake Batur is included within the nominated area because it is symbolically and ritually associated with the temple, representing the symbolic source of water for the subaks. Indeed Lake Batur and the temple Ulun Danu Batur (Head of Lake Batur) are inextricably linked in Balinese cosmology. Government regulations establish a 100 meter protected perimeter around major lakes, including Lake Batur.² Within this perimeter villagers are permitted to fish and garden.

Site B consist of a continuous area that encompasses several subaks, water temples and archaeological sites. The northern boundary of the nominated area is defined by the village territory of Manukaya Let and the adjacent rice terraces of Subak Basangambu, based on existing Regency zoning records and confirmed by participatory mapping. The eastern boundary is 100 meters to the east of the Pakerisan river, which extends to the summit of the river valley and encompasses the rice lands of the subak Pulagan. This boundary is based on an existing government regulation protects lands lying within 100 meters of a major river. From the north, the western border of the site is initially based on the western borders of the village of Manukaya

¹ See Regulations of Bali Province Number 5 (2005) Section 19, which clarifies zoning for protected sacred sites, based on local *awig-awig* (customary law).

² Three national laws define protective buffer zones for forests, lakes and rivers. The Republic of Indonesia Act No.5 of 1990 concerning environmental conservation; the Republic of Indonesia Act No. 41 of 1991 concerning forest conservation, and The Republic of Indonesia Act No.32 of 1990 concerning conservation establish the following protected buffer zones: for lakes 100 meters; springs 200 meters; rivers from 50 to 100 meters and conservation forests 500 meters.

Let. South of the village, the border extends 50 meters to the west of the temple Pura Tirtha Empul, dividing the nominated area from the Royal Palace of Tampaksiring which is managed by the national government and used for state functions. Continuing to the south, the border traces the western perimeter of the village of Tampaksiring, home to many farmers of the subaks Pulagan and Kulub. Below the village, the border is based on the western perimeter of the subaks Kulub Atas and Kulub Bawah. The southern border of the nominated area is the southern boundary of subak Kulub Bawah.

Site C is a sacred region of mountain peaks, forests, lakes and the villages and rice terraces closest to them. The area encompasses the forests of Bali's second highest volcano, Mount Batukaru (2276 m), as well as Lakes Tamblingan and Buyan in Buleleng Regency, which are considered to be the source of water for the upland springs that feed Tabanan's irrigated terraces. The boundaries of the site are based on the ancient region "Catur Angga Batukaru" (Four Components of Batukaru), defined by five ancient water temples. The region is bounded to the north by lakes Tamblingan and Buyan and surrounding forests. The lakes and forests are managed by the Department of Forestry. To the east the region is bounded by the Yeh Ho river, except for a region consisting of a cluster of subaks (Soka) located to the east of the river, which belong to the congregation of the temple and are part of the traditional sacred landscape of Catur Angga. The southern boundary is defined by the downstream limits of the subaks that form the congregation of the Catur Angga temple system. Within this region, the nominated area consists of everything within the site, including temples, lakes, forests, villages, subaks, rice terraces and gardens.

Site D, proposed for serial nomination, consists of a single temple, the royal water temple Taman Ayun. Its boundaries are based on provincial zoning regulations which establish a protected perimeter of 50 meters from the temple. In the case of this temple, the perimeter is considered to begin at the outer edge of the large moat that surrounds the temple.

3.3 Social Learning and Research

The Cultural Landscape of Bali Province is a unique and complex social-ecological landscape. Effectively managing the site to promote the goals of sustainable livelihoods and sustainable ecosystems will require ongoing research into the

dynamics of the interconnected systems, as well as the emerging institutional processes of adaptive governance. Establishing systems to manage knowledge and information and facilitate a social learning environment will be a key challenge.

Improving public knowledge and appreciation of this dynamic cultural landscape is also a main aim of the management plan. This requires adequate interpretation of the *subak*, the water temple hierarchies, and the landscape, as well as the relationships between these aspects. The quality of interpretation at some sites is presently inadequate due to a lack of thorough research. What is more, it is always necessary to review and assess the interpretations currently available. Better interpretations can only be obtained through continuous research on the many aspects of the Cultural Landscape of Bali Province. The results of the research will certainly improve the understanding and presentation of the heritage assets to a wider public.

3.4 Livelihood Protection and Enhancement

As a living heritage site, the Cultural Landscape of Bali Province has been maintained for centuries by *subaks* and local communities, guided by the Balinese philosophy of Tri Hita Karana. Any effort to preserve the sites will not be effective without local community participation. They must be involved in all programs to manage and develop the heritage site, as envisioned in the structure of the Governing Assembly. It is also apparent that the heritage will be better preserved if the local communities benefit directly from their heritage. The desire for a better life or major household expenses such as health care and education can lead local land owners to sell their rice terraces and migrate from their village to seek alternative sources of income. This phenomenon has both direct and indirect negative impacts on the conservation of the cultural landscape. In light of this trend, livelihood enhancement is a key priority in the management of the heritage site. Furthermore, the encroachment of tourism development and urbanization into Bali's Green Zones in recent years endangers the



unique and harmonious landscape. Incentives and subsidies to support prosperous rural livelihoods and strong *subak* institutions will be coupled with statutory authority and enforcement of land use regulations to prohibit inappropriate development within the proposed World Heritage sites.

3.5 Conservation and Promotion of Ecosystem Services

The United Nations Millennium Ecosystem Assessment defines ecosystem services as the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other nonmaterial benefits. In Bali, as elsewhere, the loss and degradation of the natural environment undermine the capacity of the ecosystem to provide these services. Land conversion due to urban expansion and pollution from intensive use of agricultural chemicals and animal waste threaten Bali's ecological resources. To manage the Cultural Landscape of Bali Province, the framework developed for Millennium Assessment provides a useful basis for making decisions about how to enhance the conservation and sustainable use of ecosystems and their contributions to human livelihoods. The management of the proposed World Heritage Property includes a working group focused on protecting the natural resources that sustain Bali's unique agricultural landscape, including forests and water resources, plant and animal biodiversity, and soil composition.

3.6 Conservation of Material Culture

The nominated Cultural Landscape of Bali Province comprises different components of material culture, including traditional brick and wooden structures, rock cut temples, wet rice terraces, and bathing pools. Traditionally, most of the construction materials were obtained directly from the surrounding area. However, the introduction of new materials and environmental pressures have induced the Balinese to replace the traditional materials with fabricated materials. This tendency does not conform to the conservation principle to retain the authenticity of the heritage site. Organic materials are a substantial and authentic component

of the architectural structures within the nominated sites. However, these materials deteriorate rapidly in the humid tropical climate. The management plan has to address this problem as well.

In addition, several rock-cut temples have been damaged due to environmental pressure as well as natural disaster and restoration will be necessary for some sites in Tampaksiring.



3.7 Appropriate Tourism Development

Since the 1970s, Bali has become one of the most popular tourist destinations in the world. Millions of domestic and international tourists have visited Bali. The Balinese tourist industry grew very rapidly until 2002, when the first terrorist bomb struck Kuta. In subsequent years, the number of visitors coming to Bali decreased significantly. However, tourism levels are now returning to pre-2002 levels and the Bali Provincial Government continues to view tourism as a vital source of income. Accordingly, the government has promoted new tourist attractions to entice tourists to come to Bali.

Construction of tourist facilities and infrastructure within cultural heritage areas is one of the negative impacts of tourism on Bali. Parking areas, toilet facilities, restaurants, souvenir kiosks, hotels and information offices are often constructed close to or even inside the sites. As a result, the accessibility of the site becomes more difficult, the spatial arrangement based on cosmological doctrine is disturbed, and the beauty of the cultural landscape is contaminated and becomes less enjoyable. With inscription of the Cultural Landscape of Bali Province to the World Heritage List, it is anticipated that tourism to these areas will increase. Together with widespread globalization, this is bound to bring significant changes to the traditional lifestyle of the Balinese. These issues must be addressed, in

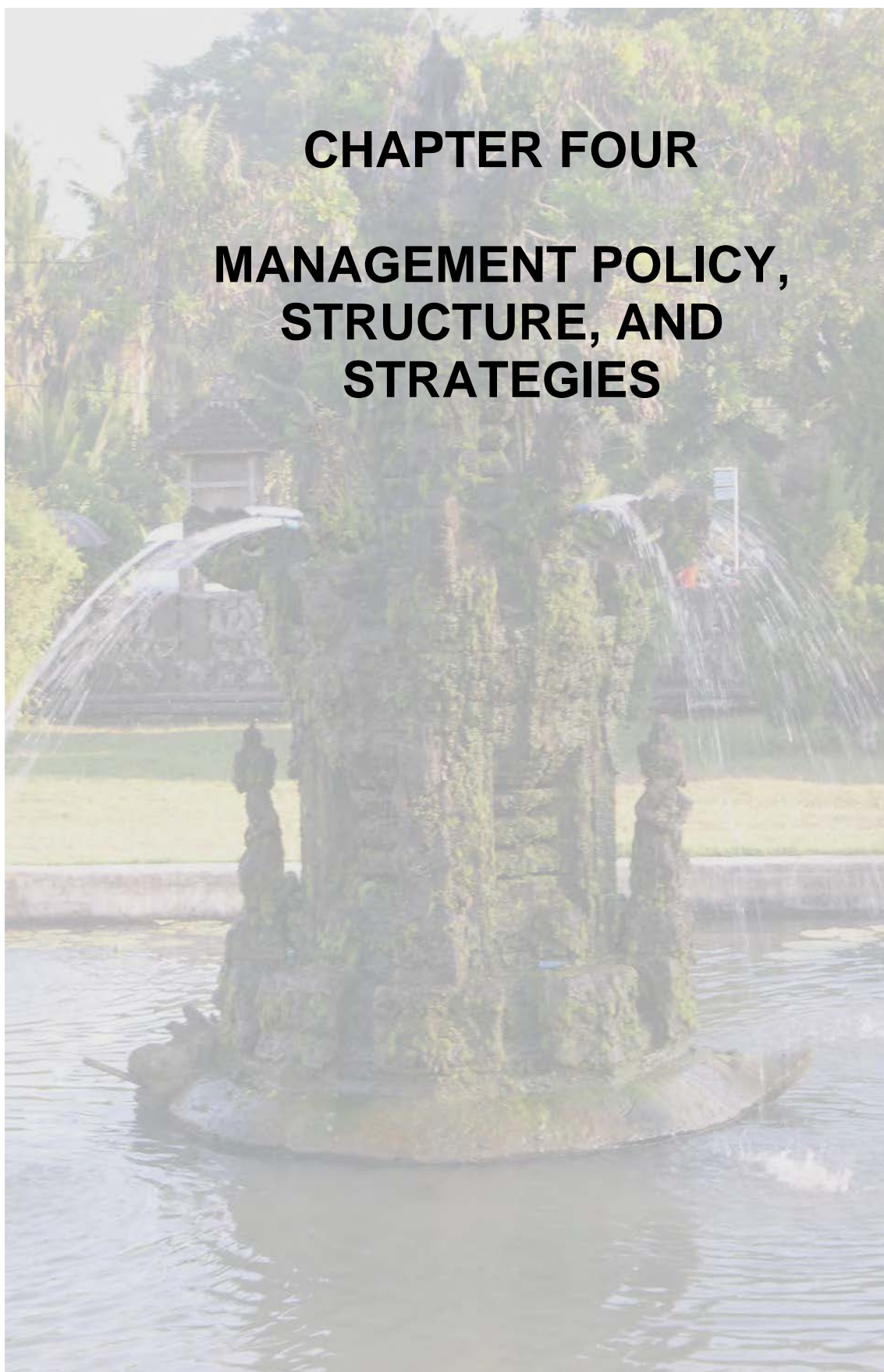
consultation with local communities and relevant government authorities, to mitigate and ameliorate negative impacts of tourism.

3.8 Infrastructure and Facility Development

One of the main aims of the management plan is to improve public awareness and appreciation of the Cultural Landscape of Bali Province and its settings through improved presentation and enjoyment. It is therefore essential for these sites to be easily accessible. As noted above, facilities such as souvenir and snack kiosks are built inside the compound of some sites. This development has spoiled the authenticity of the traditional arrangement. In such cases, the original arrangement should be restored. At other sites, accessibility is limited and/ or facilities are not available. This makes it difficult for the visitor to gain knowledge about the heritage site. It will be important to develop a coherent infrastructure development strategy for the cluster of sites, to effectively balance tourism development, livelihood support, and conservation objectives, and to enhance the interpretation of sites for the public.

CHAPTER FOUR

MANAGEMENT POLICY, STRUCTURE, AND STRATEGIES



CHAPTER 4

MANAGEMENT POLICY, STRUCTURE, AND STRATEGIES

4.1 Legal, Institutional, and Administrative Policies and Structures

The broad legal framework for the management and coordination of the World Heritage Cultural Landscape of Bali was established by Provincial Decree in an Agreement between the Government of Bali Province and Regencies of Bali for the Establishment of the Strategic Area of Bali Province. This Agreement legally codifies conservation and spatial planning for the proposed World Heritage sites named above, including tangible and intangible heritage and agricultural and forest ecosystems within the site boundaries. The Provincial Decree is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for conservation of critical cultural landscapes.

The management of the property will be coordinated by a newly established Governing Assembly for Bali's Cultural Heritage (*Dewan Pengelolaan Warisan Budaya Bali*), tasked with the management of the sites that are presently Bali Heritage sites, which have been nominated for World Heritage status (Fig. 4.1). The Governing Assembly links together government and non-government entities at the national, provincial, and local levels involved in the management of the properties described in this nomination. The Assembly is administratively housed within the Department of Culture and Tourism in Bali, which oversees budgeting and staffing. The Head of this Department is also the Chair of the Governing Assembly. The Assembly is a democratic governing body which consists of the following representatives:

- Representatives of all subaks who will serve on a rotating basis. Because subaks are represented on all the Working Groups of the Assembly, it is anticipated that these elected representatives will devote a substantial amount of time to participation in the Assembly. Following the normal procedure for such participation in governance in Indonesia, they will

receive each an honorarium and expense allowance whenever they participate in the governance system.

- Representatives from all customary villages within the sites. This serves a dual purpose: because the governance of temples is invariably in the hands of the customary villages and subaks, this ensures that both the villages and the temples are fully represented in the Governing Assembly. Importantly, the inclusion of these village representatives also ensures that representatives of the people- subaks and villages- outnumber representatives of government departments in all the Working Groups and the Governing Assembly as a whole. Decisions of both groups are made by democratic vote. This structure also reflects the traditional governance structure of the subaks, which is also based on democratic vote.
- Representatives of government departments at the Provincial and Regency levels. A full list of these representatives is provided below in the description of the six Working Groups. Translations of the acronyms are provided in Table 4.1.

The remaining structural features of the Governing Assembly may be described as follows. As shown in Fig 4.1, the Head of the Governing Assembly is the Head of the Department of Culture and Tourism. This structure facilitates budgeting and staffing at the Provincial level. The Head is responsible to the Governor of Bali and the elected leader of the provincial legislature. He is also responsible to seek advice from the offices of elected heads (Bupati) of the five Regencies that contain the nominated properties. This will help to ensure coordinated planning. The Head also consults with four other entities: the Secretary General for People's Welfare, the Ministry of Culture and Tourism, UNESCO representatives and academic consultants. The Head of the Governing Assembly appoints a Secretary, subject to the approval of the Assembly, to provide it with professional assistance. The Secretary is charged with the management of three units:

1. Program Group, which assists the Assembly with planning. It has a professional staff and also includes part-time representatives from the Planning Departments (BAPPEDA) at the Provincial and Regency levels, as needed.

2. Finance and Human Resources Group, which handles staffing and budgets. This group has professional staff and includes part-time representatives from the Finance departments at the Provincial and Regency levels, and the Provincial Human Resources Department, as needed.
3. Monitoring and Evaluation Group, which manages a geographic information system and carries out continuing monitoring and evaluation as mandated by the Governing Assembly. There is a professional staff and part-time representation from the Provincial Inspectorate of Monitoring and Evaluation.

The Governing Assembly itself is organized into six Working Groups (Fig 4.1):

1. Preservation of Culture
2. Preservation of Ecosystems and Environment
3. Visitors and Education
4. Farming Development
5. Social and Infrastructure Development
6. Legal Affairs and Governance

These groups are all organized as components of the Assembly, and are self-governing democratic groups, like Balinese subaks. Subak representatives are members of all six groups. The Governing Assembly is empowered to set its own agenda and to oversee all professional appointments in the Secretariat. Operational funding for the Governing Assembly is provided by the Provincial government via the Department of Culture and Tourism. Additional funding is expected from the Regency governments. It is anticipated that substantial additional funding may result from improvement to visitor facilities and increased revenue from tourism in the future. The allocation of all funds is entrusted to the Governing Assembly, to be managed in the context of annual management plans for all sites. *Subaks* and local communities will retain responsibility for the day-to-day site maintenance and conservation, based on existing institutional and legal structures of *subak awig-awig* and customary *adat* law. The Governing Assembly will help to ensure effective communication among

local communities and *subaks*, government agencies and other stakeholders. It will also be responsible for implementing the principal project components outlined in this plan.

Presently, the government of the Republic of Indonesia restricts the activities of each Ministry or government department to its respective mandate. Coherent management of Bali's complex social and ecological landscape requires expertise and effective collaboration from multiple government offices and departments, as well as traditional *subak* and community management institutions. Thus, the new structure establishes a cross-sectoral democratic coordinating body modeled on the *subak* system, with clear budgetary and reporting lines.

Table 4.1: List of Acronyms

DPRD	DEWAN PERWAKILAN RAKYAT	BALI'S LEGISLATURE
KADISBUD	KEPALA DINAS KEBUDAYAAN	HEAD OF BALI CULTURAL OFFICE
BAPPEDA	BADAN PERENCANAAN PEMBANGUNAN DAERAH	REGIONAL PLANNING AGENCY
BKD	BADAN KEPEGAWAIAN DAERAH	REGIONAL EMPLOYMENT AGENCY
KEMKO KESRA	KEMENTERIAN KOORDINATOR BIDANG KESEJAHTERAAN RAKYAT	COORDINATING MINISTER FOR PEOPLE'S WELFARE
KEM BUDPAR	KEMENTERIAN KEBUDAYAAN DAN PARIWISATA	MINISTRY OF CULTURE AND TOURISM
DISBUD	DINAS KEBUDAYAAN	BALI CULTURAL OFFICE (DEPARTMENT OF CULTURE)
BP3	BALAI PELESTARIAN PENINGGALAN PURBAKALA	THE HERITAGE PRESERVATION OFFICE
BALAR	BALAI ARKEOLOGI	ARCHEOLOGY OFFICE
BPSNT	BALAI PELESTARIAN SEJARAH DAN NILAI TRADISIONAL	HISTORY AND TRADITIONAL VALUE PROTECTION OFFICES
BLH	BADAN LINGKUNGAN HIDUP	ENVIRONMENT AGENCY
DIHUT	DINAS KEHUTANAN	DEPARTMENT OF FORESTRY
BRIK	BADAN REVITALISASI INDUSTRI KEHUTANAN	FOREST-BASED INDUSTRY REVITALIZATION BODY
DISPAR	DINAS PARIWISATA	BALI TOURISM OFFICE (DEPARTMENT OF TOURISM)
DIKNAS	DINAS PENDIDIKAN NASIONAL	DEPARTMENT OF NATIONAL EDUCATION
DISTAN	DINAS PERTANIAN	DEPARTMENT OF AGRICULTURE
DISBUN	DINAS PERKEBUNAN	DEPARTMENT OF ESTATE CROPS
DISNAK	DINAS PETERNAKAN	DEPARTMENT OF ANIMAL HUSBANDRY
DISKAN	DINAS PERIKANAN	DEPARTMENT OF FISHERIES
BPTP	BALAI PENGKAJIAN TEKNOLOGI PERTANIAN	ASSESSMENT INSTITUTE FOR AGRICULTURAL TECHNOLOGY
HKTI	HIMPUNAN KERUKUNAN TANI INDONESIA	INDONESIAN FARMERS ASSOCIATION
DINAS PU	DINAS PEKERJAAN UMUM	DEPARTMENT OF PUBLIC WORKS
DISOS	DINAS SOSIAL	DEPARTMENT OF SOCIAL AFFAIRS
KEM HUM HAM	KEMENTERIAN HUKUM DAN HAK ASASI MANUSIA	MINISTRY OF LAW AND HUMAN RIGHTS

Chapter Four: Management Policy, Structure, and Strategies

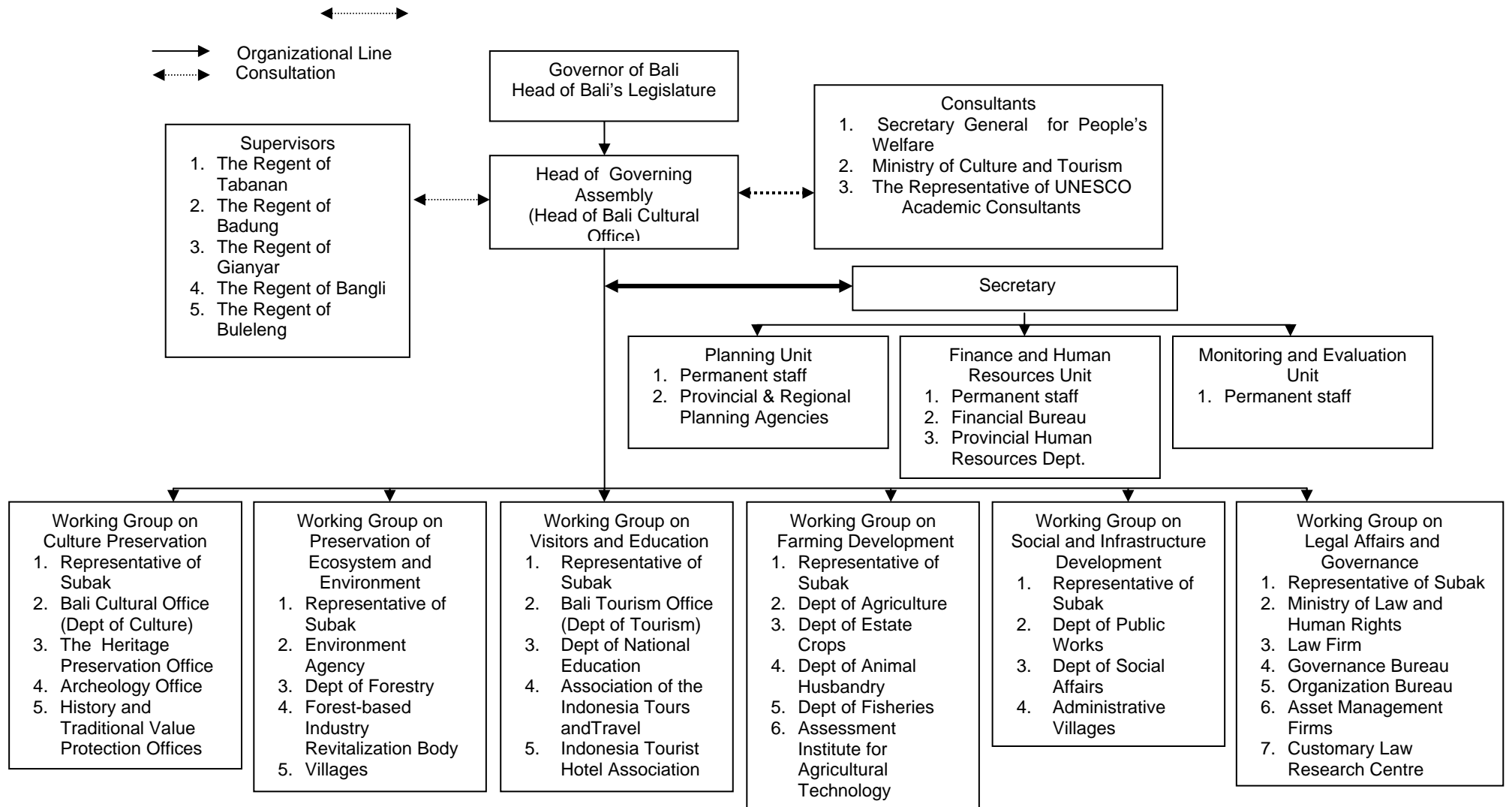


Figure 4.1 Organizational Structure of the Governing assembly for Bali's Cultural Heritage

The Governing Assembly will facilitate coordination among relevant government departments as well as other stakeholders so that the goals of adaptive ecosystem governance can be realized. The structure of the Assembly clearly situates responsibility for the management of the World Heritage program in a well-defined organization, which is entrusted with implementation and monitoring and evaluation. The internal structure of the Governing Assembly explicitly integrates participation from a broad forum of stakeholders, representing government institutions, *subak* and community organizations, and academic advisers. A principal external collaborator will be the Stockholm Resilience Center. The Center, a premier institution for environmental research and adaptive governance of social-ecological systems at Stockholm University, will support research, capacity building, and policy development (per MOU Stockholm Resilience Center-Ministry of Culture and Tourism, Republic of Indonesia). *Subaks* and local communities will retain responsibility for the day-to-day site maintenance and conservation, based on existing institutional and legal structures of *subak awig-awig* and customary *adat* law. The Secretariat of the Governing Assembly will ensure effective communication among the local communities and *subaks*, government agencies and other stakeholders. It will also be responsible for implementing the principal project components outlined in this plan.

4.1.1 Detailed participatory site mapping and ongoing review of zoning

Bali's Departments of Agriculture (BPTP) and Culture, the Regional Planning Board (*Bappeda*), and the Office of Archaeological Heritage Conservation at the provincial and national levels, have initiated compilation of detailed site maps, in consultation with *subaks* and local community leaders. This process of mapping will be extended in future. The Geographic Information System used to create the maps for this nomination will be used for ongoing monitoring and evaluation, and a mirror site at the Stockholm Resilience Centre is under discussion. The Working Group on Law and Legislation of the Governing Assembly will consult with *subaks*, community leaders, and government authorities to retain or modify zoning restrictions on a continuing basis for each site. It is

expected that this activity will also involve the other working groups from time to time. The goal is to anticipate possible changes due to future development so that the original setting of each site is maintained and that potential changes do not intrude upon the preservation of the cultural landscape. The Provincial Decree of 2008 establishes the legal basis for conservation zoning of Bali's proposed World Heritage landscape, including rice terraces, forests, and lake regions. For temple monuments, the designation of core and buffer zones will be based on National Law No.5/1992 concerning The Conservation of Cultural Property. The process of sustaining the Outstanding Universal Value of the property will draw on the experience of similar processes at other World Heritage properties in Indonesia (e.g., Borobudur and Prambanan). As necessary, the Governing Assembly may recommend changes in the legal statutory framework for better management and enforcement of the property. Such review will be based on through consultative discussions involving property owners, *subak* representatives, community leaders, local foundations, government agencies, and with appropriate professional advice from planners, economists and other consultants.

4.2 Comprehensive and Participatory Assessment

Sustainable resource management depends on a process of learning and adaptation. A core component of successful adaptive management is integrated social-ecological assessment. Such assessment involves participation from the broad spectrum of stakeholders and resource users and considers the full range of essential ecosystem services. Management of the Bali World Heritage property will be built upon a foundation of comprehensive and participatory assessment. Preparation of the nomination dossier and this plan has involved numerous consultative meetings with government and non-government stakeholders, including *subak* and community representatives.

The Working Groups on Social and Infrastructure, Cultural Preservation and Environmental Preservation will extend this consultative approach to comprehensive and systematic assessments of livelihood status, vulnerability to social and environmental threats, coping and management

capacities, and the state of the environment across target areas. These assessments will be linked to a participatory planning process at each site, as well as the design, implementation and ongoing monitoring and evaluation of specific activities at each site. In designing and implementing the assessments, the Board will draw on best practices in adaptive governance assessment methodologies, in consultation with relevant experts from the Stockholm Resilience Center.

4.3 Participatory Planning and Design

Chapter 5 of this management plan describes the strategic priorities for management of the World Heritage site. A participatory planning approach will be implemented to support these priorities and achieve an integrated approach to managing the five proposed sites as a cluster. Findings from integrated assessments (4.2) will provide a foundation for this on-going process. Planning and design will involve the broad range of stakeholders as well as experience and ideas from other adaptive governance processes. Importantly, it will respect and strengthen existing *subak* and community planning processes. It will also ensure coherent harmonization of conservation and livelihood enhancement initiatives at various levels of government authority. The principal outputs from this process will be (1) annual individual site management plans (Master Plans) that feed into and reflect the cluster-wide policies and strategies and (2) annual work plans to guide day-to-day site management. Plans will reflect the strategic priorities and capacities at each site, to promote social-ecological resilience. To navigate the complexities of the social and ecological systems and facilitate an adaptive management approach, the planning process must be flexible and responsive to institutional learning and contextual changes. In this way, the planning and design process will be closely linked with policy priorities and feedbacks from the monitoring and evaluation system.¹

¹ Thomas Elmqvist et al. (2003). Response diversity, ecosystem change, and resilience. *Front Ecol Environ* 1(9): 488–494; Carl Folke et al. (2005). Adaptive governance of socio-ecological systems. *Annual Review of Environmental Resources* 30:441–73.

4.4 Strategic Priorities for Implementation

Managing the World Heritage site will require implementation at two principal levels. First, the Governing Assembly will be responsible for implementing the policy and institutional components discussed in this chapter. These components establish a solid legal framework, organizational structure, and programmatic elements for effective and integrated World Heritage site management. Second, the Board will oversee implementation of activities within each strategic priority area presented in Chapter 5 of this management plan. These activities are proposed to strengthen the capacity of *subaks* as the primary institution involved in the management of the rice terraces and guardians of ecosystem services and the temple hierarchy. While the specific activities and means of implementation will vary at each of the individual sites (per participatory planning processes discussed above), key strategic priorities for the cluster of sites are:

1. Livelihood protection and enhancement
2. Conservation and promotion of ecosystem services
3. Conservation of material culture
4. Appropriate tourism development
5. Infrastructure and facility development

The composition of the Governing Assembly reflects the collective expertise necessary to implement activities in each of these programmatic areas. However, these areas are inextricably linked and successful implementation will require multi-sectoral partnership, guided by the Governing Assembly to facilitate collaboration with relevant government agencies and local communities. Selection and implementation of specific activities at each site will strengthen *subaks* and existing management schemes to promote resilient social and ecological systems.

4.5 Adaptive Monitoring and Evaluation System

Effective co-management of Bali's proposed World Heritage property requires a consistent and comprehensive flow of information that can be readily synthesized and utilized—for both the short-term implementation of the program and for longer term planning. The Monitoring and Evaluation,

Unit housed within the secretariat will design a dynamic and adaptive monitoring system to collect and manage data on social and ecological variables, as well as contextual changes that potentially affect the conservation and enhancement of the World Heritage site. The system will include baseline data on key social and ecological indicators, and the state of conservation of the World Heritage properties. Baseline data on livelihoods, *subak* institutional capacity, and environmental factors such as soil and water quality and environmental change have been collected to varying degrees in Batukaru and Pakerisan watershed areas (2006-2008). This baseline data will be reviewed to identify core indicators of sustainability and identify current knowledge gaps. Data will be collected to fill these gaps and the baseline study extended to the Mengwi site and any future serial sites.

The system will also include a participatory monitoring component involving *subaks* and other stakeholders. It will also be important to monitor and report on regular program outputs (i.e., the provision of goods and services such as distribution of organic fertilizer and training in organic farming). Periodic evaluations will be conducted to assess the overall social and ecological impacts of the program, against baseline data.

Because the property includes a diverse cluster of sites, each with different attributes, it will be necessary to establish a small set of core social-ecological variables for overall program monitoring. Output level indicators will be tailored to each individual site, to monitor the site-specific activities. The system will be closely linked to the participatory planning process and implementation of specific activities at each of the five sites in the proposed cluster. To develop a system that effectively integrates and responds to social and ecological feedback, the Governing Assembly and the Monitoring, Evaluation, and Reporting Unit will seek guidance from the Stockholm Resilience Center. In addition, the Indonesian Ministry of Culture and Tourism, as the official State Party, may request expert advice from the World Heritage Advisory Bodies and the Secretariat. Periodic reports will be submitted to the UNESCO World Heritage Centre.

4.6 Capacity Building for Adaptive Co-Management of Complex Social-Ecological Systems

Effective and adaptive management of the proposed World Heritage Cultural Landscape of Bali will require the ability to observe and interpret social and ecosystem dynamics and develop the social capacity to respond to feedback and change.² The Governing Assembly endeavors to function as a learning institution, with the capacity to mobilize, synthesize, and make decisions based on different knowledge and operational systems, ranging from the traditional management systems of the *subak* to recent and successful work by Bali's Department of Agriculture to promote organic rice farming and monitor the social and ecological outcomes of these efforts. This requires fostering a dynamic learning environment that recognizes policy decisions and implementation of World Heritage programs are "ongoing learning experiments" that will be monitored, evaluated, and adapted over time.³

Developing the knowledge, skills, and expertise to adaptively co-manage Bali's World Heritage property as a complex and dynamic social-ecological landscape is a critical priority of the Governing Assembly. Already, the Department of History and Archaeology, through the Ministry of Culture and Tourism, has submitted a proposal to the International Assistance Program under the World Heritage Fund for training in adaptive social-ecological management of Indonesia's World Heritage sites. This proposal has been developed in collaboration with institutional partners in Bali and the Stockholm Resilience Center as a first step in an ongoing initiative to develop expertise in adaptive, sustainable management of the unique social and ecological systems in Bali and elsewhere in Indonesia. It is proposed that the Stockholm Resilience Center, the premier research institute in ecosystem management and adaptive governance, will join regional World Heritage program staff for training in conceptual approaches and management practices at field sites in Bali. The Governing Assembly will also seek training and capacity building in management of World

² See Folke, C. et al. (2005) Adaptive Governance of Social-Ecological Systems. *Annual Review of Environmental Resources* 30:441-73.

³ Ostrom, E. (2005). *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.

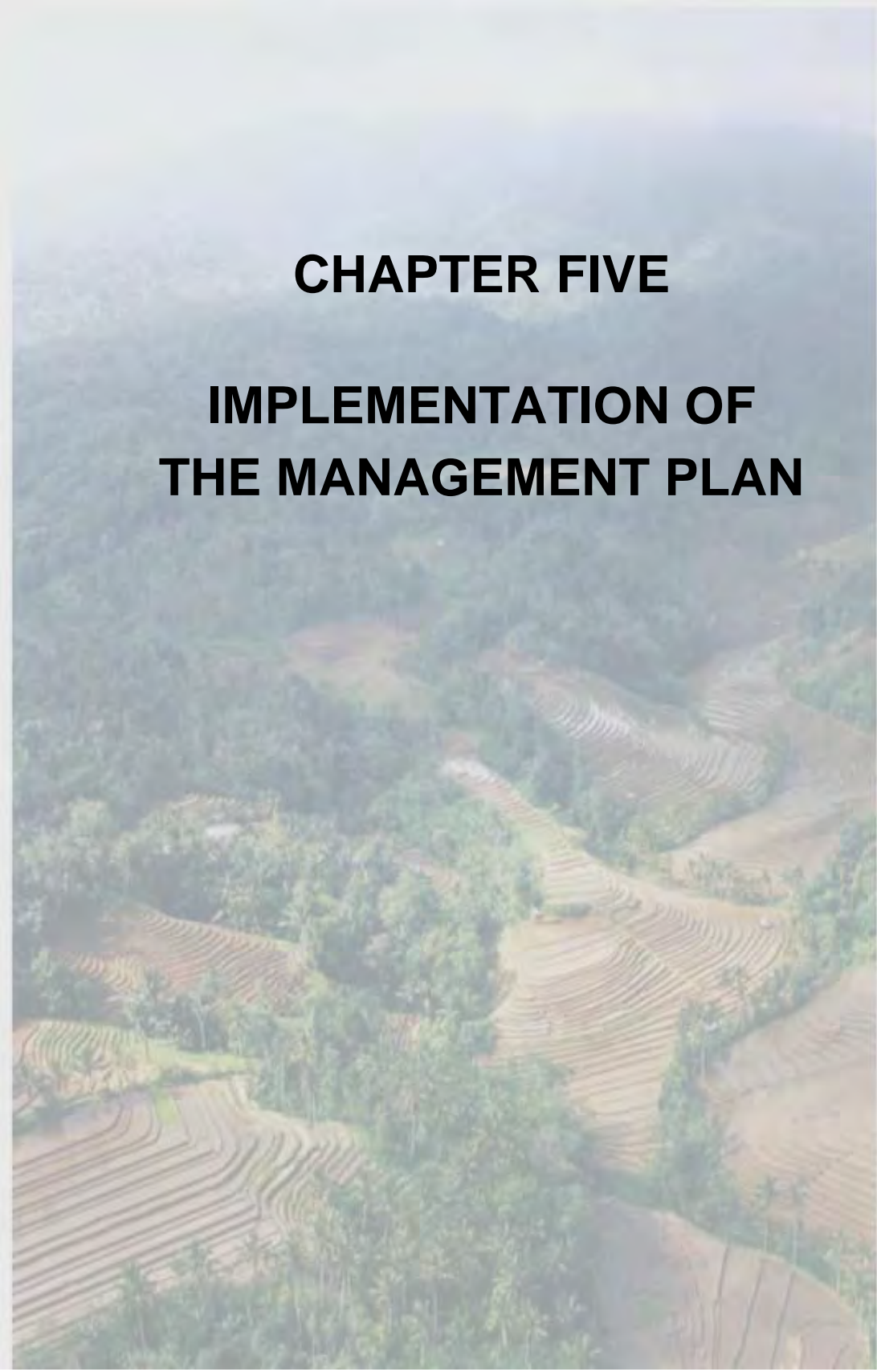
Heritage properties, including risk management, climate change, and site conservation from relevant agencies, such as International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM). It is envisaged that Bali's World Heritage site will become a learning center in adaptive co-management for the Indo-Pacific region.

4.7 Identification of Serial Sites to Extend Ecosystem Conservation and Livelihood Objective

The selection of sites proposed for inscription as the Cultural Landscape of Bali World Heritage Sites is based on their representative outstanding universal value. There are, however, hundreds of functioning *subaks* in Bali that display the social, spiritual, and ecological characteristics described in the nomination dossier. Throughout Bali, the *subaks* face imminent threats from the rapid pace of tourism development, urbanization, and ecological deterioration. Presently, it is not possible to provide the institutional support and resources necessary to effectively manage such a vast island-wide cluster. Thus, the sites proposed for inscription as a World Heritage property in 2009 are also those with a history of consultation with *subaks*, local communities, and government authorities at the district level. This long-term engagement of local communities and government officials has developed social networks among stakeholders that are essential for successful adaptive co-management of the cluster of sites. The parties involved in the preparation of Bali's World Heritage nomination have a strong commitment to extending the initial World Heritage property to include other threatened *subaks*, water temple hierarchies, and corresponding forests and terraced landscapes as serial nominations.

Preliminary work toward future inscription of the *subaks* and water temples of Bali's Sideman Valley has already been undertaken. This site originates at an important mountain temple on Mount Agung, Pura Pasar Agung, and descends through forests to include 36 *subaks* along two rivers in the eastern district of Karangasem. Presently, this region of Bali is still dominated by traditional rice agriculture, and so far there has been little conversion of rice terraces to commercial uses. However, the Sidemen district is presently zoned for tourist development and numerous plans have been drafted for villa and golf course development. The Governing

Assembly will continue the efforts already initiated to add Sideman to the proposed cluster of World Heritage sites. The ongoing process in Sideman and in other important cultural landscapes in Bali will build on the lessons of consultative engagement and the experience of the Governing Assembly, *subaks*, and other stakeholders in management of the initial property.



CHAPTER FIVE

**IMPLEMENTATION OF
THE MANAGEMENT PLAN**

CHAPTER 5

IMPLEMENTATION OF THE MANAGEMENT PLAN

This chapter presents two categories of activities that will be implemented under the Cultural Landscape of Bali Province. The first reflects the operational tasks that will be undertaken to establish the policies, systems, and structures presented in Chapter Four. These operational activities will be necessary for the proposed World Heritage Program to develop as an adaptive institution with the capacity to achieve its five key strategic objectives.

The second category includes the specific activities that may be implemented within each priority area of the Cultural Landscape initiative, listed in section 5.4 below.

The strategic priorities are:

1. **Livelihood protection and enhancement** for *subak* institutions and their members, as guardians of Bali's unique cultural landscape;
2. **Conservation and promotion of ecosystem services** to ensure sustainable use of natural resources upon which *subaks* and their farming systems depend;
3. **Conservation of material culture** to preserve and enhance the authenticity of sites and structures as a living manifestation of Bali's heritage;
4. **Appropriate tourism development** within the site, to achieve a balance between public and visitor education, generation of tourism-based revenue, and conservation; and
5. **Infrastructure and facility development** consistent with preservation and enhancement of the cultural landscape.

The set of activities proposed here is in fact a 'menu of options' that participating *subaks* and government partners may elect to implement at each individual site. The specific choice of activities means of implementation, and sequencing will be determined based on findings from comprehensive assessments, discussed in Chapter Four. They will be developed as part of Master Plans for each site and integrated into annual work plans, and linked to the monitoring system. Within the Governing Assembly, the six Working Groups have responsibility for the coordination and implementation of each strategic objective (see Figure 4.2).

Activities proposed to support each objective are a refined and integrated version of the activities discussed during numerous stakeholder meetings held as part of the process to prepare this nomination. Some of these activities have been ongoing for quite some time, while the majority have been proposed more recently as part of the World Heritage initiative.

The tables presented below list specific activities that will be carried out under the guidance of the Governing Board of the Cultural Landscape of Bali. Estimated periods to achieve the results are given as follows: *short* period, from 3 months to 1 year; *medium*, 1 to 3 years; and *long*, more than 3 years. The agencies or stakeholders which have been involved already or will take part in the implementation of the program are listed below.

BA	<i>Bendesa Adat</i> (Traditional Village Authority)
BPTP	Bureau of Agricultural Research and Technology Assessment, Bali Department of Agriculture
COBP	Cultural Office of Bali Province
DGHA	Directorate General for History and Archaeology
GA	Governing Assembly of Bali Cultural Heritage
GAP	Planning Unit of Secretariat of Governing Assembly
GBP	Government of Bali Province
IAUA	Individual Academic, University or Other Research Agencies (Stockholm Resilience Center, Udayana University)
IDA	Indonesian Department of Agriculture
IDCT	Indonesian Ministry of Culture and Tourism
IDE	Indonesian Department of Education
IDEMR	Indonesian Department of Energy and Mineral Resource
IDEnv	Indonesian Department of Environment
IDF	Indonesian Department of Finance
IDFor	Indonesian Department of Forestry
IDH	Indonesian Department of Health
IDPU	Indonesian Department of Public Works
MONEV	Monitoring and Evaluation unit of Secretariat
NGO	Non-Government Organization
OAHC	Office for Archaeological Heritage Conservation in Gianyar
OARB	Office for Archaeological Research, Bali
ORHT	Office for Research on History and Traditional Values in Bali
RG	Regional Governments (<i>Kabupaten</i> : Badung, Bangli, Buleleng, Gianyar, Tabanan)
SBK	<i>Subaks/ Pekaseh Subak</i>
SRC	Stockholm Resilience Centre
TBBP	Tourism Board of Bali Province
WGA	Working Group on Agriculture of Governing Assembly
WGC	Working Group on Culture of Governing Assembly
WGE	Working Group on Environment of Governing Assembly
WGI	Working Group on Infrastructure of Governing Assembly
WGL	Working Group on Law/Governance of Governing Assembly
WGV	Working Group on Education/Visitors of Governing Assembly

5.1 Boundaries and Settings of the Heritage Sites

Objectives	Activities	Short	Medium	Long
Facilitate protection and enhancement of the World Heritage site through proper implementation of the management plan	Establish and officially appoint appropriate members to the Governing Assembly of the Cultural Landscape of Bali, including the Secretariat, and working Units	GBP DGHA IDCT		
	Establish & equip offices for Secretariat in the Bali Provincial Culture Office	GBP		
	Consult with all stakeholders to affirm the management plan and refine it if necessary	GA		
	Carry out formative consultative meetings with Governing Assembly	GA	GA	
Establish legal status for each site including core and buffer zones	Consult with owners and residents of the proposed core and buffer zones to determine the legal status of core and buffer zones	WGL BA SBK	WGL BA SBK	
	Hold consultation meetings with all stakeholders to discuss land use regulations to be applied and enforced within the core and buffer zones	WGL NGO BA SBK	WGL NGO BA SBK	

	Conduct process to establish legal land use regulations for core and buffer zones		WGL	
	Ongoing consultations with stakeholders	WGL DGHA CBCB RG COBP	WGL DGHA CBCB RG COBP	WGL DGHA CBCB RG COBP
Ensure that financial support is available from government agencies, public sources, and the private sector		GBP GA IDCT NGO	GBP GA IDCT NGO	GBP GA IDCT NGO

5.2 Comprehensive and Participatory Assessment

Objectives	Activities	Short	Medium	Long
Implement comprehensive and participatory social-ecological assessments linked to the monitoring and evaluation system	Identify stakeholders in cultural resource management as assessment participants	WGE WGL		
	Design quantitative and qualitative assessment instruments	MONEV IAUA		
	Establish and train multi-sectoral assessment teams	MONEV IAUA NGO		
	Conduct baseline assessment and analyze data	MONEV IAUA NGO		
	Based on findings, identify research topics for subsequent assessments	MONEV IAUA NGO	MONEV IAUA NGO	MONEV IAUA NGO
Strengthen capacity to carry out ongoing, community-based	Share findings with assessment respondents and key decision makers	GA WGVE BA SBK NGO	GA WGVE BA SBK NGO	GA WGVE BA SBK NGO

monitoring	Use lessons learned through assessment process as basis for technical training of project research staff	MONEV IAUA NGO	MONEV IAUA NGO	MONEV IAUA NGO
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5.3 Participatory Planning and Design

Objectives	Activities	Short	Medium	Long
Engage stakeholders in management of the property through participatory site planning and activity design	Review of assessment findings by project management and site representatives	GAP WGSi WGA WGC WGE SBK BA	GAP WGSi WGA WGC WGE SBK BA	
	Hold participatory meetings to identify critical management issues for each respective site	WGSi WGA WGC WGE SBK BA	WGSi WGA WGC WGE SBK BA	
	Formulate site management plans (Master Plans) in alignment with assessment findings	GAP	GAP	
	Develop and implement annual work plans for the Coordinating Board and each site		GAP	GAP
	Ensure consistency between site management and work plans, strategic priorities for management of Bali Cultural Landscape, and government initiatives		GAP	GAP

5.4 Strategic Priorities for Implementation

Strategic Priority 1: Livelihood protection and enhancement for subak institutions and their members, as guardians of Bali's unique cultural landscape.

Objectives	Activities	Short	Medium	Long
Support farming as a prosperous livelihood activity	Provide subsidies for land tax relief to <i>subaks</i>		IDF	IDF
Support access to basic educational and health services for households within the Cultural Landscape	Provide an educational subsidy to offset cost of formal school fees for children of all <i>subak</i> members, through secondary school (<i>SMA</i>)		IDE GBP RG	IDE GBP RG
	Establish a fund to support non formal education and vocational training for <i>subak</i> members and families		IDE IDA	IDE IDA
	Distribute a health subsidy card to all households within the Cultural Landscape boundary to provide free basic Category One medical services (according to established government categories for health care support)		IDH GBP RG	IDH GBP RG
Build capacity and social capital of traditional management institutions and participating communities	Increase government funding allocation to participating <i>subaks</i>		GBP	GBP
	Increase annual government allocation to traditional village administrative units (<i>desa pekraman</i>) within the World Heritage Boundaries		GBP	GBP
	Hold workshops and training on relevant topics to build the capacity of the local population, based on		WGVE	WGVE

	the results of assessment and study findings			
Conserve and enhance the intangible attributes of Bali's Cultural Landscape	Assess resilience of Balinese customs and practices that maintain social systems, <i>subak</i> institutions, and ecosystem functions.	MONEV ORHT IAUA SRC RG IDFor IDEnv	MONEV ORHT IAUA SRC RG IDFor IDEnv	MONEV ORHT IAUA SRC RG IDFor IDEnv
	Establish community-based educational programs to increase awareness and improve knowledge of traditional values and practices, especially for youth		WGVE	WGVE
	Provide advising services to farmers and community members to manage the costs of ceremonial activities		WGA BPTP	WGA BPTP RG
	Carry out cultural exchange programs or Balinese cultural exhibitions related to the Cultural Landscape of Bali Province		WGC IAUA RG ORHT NGO	WGC IAUA RG ORHT NGO

Strategic Priority 2: Conservation and promotion of ecosystem services to ensure sustainable use of natural resources upon which subaks and their farming systems depend.

Objectives	Activities	Short	Medium	Long
Ensure conservation of natural resources that sustain Bali's irrigated terraced landscape	Conduct research on formal and non formal forest management, access, and use		MONEV WGE IAUA NGO IFor	MONEV WGE IAUA NGO IFor
	Provide community socialization for forest conservation and national regulations for forested areas		IDFor IEnv	IDFor IEnv
	Develop (as needed) and enforce regulations to protect for forested within and associated with the proposed sites		WGE IDFor GBP RG	WGE IDFor GBP RG
	Provide assistance to households that rely on forested zones to support sustainable non-timber forest production, such as honey cultivation		IDA IDEnv IDFor GBP RG	IDA IDEnv IDFor GBP RG
	Enforce existing water conservation regulations to prohibit deep well construction within the World Heritage area and all associated catchment areas		IDEnv IDPU IDFor RG	IDEnv IDPU IDFor RG
	Train and support farmers in on farm water quality monitoring		IDEnv IDA BPTP	IDEnv IDA BPTP
	Establish composting facilities on farm and at livestock production sites to manage livestock waste and prevent water contamination		IDEnv IDA BPTP RG	IDEnv IDA BPTP RG

	Collect baseline data on biodiversity of flora and fauna		MONEV WGE	MONEV WGE
	Establish programs to promote biodiversity conservation		GA GBP RG IAUA IDEnv IDFor	GA GBP RG IAUA IDEnv IDFor
Enable transition to sustainable organic rice farming practices among all <i>subaks</i> within the Cultural Landscape boundary	Provide financial incentives to farmers to support costs of transition to organic farming		BPTP GBP RG	BPTP GBP RG
	Implement training program for farmers in organic farming, post-harvest handling, processing and marketing		IDA BPTP	IDA BPTP
	Provide ongoing extension services to farmers to support transition to organic agriculture		IDA BPTP	IDA BPTP
	Provide assistance and incentives to certify organic Bali rice for export		IDA BPTP GBP RG	IDA BPTP GBP RG
Ensure the capacity of the Coordinating Board, staff, and relevant implementing agencies to manage natural resources using an ecosystem services framework	Develop and implement training program in ecosystem services concepts and conservation practices for government agencies and farmers		BPTP IDE IAUA	BPTP IDE IAUA

Strategic Priority 3: Conservation of material culture to preserve and enhance the authenticity of sites and structures as living manifestations of Bali's heritage.

Objectives	Activities	Short	Medium	Long
Ensure properties are used appropriately to minimize damage to historical materials	Research the impact of current public use on maintenance of the properties	MONEV IAUA OAHC	MONEV IAUA OAHC	
	Establish guidelines for the use of highly significant buildings, materials, and landscapes		MONEV WGE IAUA OAHC RG	
Retain the existing historical/ original materials so that each site and its constituents meet the test of authenticity in materials	Carry out a detailed and comprehensive inventory of the heritage resources and the cultural landscape to establish a baseline for cultural material conservation	MONEV OAHC OARB ORHT		
	Conduct research on local knowledge and traditional techniques for conservation of cultural materials		IAUA	
	Develop (as needed) and enforce measures to conserve and maintain the forested areas above and surrounding the sites (see Strategic Priority 2, above)		IDFor GBP RG BA	IDFor GBP RG BA
Restore the original cultural landscape in each site in order to regain its authenticity and integrity	Rehabilitate and restore altered cultural landscapes in sites, as needed		GA BA SBK OAHC RG	GA BA SBK OAHC RG
	Restore damaged parts of properties and replace new fabricated materials which do not conform to the conservation policy		DGHA OAHC COBP BA SBK RG	DGHA OAHC COBP BA SBK RG
	Provide public education via traditional flora to	WGVE COBP	WGVE COBP	COBP BA

	enhance awareness among the local population of the benefits of maintaining their original cultural landscape			SBK RG
	Provide incentives to local communities for the restoration and maintenance of traditional architecture		COBP BA SBK OAHC RG GBP	COBP BA SBK OAHC RG GBP

Strategic Priority 4: *Appropriate tourism development within the site, to achieve a balance between public and visitor education, generation of tourism-based revenue, and conservation.*

Objectives	Activities	Short	Medium	Long
Identify the impact of existing tourism development on the conservation and preservation of the Cultural Landscape of Bali Province	Carry out scientific research on the impact of existing tourism in the Cultural Landscape of Bali Province	COBP IAUA TBBP RG SRC		
	Carry out scientific research on the potential opportunities and problems related to tourism and conservation of the properties included in the Cultural Landscape of Bali Province	COBP IAUA TBBP RG SRC		
Develop a comprehensive tourism development plan which is sustainable environmentally and economically beneficial to local communities	Hold consultative workshops on Sustainable Tourism in Bali involving the local population living surrounding the heritage sites	GAP COBP IAUA TBBP RG BA SBK	GAP COBP IAUA TBBP RG BA SBK	
	Establish a new tourism management plan based on the results of the workshop and scientific research	WGVE GAP	WGVE GAP COBP IAUA TBBP RG	

	Hold periodic consultative meetings as a vehicle for the local population to participate in the planning, execution, and monitoring of tourism development		CBCB TBBP TBBP RG	CBCB TBBP TBBP RG
	Establish and maintain a mechanism to redistribute tourism revenue for conservation of the heritage sites	WGVE	GA	GA
	Carry out programs to facilitate participation of the local population in tourism development		WGS CBCB TBBP RG NGO	
	Set up mechanisms to monitor and mitigate the socio-cultural impact of tourism development		WGVE MONEV CBCB TBBP IAUA	WGVE MONEV CBCB TBBP IAUA
Ensure that visitors enjoy the attractions presented at each site included in the Cultural Landscape of Bali Province	Assess visitor capacity and available tourism facilities of individual sites	WGVE CBCB TBBP RG IAUA	WGVE	
	Establish visitor management plan for individual sites		GAP GA	
	Establish visitor centers and trail networks through rice terraces and to select water temples at each site (initial consultation and landscape planning in 2008)	GAP CBCB TBBP RG BA SBK		
	Link management plan to infrastructure and facility development		WGS	

Strategic Priority 5: *Infrastructure and facility development within the site to support sustainable tourism that is compatible with conservation of the cultural landscape.*

Objectives	Activities	Short	Medium	Long
Ensure that each site included in the Cultural Landscape of Bali Province is accessible to visitors and that the enjoyment of the heritage sites is enhanced	Carry out studies to identify and review the problems and potential of transportation leading to each site		WGS CBCB IAUA RG IDPU	
	Provide comprehensive information on the properties for each site in various forms, depending on the condition of the site		MONEV	
	Provide facilities for the comfort, safety and well-being of visitors that enhance the enjoyment of their visit		CBCB TBBP RG IDPU BA	CBCB TBBP RG IDPU BA
	Conduct studies on retail establishments within and leading to the sites		MONEV TBBP IAUA RG	
	Adapt the layout and location of retail shops based on findings of the study and in accordance with standards for maintaining an authentic Cultural Landscape		WGVE TBBP RG IDPU	
	Provide training and support services to enhance the quality of retail within and surrounding the sites		TBBP RG	TBBP RG
Ensure the provision of tourism infrastructure and facilities which are environment-friendly and harmoniously integrated into the Cultural Landscape of Bali Province	Hold workshops on environment- and heritage-friendly infrastructure development in Bali		NGO	NGO
	Establish guidelines for the development of environment- and heritage-friendly infrastructure		WGS	

	Disseminate or publish widely the guidelines for the development of environment- and heritage-friendly infrastructure		CBCB IAUA RG IDPU	CBCB IAUA RG IDPU
	Invite proposals for the appropriate development of environment and heritage-friendly infrastructure through design competitions		GA	
	Enforce the implementation of an impact assessment on the heritage sites prior to infrastructure construction		GBP CBCB RG	GBP CBCB RG
	Utilize the Public Forum to discuss proposals on the development of infrastructure		WGS CBCB	

5.5 Adaptive Monitoring and Evaluation System

Objectives	Activities	Short	Medium	Long
Establish a system for adaptive monitoring, evaluation, and ongoing research	Establish and maintain the Monitoring, Evaluation, and Reporting Unit to function as a research and information centre	MONEV		
	Train staff to design an effective and dynamic system for monitoring and evaluation that integrates feedbacks into management practices, as stated in the policy and strategies	MONEV IAUA		

	Establish measurable indicators to assess the achievements for all activities, linked to baseline findings	MONEV IAUA		
	Carry out monitoring, evaluation, and reporting			
	a. Daily	BA SBK	BA SBK	BA SBK
	b. Periodically (3 – 6 months)	MONEV	MONEV	MONEV
	c. Occasionally, case by case			
	d. Periodic in-depth case studies			
	e. Annually		MONEV OAHC	MONEV OAHC
	f. Three year evaluation		MONEV SRC	MONEV SRC
	g. Six year impact evaluation			GA COBP OAHC DGHA IAUA
Ensure that continuing research is conducted in the Cultural Landscape of Bali Province to improve the interpretation and the presentation of the heritage properties to the public	Carry out fundraising programs to support scientific research and publication of the Cultural Landscape of Bali Province and related topics		DGHA GA RG	DGHA GA RG
	Establish and maintain a website to present information on the Cultural Landscape of Bali Province		GA	GA
	Periodically review information presented at each site and improve with better information based on more current research		TBBP WGVE	COBP TBBP WGVE

Ensure that research is carried out scientifically	Set up a scientific standard for selection of research proposals		GAP SRC IAUA	
Develop knowledge and skills to manage an adaptive information system	Conduct training workshops to build capacity in monitoring, evaluation and research for social-ecological systems	MONEV GAP SRC IAUA	MONEV GAP SRC IAUA	MONEV GAP SRC IAUA

5.6 Capacity Building for Adaptive Co-Management of Complex Social-Ecological Systems

Objectives	Activities	Short	Medium	Long
Ensure the capacity of stakeholders to adaptively co-manage the Cultural Landscape of Bali Province as a social-ecological system	Establish the Governing Assembly and its units as 'learning' institutions	GBP DGHA		
	Conduct results-based training workshops for site managers and all Cultural Landscape staff in adaptive governance of social-ecological systems		GA	GA
	Develop and maintain fora for participating <i>subaks</i> and communities to highlight and extend their traditional roles in adaptive management	WGVE	WGVE	WGVE NGO
Establish the Cultural Landscape of Bali Province as a regional learning and training center in adaptive governance	Conduct results-based training workshops for Asia-Pacific regional site managers and staff in adaptive governance of social-ecological systems		GA	GA
	Establish mechanisms for the ongoing exchange of information and lessons learned in applying the methods of adaptive co-management	GA DGHA	GA DGHA SRC	GA DGHA SRC

5.7 Identification of Serial Sites to Extend Ecosystem Conservation and Livelihood Objectives

Objectives	Activities	Short	Medium	Long
Extend the initial World Heritage property to include other threatened <i>subaks</i>, water temple hierarchies, and corresponding forests and terraced landscapes as serial nominations	Identify potential serial sites that adhere to the criteria for Outstanding Universal Value, as part of annual work plans	GAP IAUA	GAP IAUA	GAP IAUA
	Conduct consultative meetings with government agencies at all levels, <i>subaks</i> , and local communities to establish agreement on potential inscription		GA RG GBP	GA RG GBP
	Conduct research on identified sites to submit serial nomination			GAP

**MEMORANDUM
OF
UNDERSTANDING
BETWEEN
THE UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND
CULTURAL ORGANIZATION (UNESCO)
AND
THE STOCKHOLM RESILIENCE CENTRE (SRC)
OF STOCKHOLM UNIVERSITY**

The Stockholm Resilience Centre of Stockholm University (hereinafter referred to as "SRC") and the United Nations Educational, Scientific and Cultural Organization (hereinafter referred to as "UNESCO") (together referred to as the "Parties"),

Building on the Letter of Intent of 12 October 2006 between UNESCO and Department of Systems Ecology, Stockholm University,

DESIRING to expand cooperation initiated between SRC and UNESCO,

RECOGNIZING the unique cross disciplinary and cross sectoral mandate of UNESCO and its role in mobilizing science, knowledge and policy for sustainable development through its intergovernmental scientific programmes and networks,

RECOGNIZING that SRC is an established center for environmental research at Stockholm University, and that SRC will develop research, capacity-building and policy based on social-ecological systems, using UNESCO Networks through partnerships with Universities and UN agencies.

HAVE AGREED as follows:

Article 1 – Purpose

This agreement establishes the terms and conditions under which SRC and UNESCO may design and carry out projects and contribute to decision-making tools for sustainable development policy and management of ecosystems.

This cooperation should build on the framework of The Millennium Development Goals, Millennium Ecosystem Assessment, and The Decade for Education for Sustainable Development in order to:

1. build capacities in developing countries for sustainability science;
2. achieve a better understanding of links between society and environmental goals through site based, thematic, policy relevant research;
3. promote education for sustainable development across the world;
4. contribute to stronger linkages between science and policy at all levels;
5. contribute to building knowledge societies for sustainability.

This Agreement may involve the participation of several UNESCO Sectors. Under this agreement the Parties will need to work jointly on implementing projects in different regions and in elaborating project proposals to potential donors.

The Parties may decide to pursue: a) the strengthening of UNESCO networks in bridging science, policy and society for sustainability, b) the increased use of science and available data in improving governance for management of ecosystems in context of global changes.

The Parties will identify a selected number of initial studies and site-based projects to be implemented and presented to potential donors. Project sites will be selected from the World Network of Biosphere Reserves and the World Heritage List.

Article 2 – Responsibilities of SRC

SRC shall fulfil the following responsibilities:

1. Partner with UNESCO to further the scientific understanding of complex social-ecological systems;
2. Partner with UNESCO to generate new and elaborated insights and means for the development of management and governance practices;
3. Partner with UNESCO in advancing inter- and transdisciplinary research that integrates social science, the humanities and natural sciences;
4. Partner with UNESCO in fostering an international arena for a science to policy dialogue;
5. Contribute to the continuous development and follow-up of major UN programmes such as MEA and DESD and provide an arena for interdisciplinary research as well as initiatives for capacity building and policy development in these areas, including the World Network of Biosphere Reserves and the World Heritage Sites;
6. Coordinate with UNESCO long-term ecological and social research and monitoring in selected Biosphere reserves including urban areas and including studies of effects of climate change on ecosystem services and local management and governance solutions to changing conditions;
7. Provide UNESCO with regular analyses and synthesis available for UN agencies and member states;
8. In cooperation with UNESCO, disseminate and publish research results of projects and studies conducted pursuant to this Agreement

Article 3 – Responsibilities of UNESCO

UNESCO shall fulfil the following responsibilities:

1. Assist SRC in identifying sites and develop project proposals building on SRC research programmes, with the aim of analysing and demonstrating the potential of biosphere reserves in advancing adaptive governance of ecosystems and in sustainable development;

2. Assist SRC in co-ordinating the projects design, research and demonstration projects, training and capacity building initiatives through the International Secretariat of the MAB Programme, the World Network of Biosphere Reserves of UNESCO among others;
3. Provide Co-ordination services to SRC including in-kind and/or financial support to: (a) staff time and/or travel expenses of UNESCO personnel in contributing to identify, design and develop activities in different regions of the world; (b) participation of experts, specialists, trainees and other appropriate personnel in UNESCO/SRC sponsored research studies, training and capacity building events and conferences, seminars and workshops; (c) staff time and/or travel to work with SRC counterparts to launch joint fund raising events and campaigns, undertake fund-raising missions and other relevant activities to mobilize human, technical and financial resources in support of the partnership; and (d) access and use of websites and other web based and print communication channels for the purposes of disseminating information about the partnership and its achievements. Any financial support shall be made only via separate fee or consultant contracts in accordance with applicable UNESCO rules and regulations;
4. Disseminate and communicate the activities and results of the partnership with SRC to Member States and within the UN system in general.

Article 4 – Financial Arrangements

1. Unless otherwise provided herein or agreed between the Parties, each Party shall bear the costs of discharging its respective responsibilities. The obligations of the Parties under this Agreement are subject to the availability of funds and to their respective applicable rules and procedures. Should either Party encounter budgetary problems that may affect the activities to be carried out under this Agreement, the Party encountering the problems will notify and consult with the other as soon as possible.

2. In general this agreement does not imply any transfer of funds between the Parties. In case that the Parties identify a specific activity for which it might be necessary that one Party covers selected expenses of the other Party (example travel costs); in such cases, prior to start such an activity, both Parties will establish a particular contractual agreement indicating clearly the type of expenses to be covered, the associated amounts and the expected deliverables.

Article 5 – Points of Contact

The Parties will designate technical points of contact responsible for coordination of their respective functions and responsibilities. These individuals will be responsible for necessary coordination and agreement to ensure that the identified tasks are carried out.

The SRC point of contact for this cooperative programme is:

Director
Stockholm Resilience Centre
Stockholm University
SE-106 91 Stockholm
Sweden
TEL: + 46.8.16.20.00
FAX: + 46.8.674.70.20

The UNESCO point of contact is:

Director
Division of Ecological and Earth Sciences
UNESCO
1, rue Miollis
75732 Paris, Cedex 15
France
TEL: + 33.1.45.68.41.51
FAX: + 33.1.45.68.58.04

Article 6 – Public Information Releases and Data Policy

1. The appropriate Party may release public information regarding this programme for its own portion of the programme as desired and, in so far as participation of the other is concerned, after suitable consultation.
2. SRC supports free and equal access to science data and products. Restricted access to information is generally reserved for proprietary collections.
3. In furtherance of the data policy described in this Article, SRC and UNESCO will make available to all users the data sets created under this Agreement. Final results of studies and scientific data sets created under this Agreement shall be made available to the scientific community and general public through publication in appropriate journals or other established channels as soon as practicable and consistent with good scientific practice. In the event that such reports or publications are copyrighted, SRC and UNESCO shall have a royalty-free right under the copyright to reproduce, distribute, and use such copyrighted work for internal, non-commercial research, or education purposes.

Article 7 – Intellectual Property Rights/Transfer of Goods and Technical Data

1. Nothing in this Agreement shall be construed as granting or implying any rights to, or interest in, patents or inventions of the Parties or their contractors or subcontractors.
2. In the event that an invention is jointly made by employees of the Parties, their contractors, or subcontractors during the implementation of this Agreement, the Parties shall consult and agree as to the responsibilities and costs of actions to be taken to establish and maintain patent protection (in any country) for such invention and on the terms and conditions of any license or other rights to be exchanged or granted by or between the Parties.
3. The Parties are obligated to transfer only those technical data (including software) and goods necessary to fulfil their respective responsibilities under this Agreement, in accordance with the following provisions:
 - a. Nothing in this Article requires the Parties to transfer goods or technical data contrary to national laws and regulations, including those relating to export control and control of classified data.
 - b. The transfer of technical data for the purpose of discharging the Parties' responsibilities with regard to interface, integration, and safety shall normally be made without restriction, except as required otherwise by national laws and regulations relating to export control or the control of classified data. If design, manufacturing, processing data, and associated software, which are proprietary but not export controlled, are necessary for interface, integration, or safety purposes, the transfer shall be made, and the data and associated software shall be appropriately marked.
 - c. All transfers of proprietary technical data and export-controlled goods and technical data are subject to the following provisions. In the event a Party finds it necessary to transfer goods which are subject to export control or technical data which are proprietary or subject to export control, and for which protection is to be maintained, such goods shall be specifically identified and such technical data shall be marked with a notice to indicate that they shall be used and disclosed by the receiving Party and its related entities (e.g., contractors and subcontractors) only for the purposes of fulfilling the receiving Party's responsibilities under the programmes implemented by this Agreement. Also, the identified goods and marked technical data shall not be disclosed or retransferred to any other entity without the prior written permission of the furnishing Party. The receiving Party shall abide by the terms of the notice and protect any such identified goods and marked technical data from unauthorized use and disclosure. The receiving Party shall also obtain these same

obligations from its related entities prior to the transfer. Either Party may also choose to not accept materials obligated under these terms.

Article 8 – Risk Allocation/Liability

1. With regard to activities undertaken pursuant to this Agreement, neither Party shall make any claim against the other, employees of the other, the other's related entities (e.g., their contractors or subcontractors), or employees of the other's related entities for any injury to, or death of, its own employees or employees of its related entities. Additionally, neither Party shall make any claim against the other, employees of the other, the other's related entities (e.g., their contractors or subcontractors), or employees of the other's related entities for damage to, or loss of, its own property or that of its related entities, whether such injury, death, damage, or loss arises through negligence or otherwise, except in the case of wilful misconduct.

2. The Parties agree to extend this cross-waiver to their related entities by requiring them, by contract or otherwise, to waive all claims against the other Party, related entities of the other Party, and employees of the other Party or of its related entities for injury, death, damage or loss arising from, or related to, activities undertaken pursuant to this Agreement.

Article 9 – Name of UNESCO

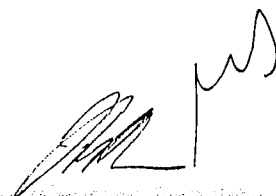
SRC shall not use the name, acronym or logo of UNESCO in association with the projects under the present Agreement without a prior written consent of UNESCO.

Article 10 – Consultation/Settlement of Disputes

The Parties shall consult promptly with each other on all issues involving interpretation or implementation of this Agreement. Any such issue shall be referred to the appropriate points of contact named above for SRC and UNESCO. If they are unable to come to agreement on any issue, then the matter will be referred to the senior representatives of the Parties for joint resolution.

Article 11 – Entry into Force/Duration/Amendment/Termination

This Agreement shall enter into force upon the date of the latter signature and remain in force for five years, unless terminated by either Party upon at least 90 days' written notice. This Agreement may be modified or extended upon written


A handwritten signature in black ink, appearing to be a stylized name, located in the bottom right corner of the page.

agreement of the Parties. This Agreement consists of two identical original copies and each party keeps one copy. Both copies have the same legal status.


This Agreement consists of two identical original copies and each party keeps one copy. Both copies have the same legal status.

For STOCKHOLM
UNIVERSITY:

For the UNITED NATIONS
EDUCATIONAL, SCIENTIFIC AND
CULTURAL ORGANIZATION
(UNESCO):



Kåre Bremer
Vice-Chancellor



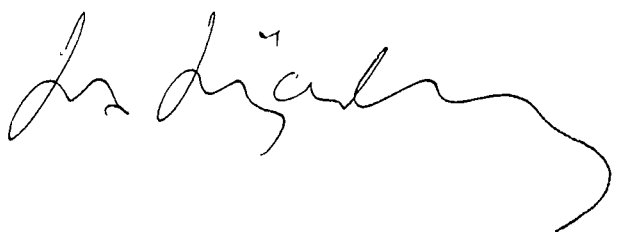
Marcio N. Barbosa
Deputy Director-General

Date: 11 October 2007

Date: 19, October 2007

Location: Stockholm

Location: _____



Collection of Old Photographs:
Source from <http://www.kitlv.nl>

Collectie: KITLV

Beschrijving/Description: Koningsgraven in de rotsen bij Tampaksiring op Bali

Signatuur/Imagecode: 7350

Trefwoord/Keyword: Bangli, royal graves, Bali, Indonesia

Formaat/Size: 12x16,5cm

Uiterlijke vorm/Object type : Foto

Datumaanduiding/Date information: Circa

Datum/Date: 1925

Bijzonderheden/Additional: Zie ook fotonummer 7351 en 9582

Herkomst/Provenance: Onbekend



Collectie: KITLV

Beschrijving/Description: Badplaats te Tampaksiring op Bali

Signatuur/Imagecode: 9847

Trefwoord/Keyword: Bangli, bathing, buildings, Bali, Indonesia

Formaat/Size: 8x11cm

Uiterlijke vorm/Object type : Foto

Datumaanduiding/Date information: Circa

Datum/Date: 1900

Bijzonderheden/Additional: Zie ook fotonummer 9846

Herkomst/Provenance: Onbekend



Collectie: KITLV

Beschrijving/Description: Kind met apen bij de koningsgraven te Tampaksiring bij Gianjar

Signatuur/Imagecode: 78183

Albumnummer/Albumnumber: 150

Albumtitel:

Trefwoord/Keyword: Balinese, children, Gianyar, primates, royal graves, Bali, Indonesia

Formaat/Size: 9x6cm

Uiterlijke vorm/Object type : Foto

Datum/Date: 1937-01-12

Bijzonderheden/Additional: Ter herinnering aan 28 december - 16 januari 1937 van Babszy

Herkomst/Provenance: Onbekend



Beschrijving/Description: Poort aan de noordzijde van de poera Batoer te Kintamani op Bali tussen de lavastromen

Signatuur/Imagecode: 19544

Trefwoord/Keyword: Bangli, Hinduism, temples, volcanic eruptions, Bali, Indonesia

Formaat/Size: 11,5x16cm

Uiterlijke vorm/Object type : Foto

Datumaanduiding/Date information: Circa

Datum/Date: 1920

Herkomst/Provenance: Onbekend



Beschrijving/Description: De Batoer en het Batoermeer

Signatuur/Imagecode: 75650

Albumnummer/Albumnumber: 130

Trefwoord/Keyword: lakes, landscapes, volcanoes

Formaat/Size: 15,5x19,5cm

Uiterlijke vorm/Object type : Foto

Datumaanduiding/Date information: Circa

Datum/Date: 1910

Bijzonderheden/Additional: Album afkomstig van assistent-resident C. Schultz

Collectie/Collection: Schultz, C.

Herkomst/Provenance: Onbekend



Collectie: KITLV

Beschrijving/Description: Poera Batoekaroe te Tabanan

Signatuur/Imagecode: 19550

Albumnummer/Albumnumber: 130

Trefwoord/Keyword: Hinduism, Tabanan, temples

Formaat/Size: 11,5x8,5cm

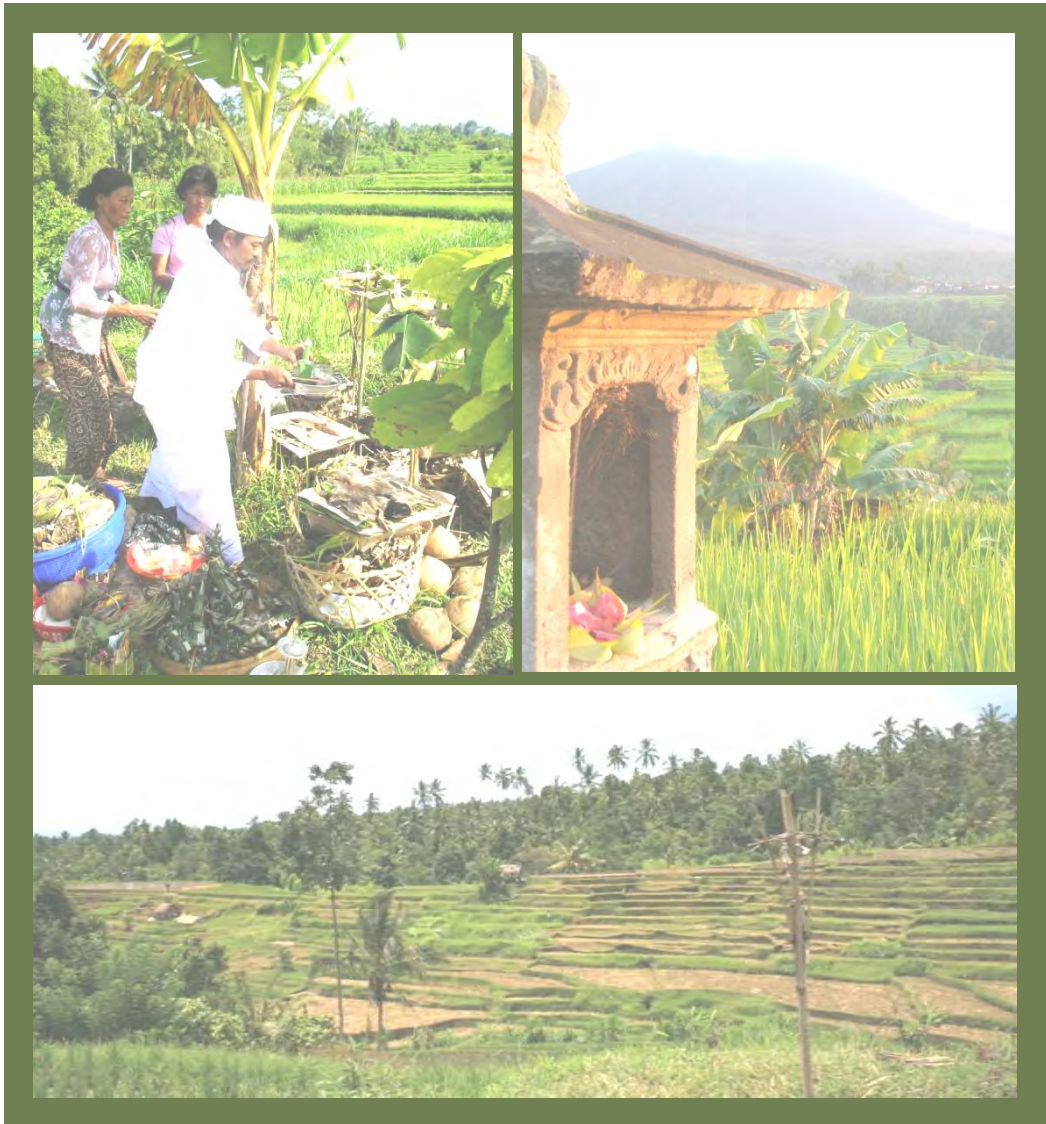
Uiterlijke vorm/Object type : Foto

Datumaanduiding/Date information: Circa

Datum/Date: 1920

Herkomst/Provenance: Blijdenstein, Ir B.M.





CULTURAL LANDSCAPE OF BALI PROVINCE

Executive Summary

The Ministry of Culture and Tourism of the Republic of Indonesia
The Government of Bali Province
2011



Executive Summary

State Party	: Indonesia
State, Province or Region	: Province of Bali
Name of Property	: The Cultural Landscape of Bali Province: the <i>Subak</i> System as a Manifestation of the <i>Tri Hita Karana</i> Philosophy

Introduction

The sites chosen for this nomination were selected to both represent and help to preserve the Balinese *subak* system, which manages the rice terraces of Bali. *Subak* is a Balinese word, which first appears in royal inscriptions in the eleventh century. It refers to a unique social and religious institution; self-governing, democratic associations of farmers who share responsibility for the just and efficient use of irrigation water to grow paddy rice. From a comparative perspective, two features of the *subak* system stand out. The first is the success of this cultural innovation in creating a landscape of spectacular beauty that has provided an ecologically sustainable foundation for Balinese civilization for the past millennium. This achievement is rooted in the second remarkable feature of the *subaks*: their success as a system of cooperative resource management sustained by self-governing democratic institutions.

The *subaks* and associated water temple networks of Bali reflect the Balinese philosophical principle ***Tri Hita Karana*** (“three causes of goodness”), which promotes a harmonious relationship between the individual and the realms of the spirit (*parhyangan*), the human world (*pawongan*) and nature (*palemahan*). This abstract idea is given concrete realization in the lives of the Balinese through the institutions of *subaks* and water temples, which give spiritual meaning to the governance of the rice terrace ecology. The water temples, *subaks*, forests, lakes and rice terraces of Bali are living expressions of the ancient and enduring concept of ***Tri Hita Karana***.

The religious aspects of the *subak* stem from the belief that irrigation water is a gift from the Goddess of the Lake(s), Dewi Danu. *Subaks* are entrusted with the



management of this gift, and farmers contribute a small portion of their harvest each year to religious rites in *subak* temples, which are dedicated to Dewi Danu and other deities associated with the fertility of the land. These temples provide a venue for cooperative resource management by groups of *subaks*. Since the eleventh century, water temple networks have expanded to manage the ecology of rice terraces at the scale of whole watersheds.

The temple networks represent a unique response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area. The mountainous nature of the island with deep ravines and seasonal rains has created an ecosystem that is prone to water scarcity and threats of disease and pests. Water temple networks cope with these problems by enabling clusters of *subaks* to adjust irrigation schedules at the watershed scale, controlling pests by inducing synchronized fallow cycles. Although each *subak* focuses on the management of its own rice terraces, a global solution to water allocation emerges from the temple networks, optimizing irrigation flows for all. Thus the water temple networks enable the *subaks* to achieve a very high level of functional integration in the watershed-scale management of the ecology of the rice terraces.

The rituals of the water temples draw inspiration from several ancient religious traditions including Saivasiddhanta and Samkya Hinduism, Vajrayana Buddhism, and Austronesian cosmology. The focus of water temple ceremonies is the maintenance of harmonious relationships between humans and the natural world. This is achieved through active engagement with spiritual concepts, emphasizing the dependence of the human community on the life-sustaining forces of the natural world. These ideas are expressed through the musical traditions of various types of orchestra; dramatic performances such as *topeng*, *gambuh*, *wayang*, *rejang*, and *baris*; the reading of poetry in four languages (Sanskrit, Balinese, Old and Middle Javanese); the creation and dedication of offerings made of flowers, fruits and rice; and the performance of rituals by priests and the congregation. The temples themselves are continually repaired and embellished by stone masons, sculptors, woodcarvers, and painters. This thousand-year-old system is now under stress due to development pressure, fragmentation of the landscape, and pollution from agricultural chemicals.



Five sites are proposed in this nomination for immediate inscription. Each of them highlights particular aspects of the *subak* system; collectively they define its most important features. The first two sites are the supreme *subak* temple Pura Ulun Danu Batur, located on the rim of the crater overlooking the second site, Lake Batur. Together the temple and the lake represent the most sacred features of the *subak* landscape of Bali. The third site consists of a cluster of temples and *subaks* located at high elevation in the valley of Tampaksiring. Archaeological evidence indicates that this valley was the cradle of Balinese civilization. Today, waters from natural springs enclosed by ancient temples provide irrigation water for ancient rice terraces where native Balinese rice is still grown in the traditional manner by three centuries-old *subaks*. The Pakerisan site exemplifies the origin and historic continuity of the *subak* system, and dramatically illustrates its relationship to the formation and growth of early Balinese kingdoms. The fourth site comprises forests, lakes, springs, temples and *subaks* clustered around Mount Batukaru. This site is locally known as “Catur Angga Batukaru”, a sacred landscape whose boundaries are defined by a cluster of temples supported by local *subaks* and villages. The fifth site is the temple Pura Taman Ayun, where *subaks* from western Bali receive holy water gathered from the mountain lakes, and join the royal family of Mengwi in the performance of rituals that aim to reduce the threat of rice pests and sustain the balanced harmony of Tri Hita Karana.

Further criteria for the choice of sites include the archaeological and historical significance of these water temples and *subaks*; the receptiveness of local farmers to sustainable organic farming of native Balinese rice; the ecological viability of each site, and the way each site exemplifies a particular manifestation of the functional structure and history of the *subak* system. All nominated sites meet the condition of authenticity and integrity required for the World Heritage List.



Nomination Sites of Cultural Landscape of Bali Province and Geographical Coordinates

ID No	Name of the Component Part	District/Regency	Coordinates of the Central Point UTM Zone 50 South	Core Zone (ha)	Buffer Zone (ha)	Main Map/ Scale
001	Supreme Water Temple Pura Ulun Danu Batur	Kintamani/Bangli	x316740 y9087170	1.4	31.1	001.2 1:15000
002	Lake Batur	Kintamani/Bangli	x324560 y9086690	1606.4	210	001.3 1:4000
003	Subak Landscape of Pakerisan Watershed	Tampaksiring/ Gianyar	x314180 y9067910	529.1	188.0	002.2 1:15000
004	Subak Landscape of Catur Angga Batukaru	Sukasada and Penebel/ Tabanan and Buleleng	x292130 y9076440	17376.1	974.4	003.1 & 003.2 1:20000
005	Royal Water Temple Pura Taman Ayun	Mengwi/Badung	x298850 y9055300	6.9	51.3	004.2 1:15000
			Total →	19519.9	1454.8	



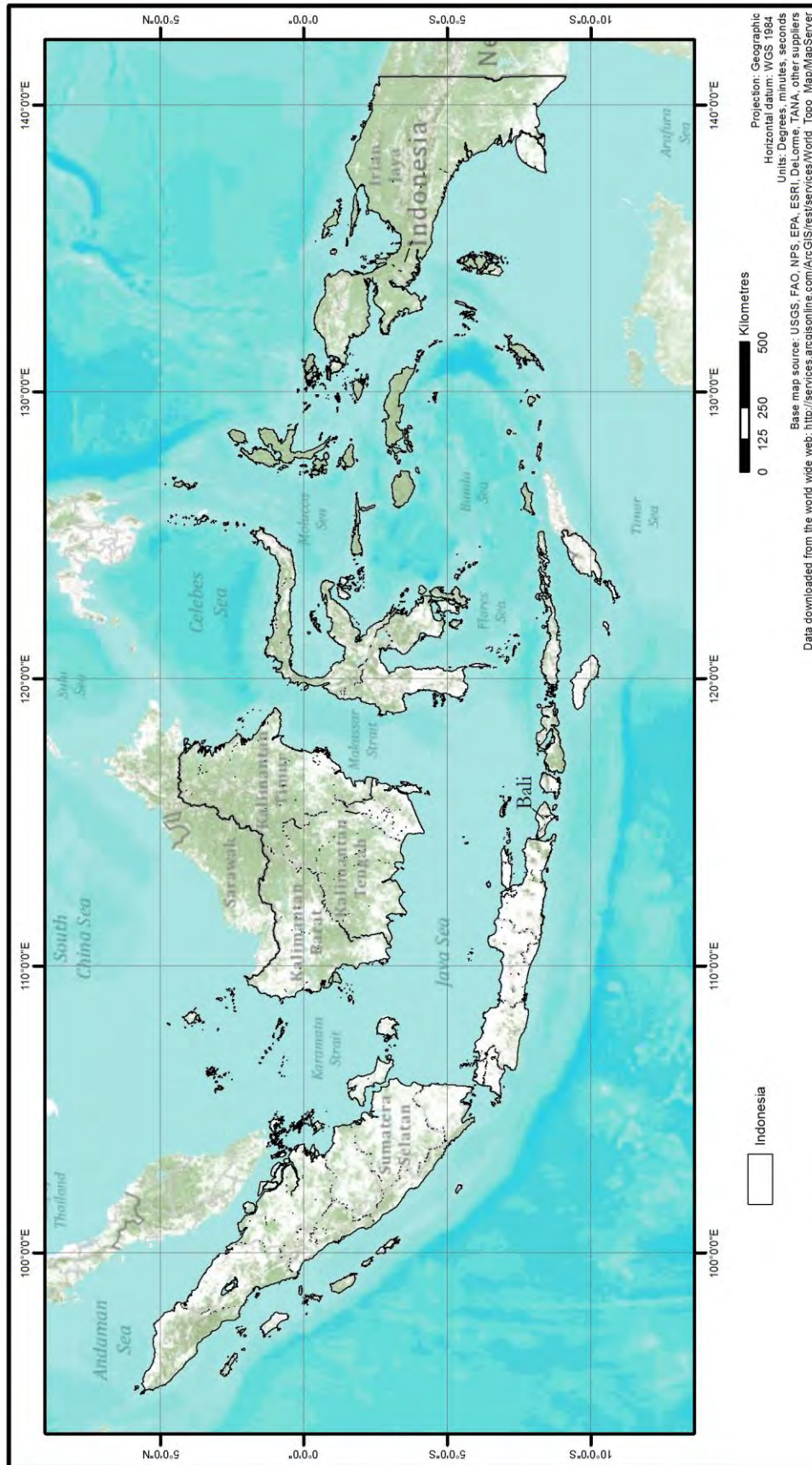
Maps and Plans Showing the Boundaries of the Nominated Property and Buffer Zones

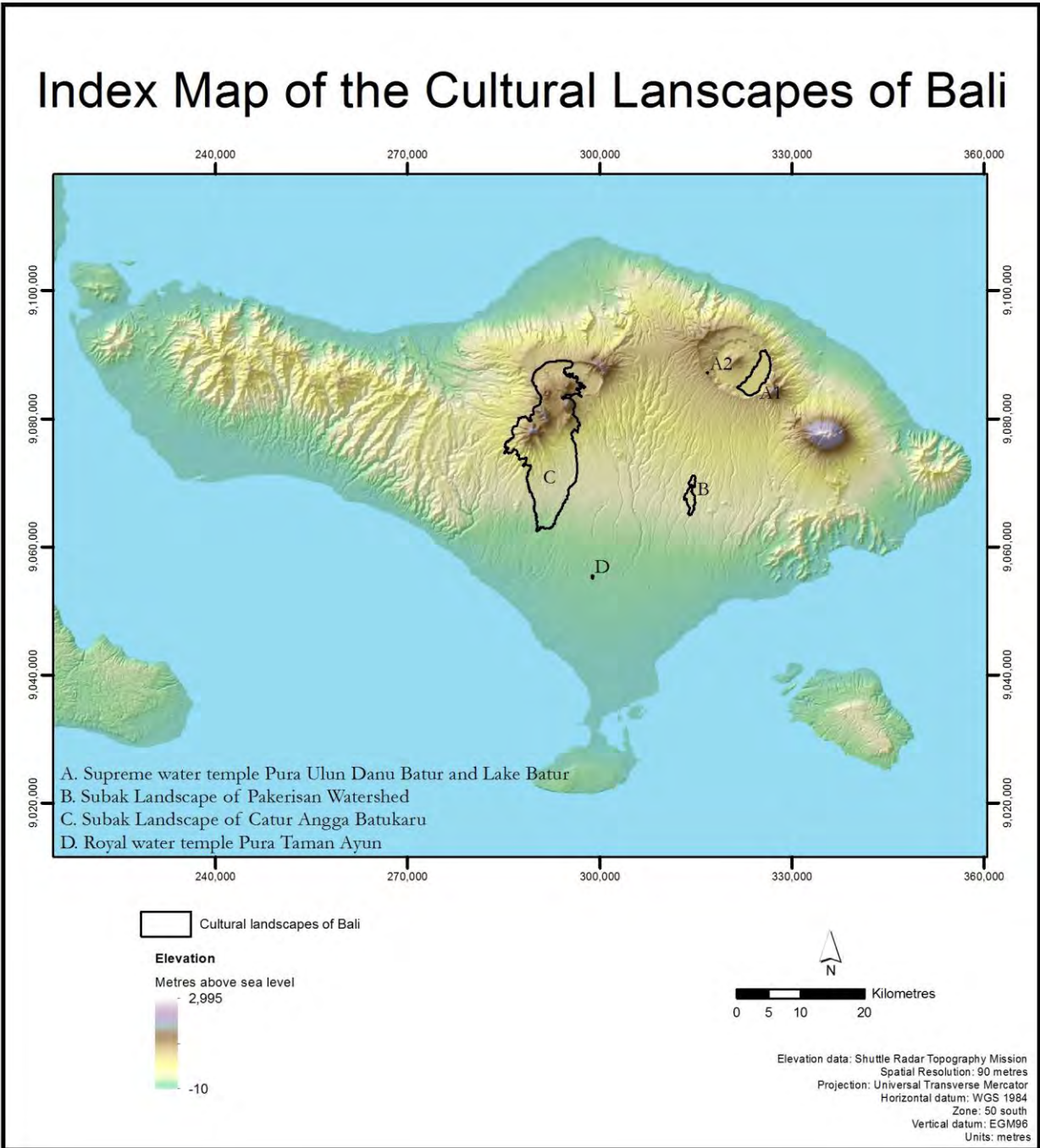
Due to the variation in the sizes of different nominated properties, different maps are presented to give an idea of the overall location (mostly size A4 maps), as well as more detailed maps useful for exact boundary delineation (primarily A0 and A1 maps). **Maps intended for boundary delineation are noted in BOLD.** Scales are only accurate when maps are embedded in a document and/or printed at 100% of their original size. A4 maps are 6" x 9.5" to allow for page margins when embedding in word processing software.

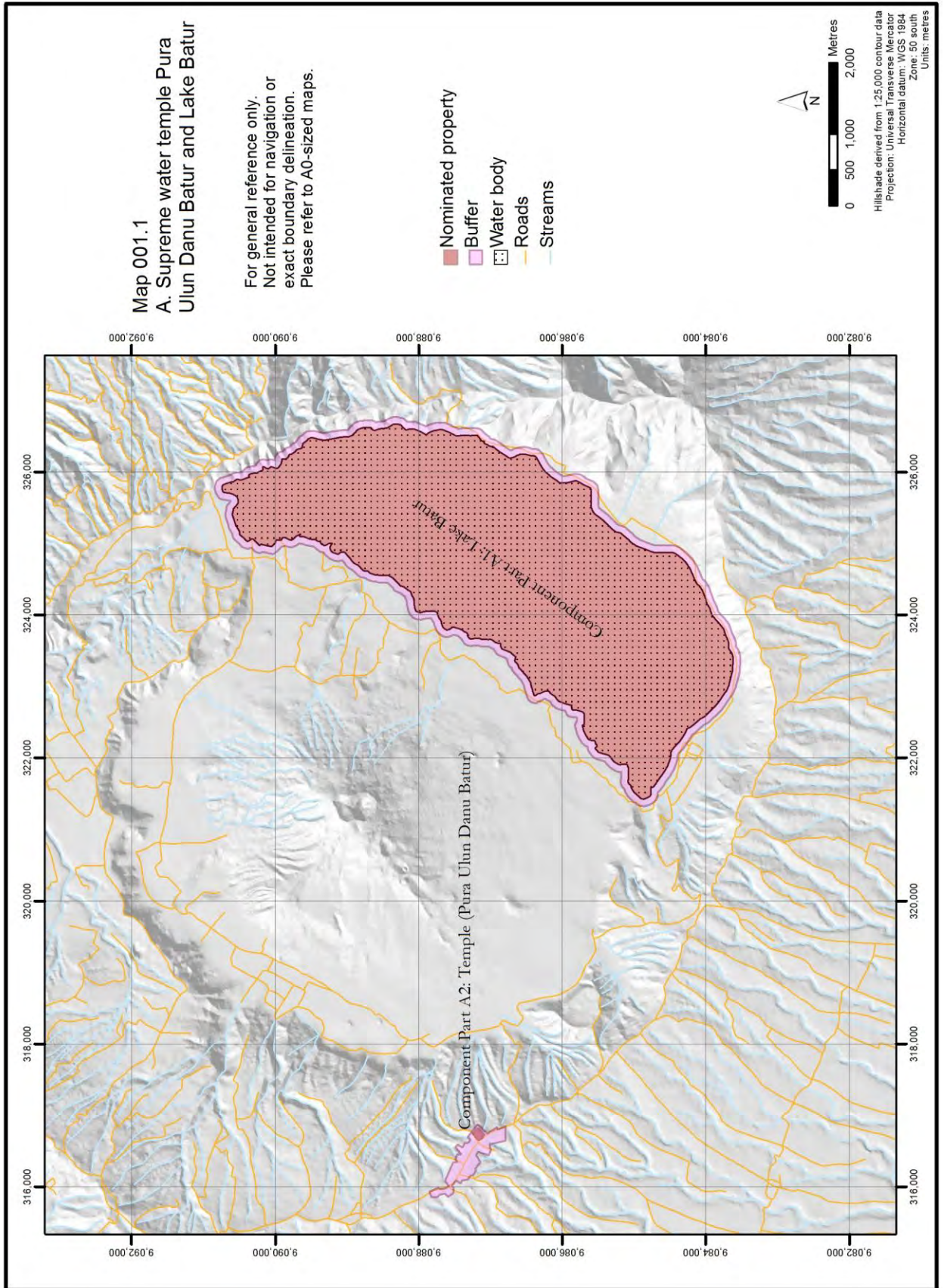
Map Location	Description	Map Number	Map Scale	Printed Map Size
Bali, Indonesia	Overview		1:25,000,000	A4
A,B,C,D	Index Map		1:1,000,000	A4
A	General Location	001.1	1:80,000	A4
A	Component Part A1: Lake Batur	001.2	1:15,000	A0
A	Component Part A2: Pura Ulun Danu Batur	001.3	1:4,000	A4
A	Site Plan of Temple Ulun Danu Batur	001.4		
B	General Location	002.1	1:50,000	A4
B	Component Part B1: Subak Landscape of Pakerisan Watershed	002.2	1:15,000	A1
B	Site Plan of Temple Pura Tirtha Empul	002.3		
B	Site Plan of Temple Pura Mengening	002.4		
B	Site Plan of Temple Pura Pegulingan	002.5		
B	Site Plan of Temple Pura Gunung Kawi	002.6		
C	General Location	003.1	1:150,000	A4

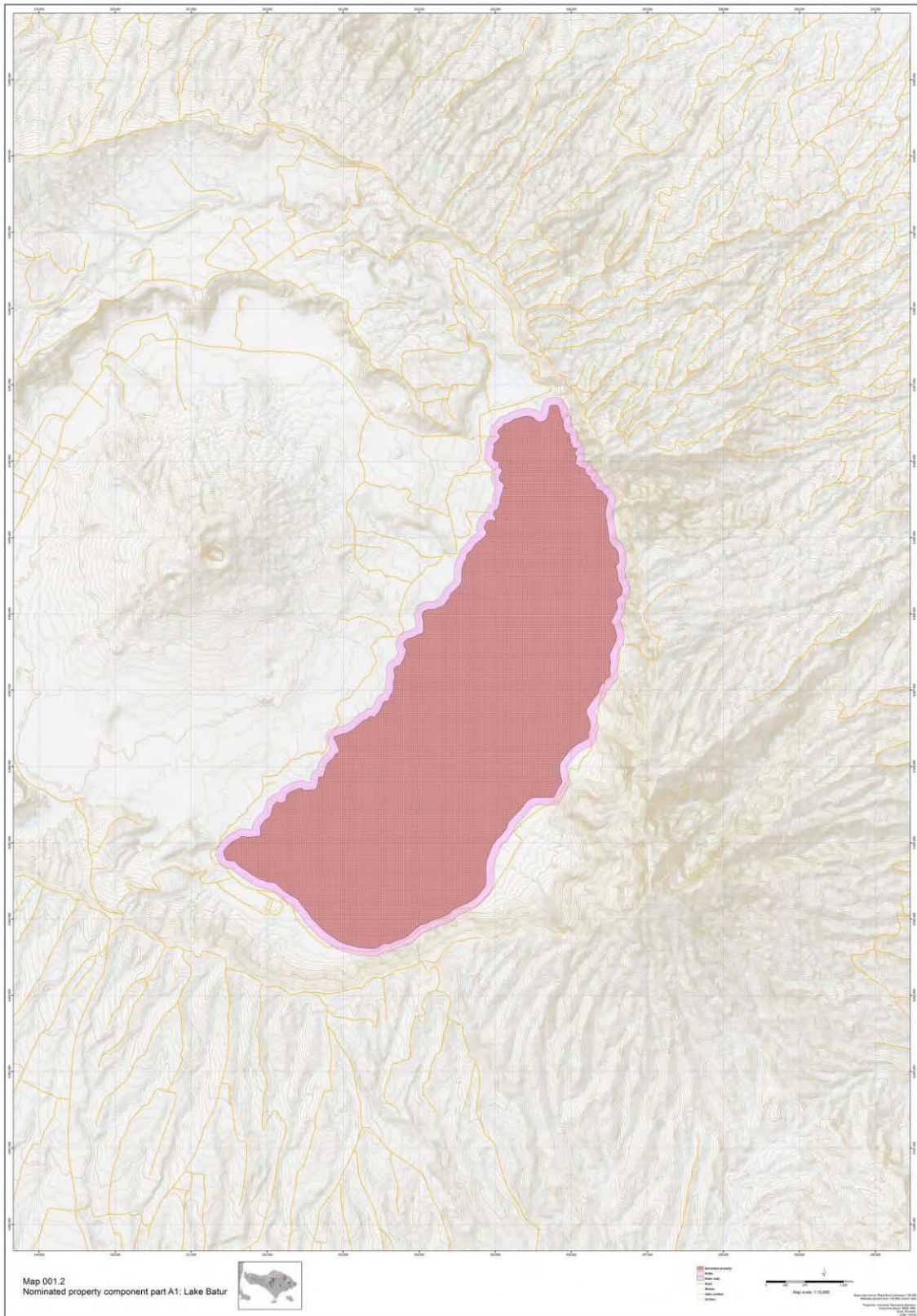


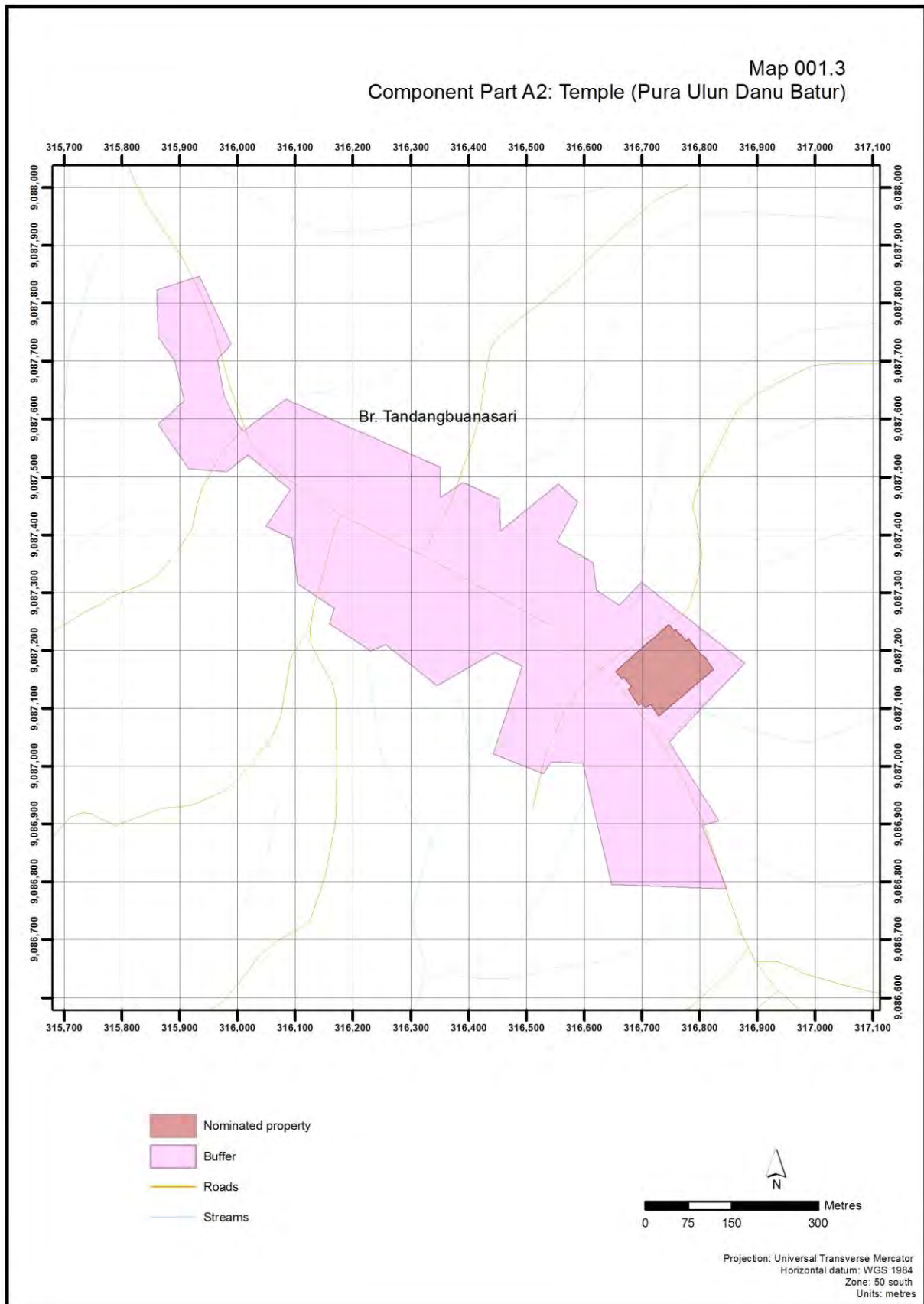
C north	Component Part C1: Subak Landscape of Catur Angga Batukaru (North)	003.2	1:20,000	A0
C south	Component Part C1: Subak Landscape of Catur Angga Batukaru (South)	003.3	1:20,000	A0
C	Site Plan of Temple Pura Petali	003.4		
C	Site Plan of Temple Pura Besikalung	003.5		
C	Site Plan of Temple Pura Batukaru	003.6		
C	Site Plan of Temple Pura Tambawaras	003.7		
C	Site Plan of Temple Pura Muncaksari	003.8		
D	General Location	004.1	1:80,000	A4
D	Component Part D1: Pura Taman Ayun	004.2	1:15,000	A1
D	Temple Site Map	004.3		





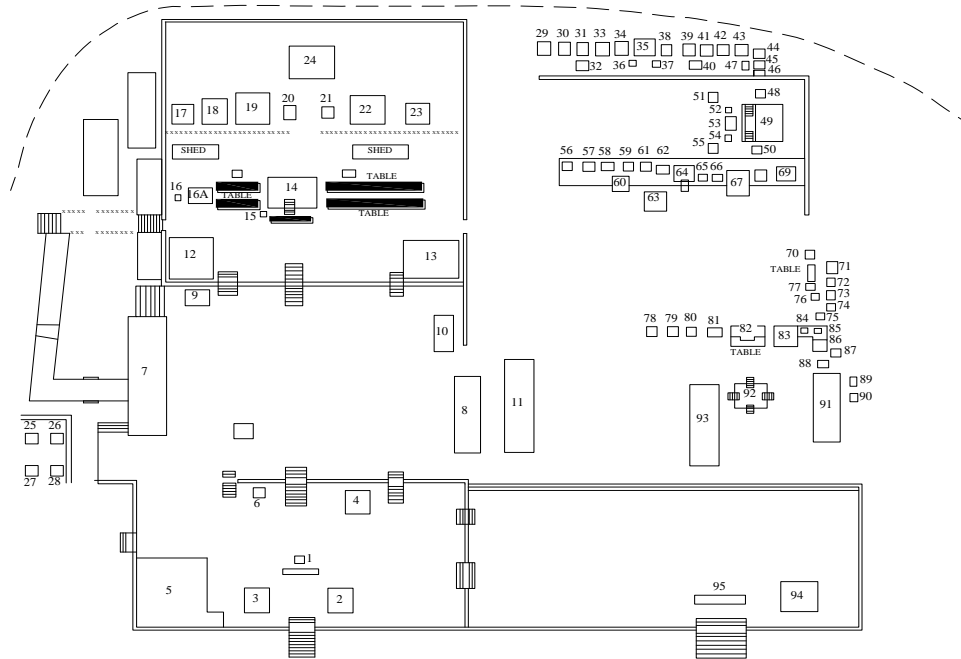
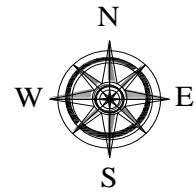








Map 001.4 Site Plan of Temple Ulun Danu Batur



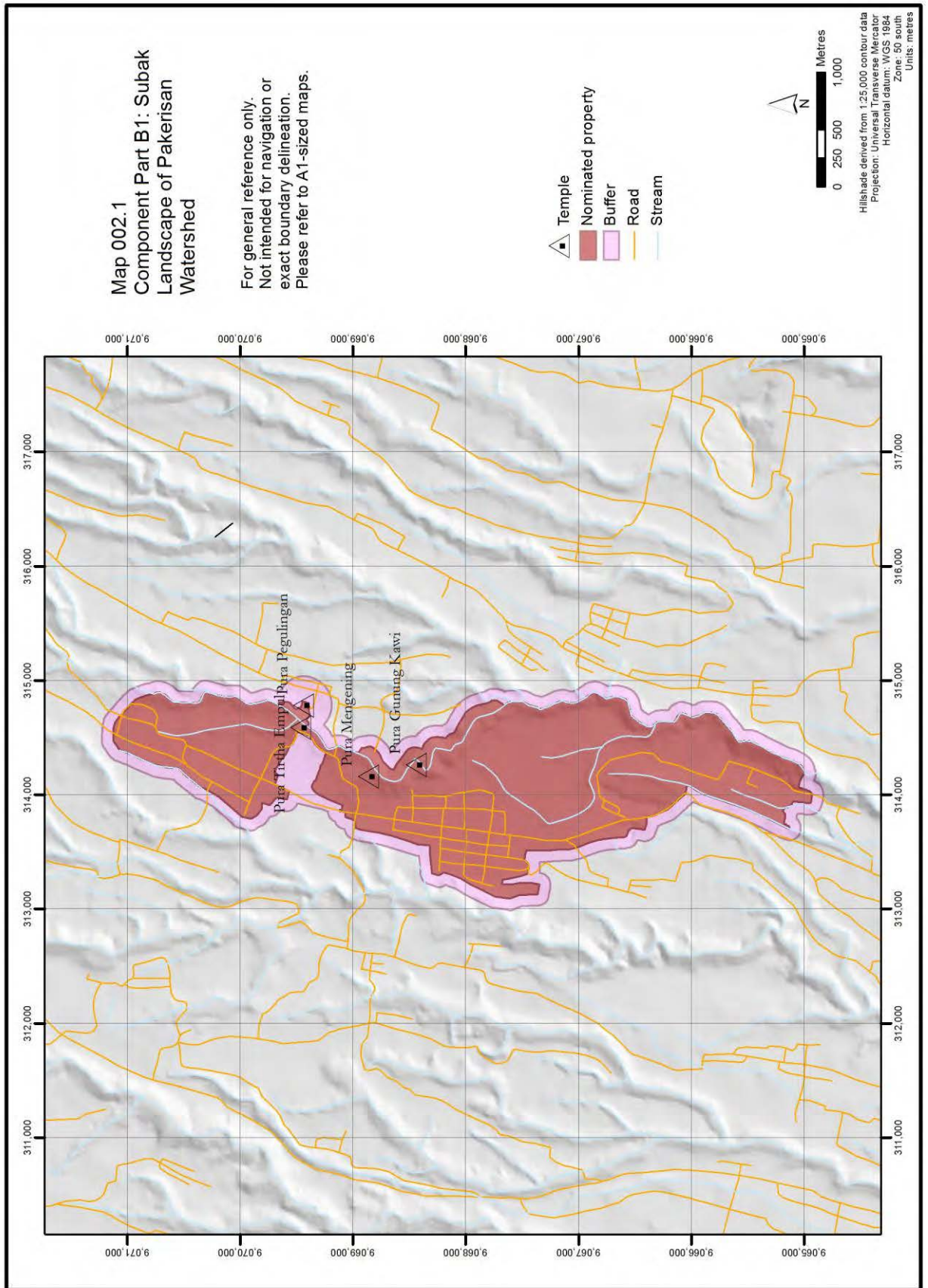
LEGEND :

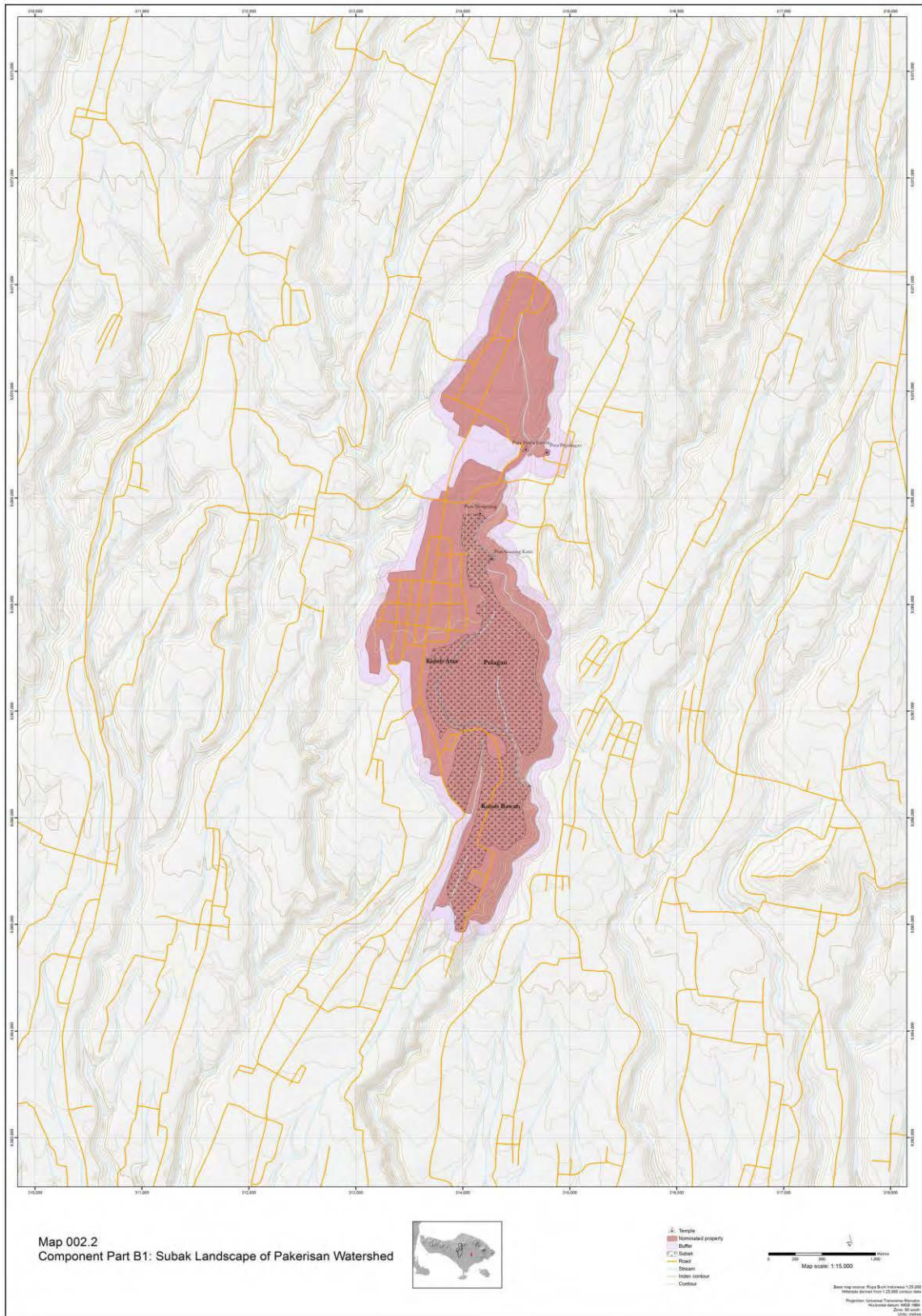
- | | | |
|---|--|--|
| <ul style="list-style-type: none"> 1. Anantabogha 2. Bale Kulkul 3. Bale Kulkul 4. Bale Pekajah 5. Bale Gong Gde 6. Kertamasa 7. Bale Pengeraosan 8. Bale Gajah 9. Pesepilan 10. Bale Angklung 11. Dapur Suci 12. Bale Badung 13. Bale Pemujan 14. Peparuman Agung 15. Jajan Gumi 16. Pelinggih I Ratu Gde Subandar 16.a. Peparuman Ratu Gde Subandar 17. Meru Tumpang Tiga 18. Meru Tumpang Lima 19. Meru Tumpang Sembilan 20. Pelinggih Penyarikan 21. Pelinggih Penyarikan 22. Meru Tumpang Sembilan 23. Meru Tumpang Tiga 24. Meru Tumpang Sebelas 25. Bebali Courtyard 26. Nawa-Sangha 27. Wali 28. Temporary Bale for Panca Wali Krama 28.a. Temporary Plat For Bale for Pries 29. Temple for Ratu Ayu Pecatu 30. Temple for Ratu Ayu Pinget 31. Temple for Ratu Ayu Kling 32. Temple for Ratu Ayu Shri Penpen 33. Temple for Ratu Ayu Kebek Sai | <ul style="list-style-type: none"> 34. Temple for Ratu Ayu Teka Sai 35. Temple for offering Ratu Gde Pasek 36. Pepelik 37. Pepelik 38. Ratu Gde Manik Blabur 39. Temple for Ratu Gde Manik Melele 40. Pepelik 41. Temple for Ratu Manik Senjata 42. Temple for Ratu Gde Malegadan 43. Temple for Ratu Ngurah Runcing 44-47 No longer exist 48. Temple for Ratu Gde Perahu 49. Meru Tumpang Tiga 50. Temple for ratu Magening 51-55. Offerings shrines and statue 56. Temple for Ratu Sumampat 57. Temple for Ratu Bunut 58. Temple for Ratu Manukan 59. Temple for Ratu Ayu Mas Magelung 60. Temple Ratu Ayu Tusan 61. Temple for Ratu Mas Sakti 62. Temple for Ratu Bangun Sakti 63. Temple for Ratu Ayu Kentel Bumi 64. Pesamuan | <ul style="list-style-type: none"> 65. Temple for Ratu Pekiisan 66. Temple for Ratu Ayu Jelung 67. Temple for Ratu Gde Makolem 68. Temple for Ratu Gulem 69. Temple for Baturrenggong 78. Temple for Ida Iratu Majapahit 79. Temple for Ida Iratu Tambang Layar 80. Temple for Ida Iratu Dalem Mestim 81. Temple for Ida Iratu Gde Dalam Mekah 82. Sanggar Agung: Surya, Chandra, Bayu 83. Bale Kulkul Tengeran Ida Batara 84. Pretiwi Ulung Bale Agung 85. Divider 86. Temple for I Ratu Rambut Sedana 87. Temple for I Ratu Bhatari Chi 88. Pepelik Batari Chi 89. Temple for Ratu Paumbungbang 90. Pepelik 91. Bale Agung Pedanginan Solas Lobang 92. Bale Pesamuan Agung 93. Bale Agung Pedauhan Siu Lubang 94. Bale Perabuan 95. Apit Lawang |
|---|--|--|



THE ARCHAEOLOGICAL
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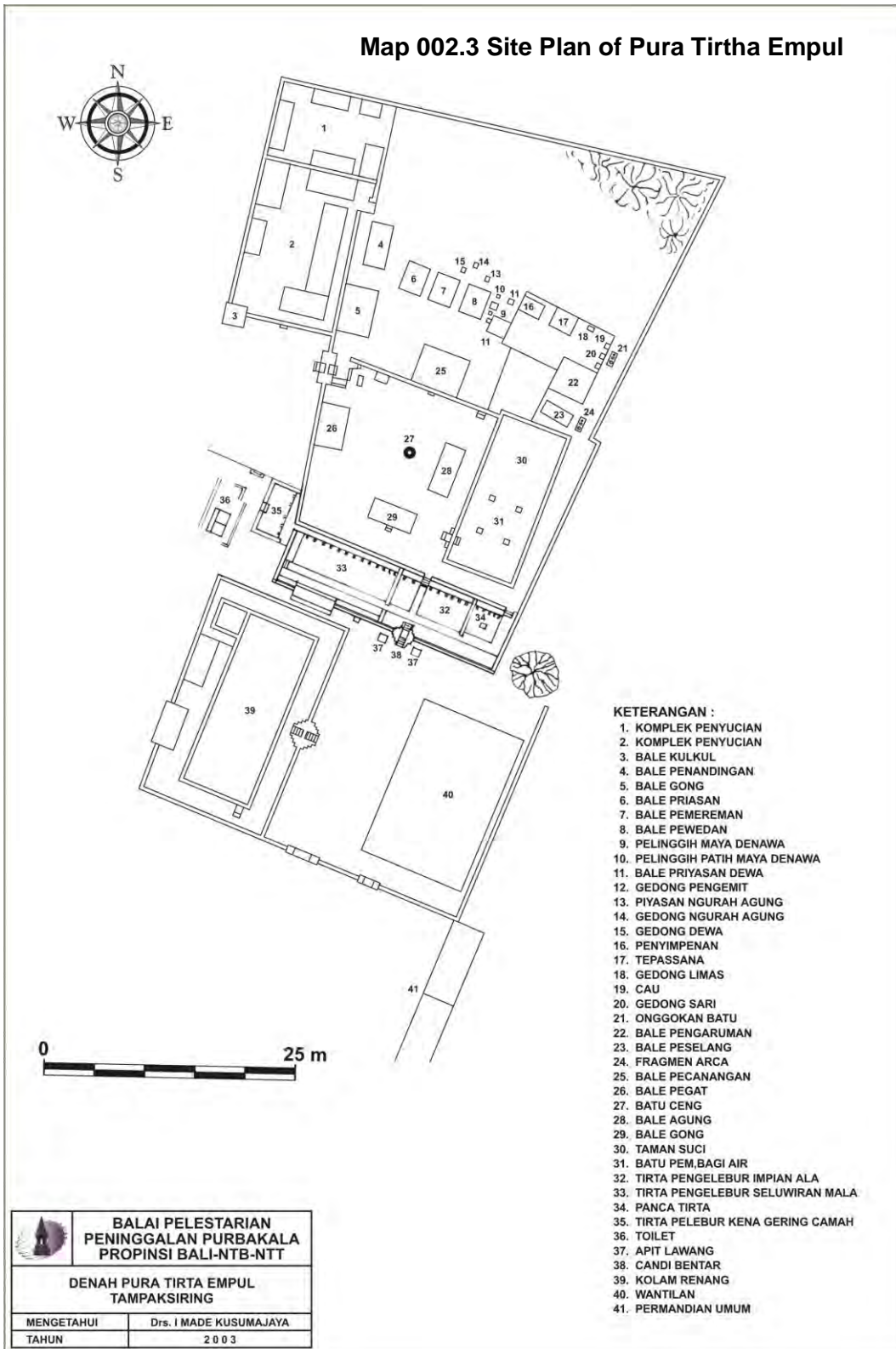
PURA ULUN DANAU BATUR





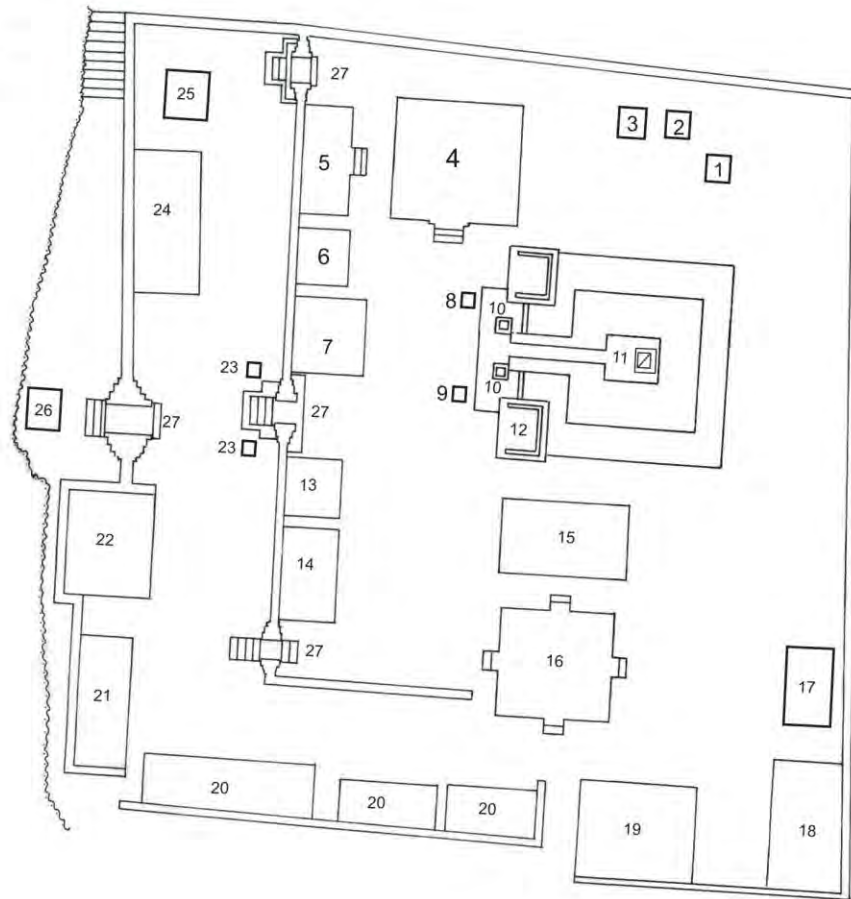


Map 002.3 Site Plan of Pura Tirtha Empul





Map 002.4 Site Plan of Pura Mengening

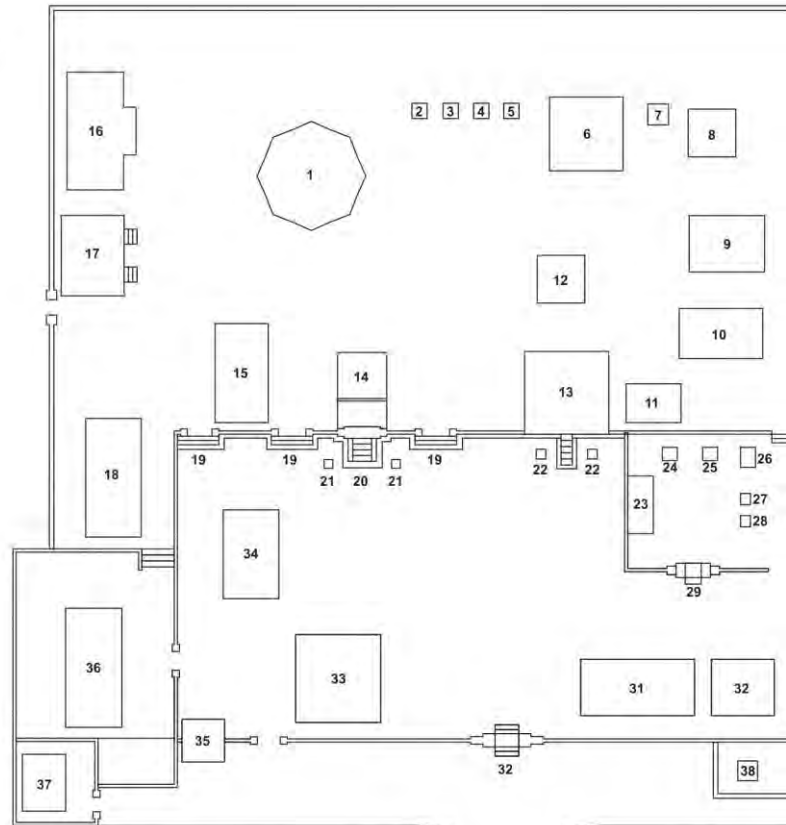


- KETERANGAN :**
1. GEDONG LIMAS
 2. GEDONG CATU
 3. GEDONG SINEB
 4. PENGARUMAN
 5. PIASAN
 6. PANGGUNGAN
 7. BALE PEWEDAN
 8. BATU BERDIRI
 9. PESIMPANGAN BETARA TIRTA EMPUL
 10. BALE PELIK
 11. PRASADA AGUNG
 12. PESIMPANGAN BETARA GUNUNG KAWI
 13. BALE PENGANTEB
 14. BALE PEWAYANGAN
 15. PECANANGAN
 16. PESELANG
 17. PENEGTEGAN
 18. PENYUCIAN
 19. BALE PEGIAN
 20. BALE PAEBATAN
 21. BALE PEGAT
 22. BALE GONG
 23. SEDAHAH NGURAH AGUNG
 24. BALE PEGAMBUHAN
 25. BALE KULKUL
 26. PANGGUNGAN
 27. CANDI BENTAR

	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT
	DENAH PURA MENGENING TAMPAKSIRING - GIANYAR
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TAHUN	2003



Map 002.5 Site Plan of Pura Pegulingan



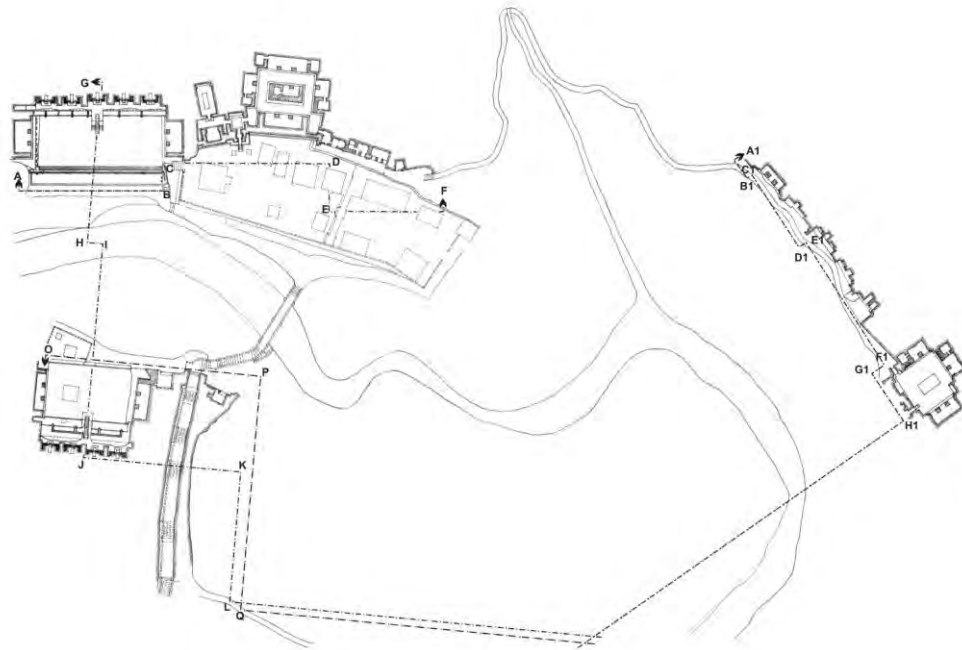
KETERANGAN :

- | | |
|----------------------|------------------------|
| 1. CANDI PEGULINGAN | 20. CANDI BENTAR |
| 2. GEDONG SINE B | 21. APIT LAWANG |
| 3. GEDONG SINE B | 22. APIT LAWANG |
| 4. GEDONG TARI B | 23. PIYASAN |
| 5. GEDONG CATU | 24. GEDONG SARI |
| 6. PENGARUMAN AGUNG | 25. GEDONG LIMAS |
| 7. GEDONG LIMAS SARI | 26. PADMASANA |
| 8. MERU | 27. GEDONG CATU |
| 9. PENGARUMAN | 28. SEDAHAN NGERURAH |
| 10. BALE PESELANG | 29. CANDI BENTAR |
| 11. PANGGUNGAN | 30. BALE PENYUCIAN |
| 12. PEWEDAN | 31. BALE PENANDINGAN |
| 13. BALE CATUR | 32. CANDI BENTAR |
| 14. BALE PEMUJAHAN | 33. BALE GONG |
| 15. BALE PENGRAWOSAN | 34. BALE PENGRAWOSAN |
| 16. PIYASAN | 35. BALE KULKUL |
| 17. BALE INFORMASI | 36. BALE PENGOLAHAN |
| 18. BALE PENGOLAHAN | 37. KAMAR MANDI/TOILET |
| 19. PELETASAN | 38. TOWER |

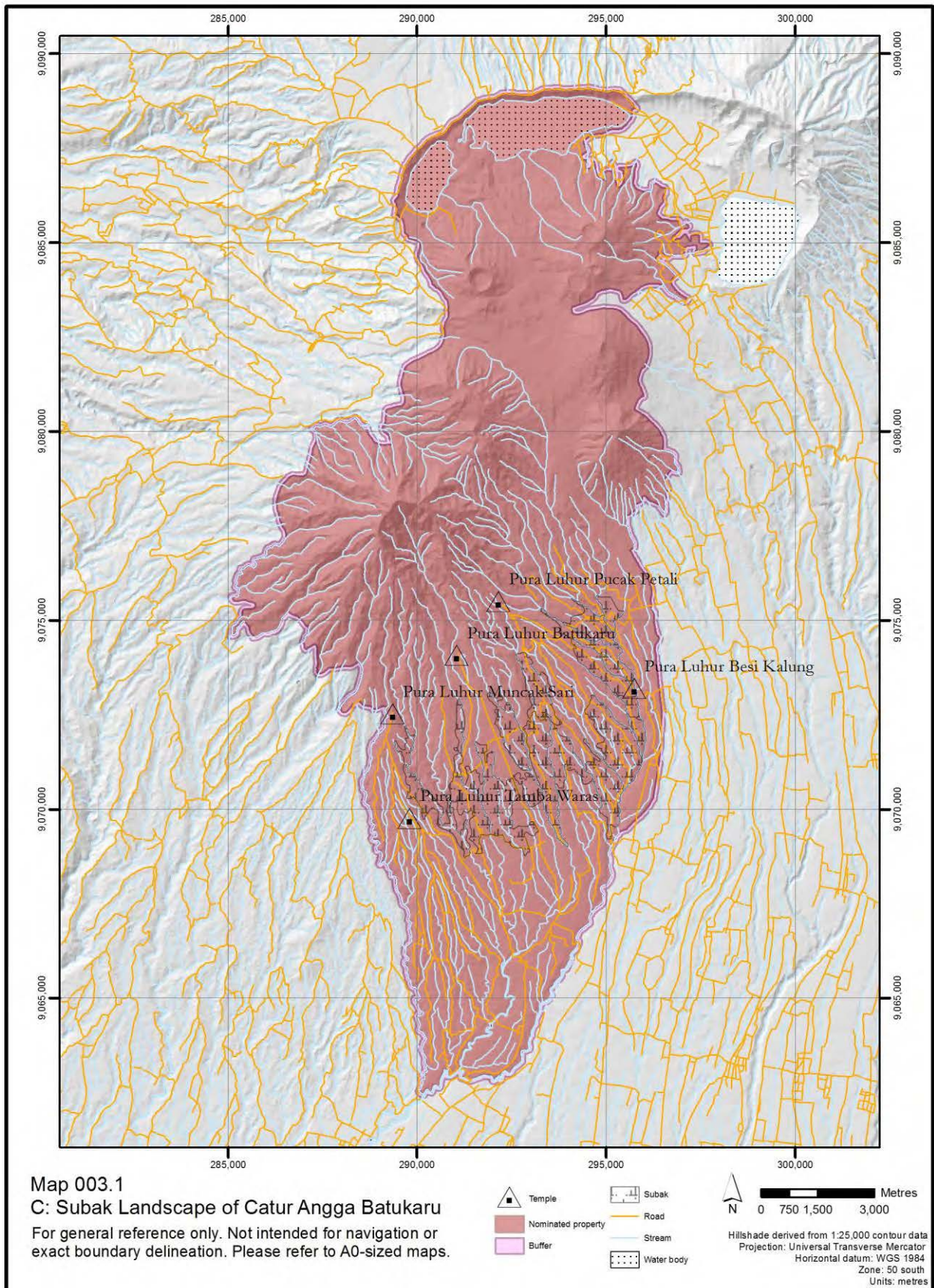
	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT	
	DENAH PURA PEGULINGAN BASANGAMBU TAMPAK SIRING	
MENGETAHUI	Drs. I MADE KUSUMAJAYA	
TAHUN	2003	



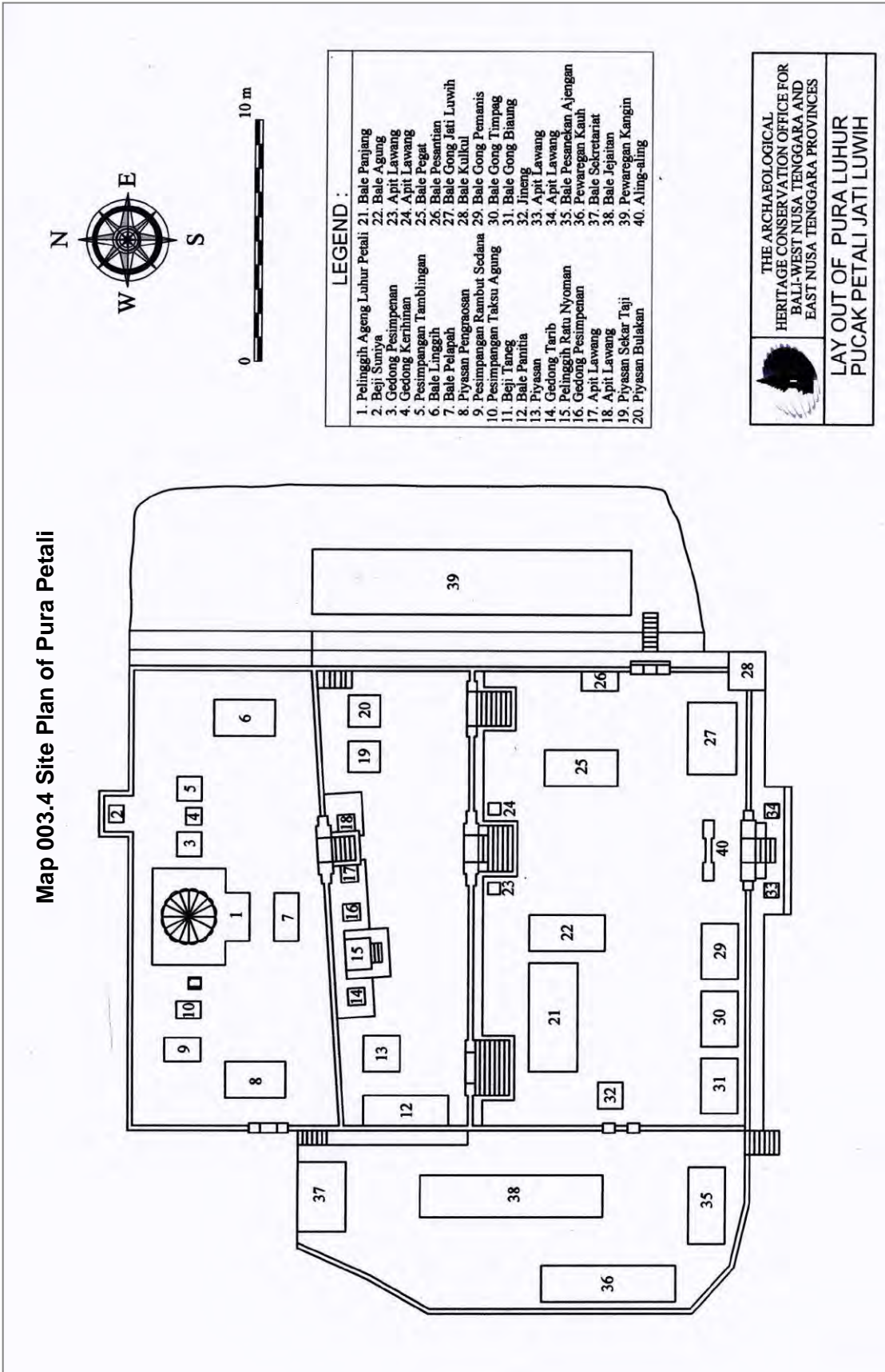
Map 002.6 Site Plan of Pura Gunung Kawi



	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT	
	DENAH PURA PURA GUNUNG KAWI	
MENGETAHUI	Drs. I MADE KUSUMAJAYA	
TAHUN	2003	

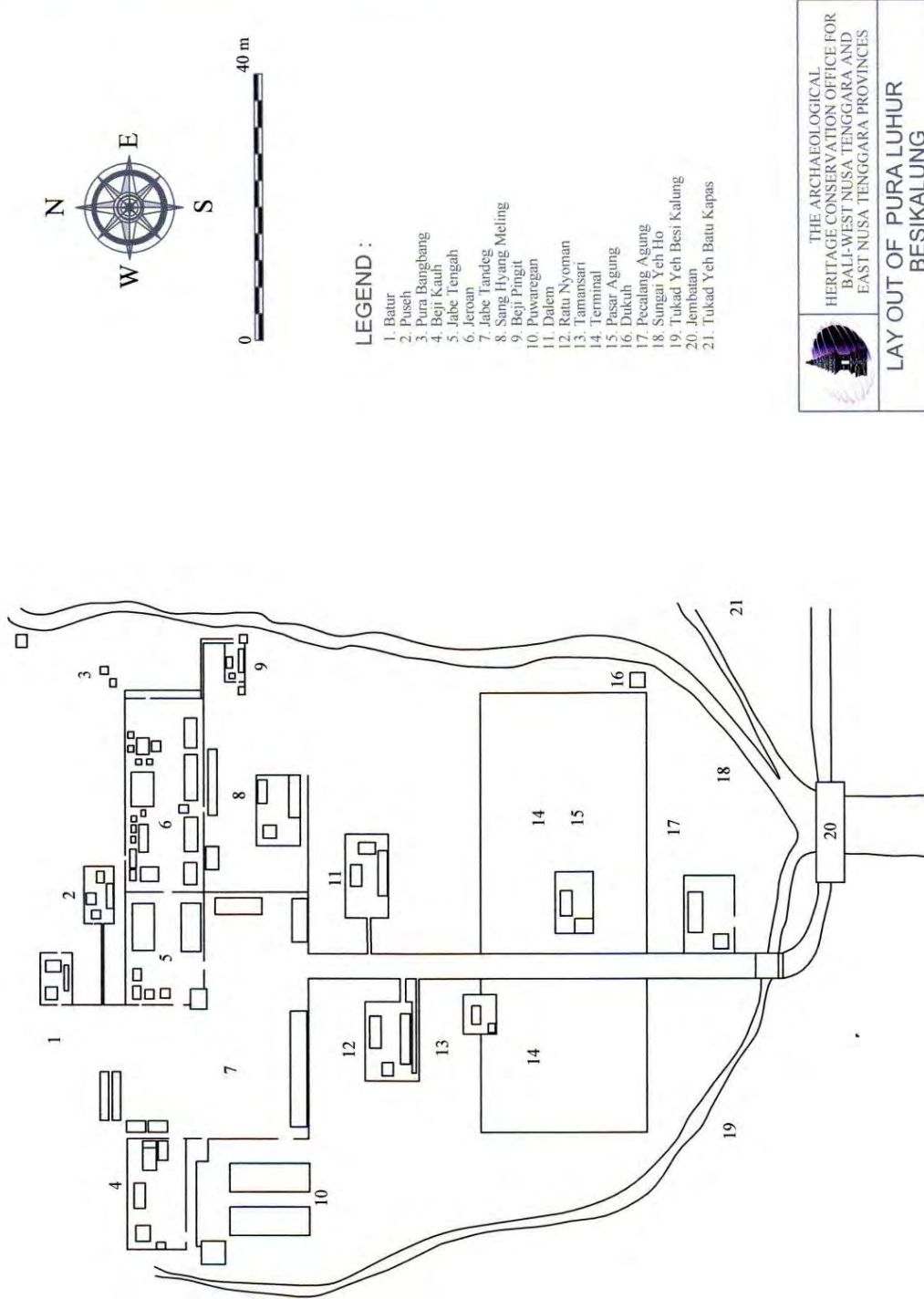








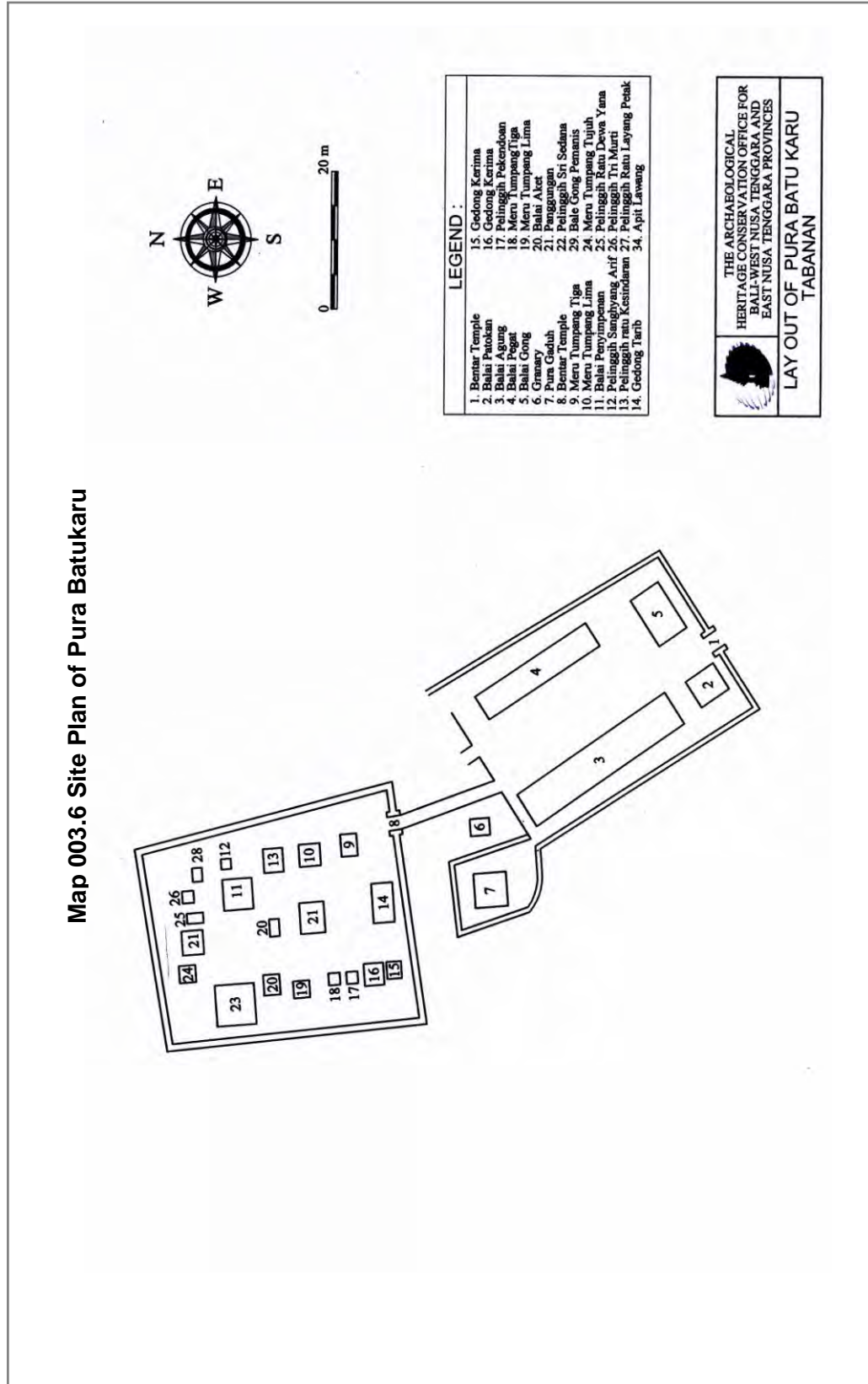
Map 003.5 Site Plan of Temple Pura Besikalung



	THE ARCHAEOLOGICAL HERITAGE CONSERVATION OFFICE FOR BALI-WEST NUSA TENGGARA AND EAST NUSA TENGGARA PROVINCES
	LAY OUT OF PURA LUHUR BESIKALUNG

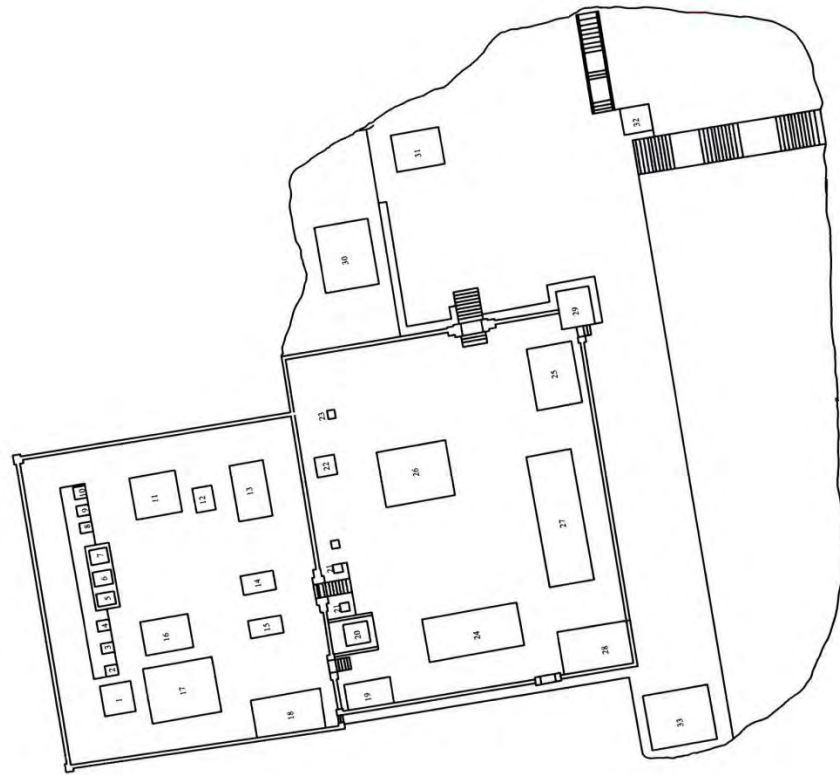
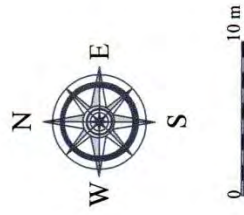


Map 003.6 Site Plan of Pura Batukaru





Map 003.7 Site Plan of Pura Tambawaras



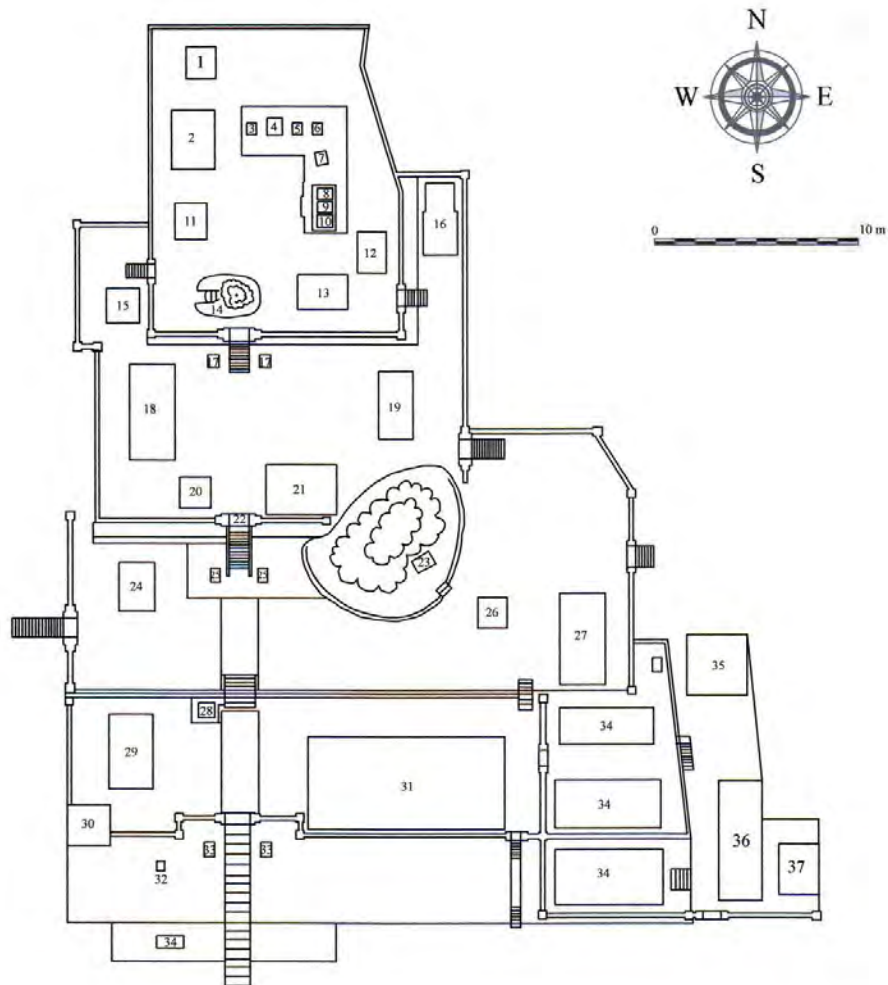
LEGEND :

- 1. Pelinggih Boyola
- 2. Pengayatan Lati Luwih
- 3. Pucak Kedaton
- 4. Pengayatan
- 5. Brahma
- 6. Wisnu
- 7. Iswara
- 8. Taksu Agung
- 9. Rambut Sedana
- 10. Sri Medandan
- 11. Gedong Pesempenan
- 12. Menjangan Seluang
- 13. Bale Alit
- 14. Ratu Wayan
- 15. Ratu Nyoman
- 16. Bale Pemangku
- 17. Bale Pemayasan
- 18. Bale Panitia
- 19. Bale Atergan
- 20. Gedong Dewa
- 21. Apit Lavang
- 22. Keryina Pasek
- 23. Periyagan
- 24. Bale Sirigassari
- 25. Bale Gong
- 26. Bale Pegat
- 27. Bale Gong
- 28. Bale Gong
- 29. Bale Kuikul
- 30. Bale Pengobatan
- 31. Pos Kesehatan
- 32. Bale Petirtaan
- 33. Peranteran

	<p>THE ARCHAEOLOGICAL HERITAGE CONSERVATION OFFICE FOR BALI-WEST NUSA TENGGARA AND EAST NUSA TENGGARA PROVINCES</p>
<p>LAY OUT OF PURA TAMBAWAS</p>	



Map 003.8 Site Plan of Pura Luhur Muncaksari

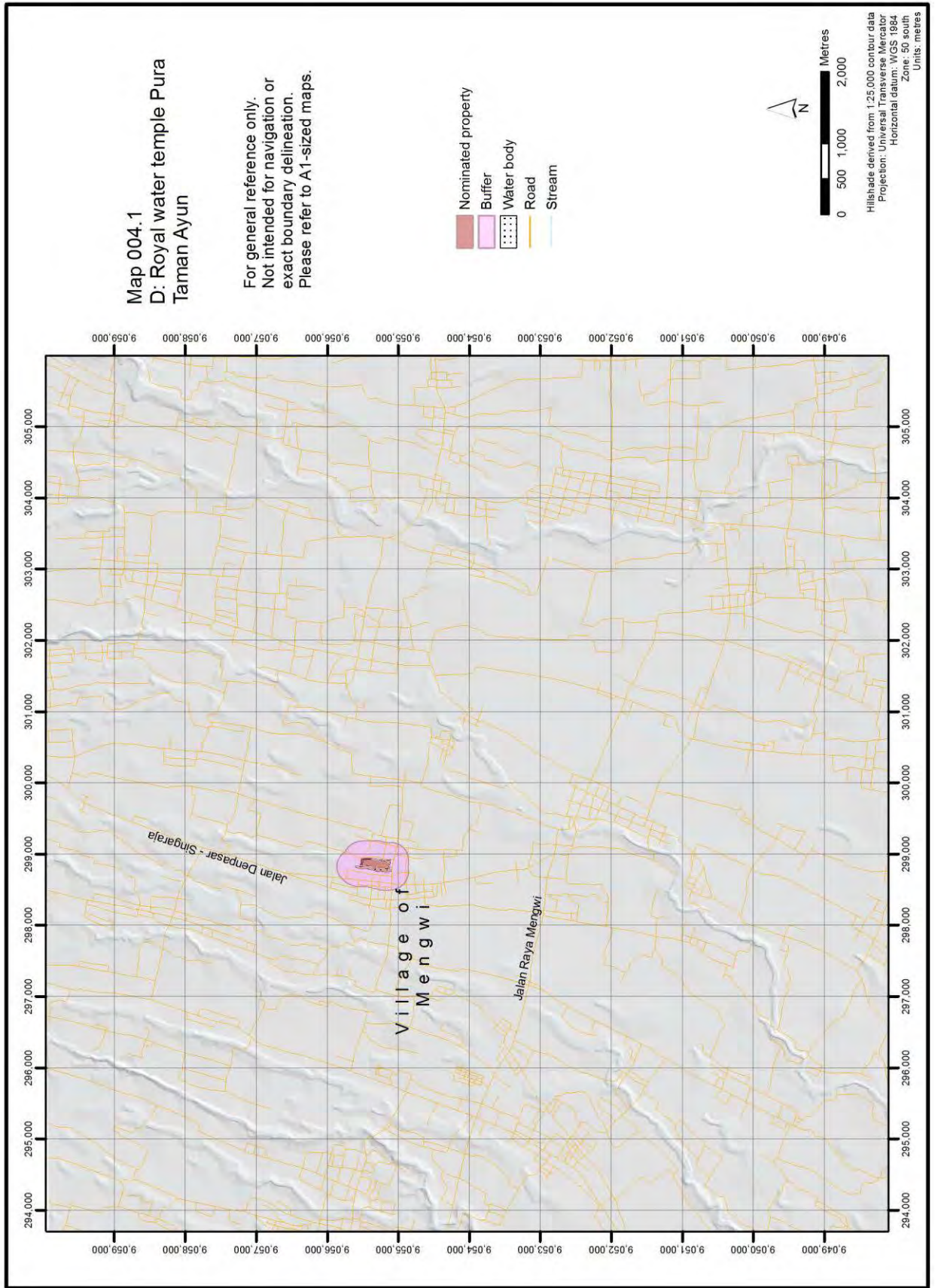


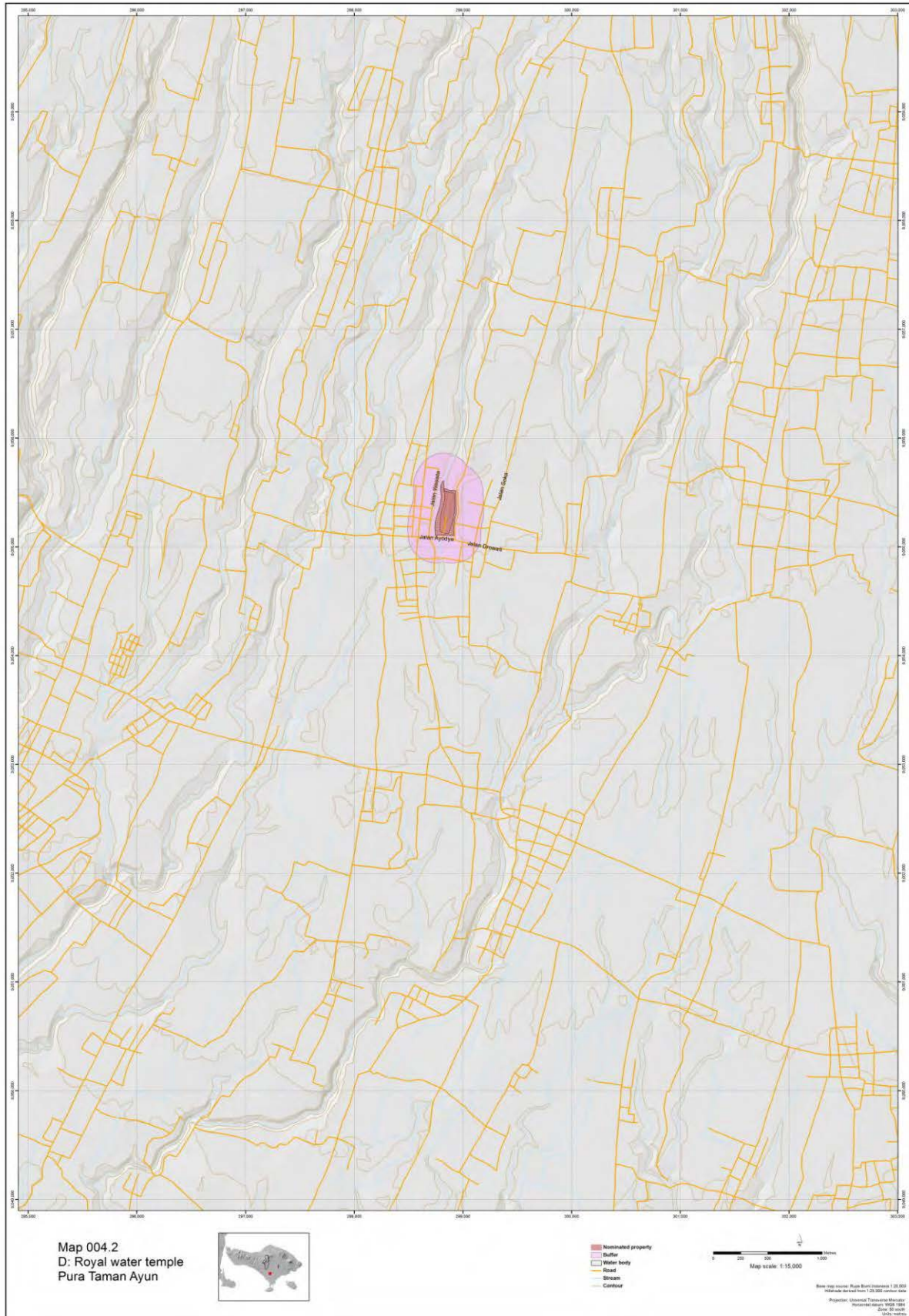
LEGEND :

- | | |
|-------------------------|-------------------------|
| 1. Gedong Pesimpenan | 20. Bale Gong |
| 2. Piyasan | 21. Bale Gong |
| 3. Pelinggih Leluhur | 22. Candi Bentar |
| 4. Pelinggih Kedaton | 23. Amerta Sebuana |
| 5. Pelinggih Jatiluwih | 24. Bale Pedanan |
| 6. Pelinggih Suralaya | 25. Arca Singa |
| 7. Pelinggih Sri Sedana | 26. Bale Penangkilan |
| 8. Pelinggih Wisnu | 27. Bale Pasayuban |
| 9. Pelinggih Iswara | 28. Bale Penangkilan |
| 10. Pelinggih Brahma | 29. Bale Pesanian |
| 11. Bale Peninangkilan | 30. Bale Kulkul |
| 12. Bale Ajengan | 31. Wantilan |
| 13. Bale Aket | 32. Pedukuhan |
| 14. Taman Beji | 33. Arca Singa |
| 15. Jlneng | 34. Bale Pewaregan Suci |
| 16. Gudang | 35. Pesraman Pemangku |
| 17. Apit Lawang | 36. Pesanekan |
| 18. Bale Agung | 37. Perantenan |
| 19. Bale Pegat | 38. Papan Nama |

THE ARCHAEOLOGICAL
HERITAGE CONSERVATION OFFICE FOR
BALI-WEST NUSA TENGGARA AND
EAST NUSA TENGGARA PROVINCES

LAY OUT OF PURA
LUHUR MUNCAK SARI








Map 004.3 Site Plan of Pura Taman Ayun



KETERANGAN :

1. PERSIMPANGAN PUNCAK PADANG DAWA
2. PERSIMPANGAN GUNUNG BATUKARU
3. PELINGGIH RATU NYOMAN SAKTI
4. CANDI PENGHAYAT SARU GADING
5. PERSIMPANGAN PEDANDA SAKTI WAWU RAWUH
6. PELINGGIH RATU NGURAH SAKTI
7. PERSIMPANGAN ULUNSUWI / ULUWATU
8. PERSIMPANGAN PURA SAKENAN
9. PERSIMPANGAN PURA SADA
10. PAIBON
11. PERSIMPANGAN GUNUNG BATUR
12. PERSIMPANGAN GUNUNG AGUNG
13. PERSIMPANGAN GUNUNG BRATAN
14. PADMA TIGA
15. PERSIMPANGAN MASPAHIT
16. PERSIMPANGAN BATU NGAUS
17. PERSIMPANGAN PASURUHAN
18. PELINGGIH RATU PASEK
19. BALE PANCA RESI
20. BALE MURDA
21. GEDONG PENGANGGE
22. BALE SAKA KUTUS
23. BALE SAKA ENAM
24. BALE PEWEDAN
25. PENGARUMAN
26. PANGGUNGAN
27. TEMPAT CUCI TANGAN
28. SAMBYANGAN
29. PANGGUNGAN
30. SUMUR
31. PELINGGIH RATU ALIT
32. PIYASAN
33. KOR I AGUNG
34. PEPELIK
35. GEDONG
36. PANGGUNGAN
37. BALE GONG
38. BALE SAKA PAT
39. PENGUBENGAN
40. BALE KULKUL
41. BALE PASANEKAN
42. KOR I AGUNG
43. PELINGGIH BETARA DILUWUR
44. PADMASANA
45. PELINGGIH BETARA DALEM TUNGKUB
46. PELINGGIH BETARA DESA PUSEH
47. PELINGGIH RATU GEDE NUSA
48. PELINGGIH RATU NYOMAN SAKTI
49. PIYASAN
50. TEMPAT SESAJEN
51. TEMPAT SESAJEN
52. CANDI BENTAR
53. WANTILAN
54. WC
55. KOLAM AIR MANCUR
56. BALE BUNDAR
57. SAMBYANGAN
58. PELINGGIH SILUH RESI
59. CANDI BENTAR
60. TEMPAT KARCIS MASUK
61. PANGGUNGAN
62. PEPELIK
63. PELINGGIH BETARA TENGAH SEGARA

 <p>BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT</p>	
<p>DENAH PURA TAMAN AYUN MENGWI - BADUNG</p>	
MENGETAHUI	Drs. I MADE KUSUMAJAYA
TAHUN	2003



Textual Description of the Boundaries of the Nominated Property

ID	Name of Property	Boundaries
A	Supreme Water Temple Pura Ulun Danu Batur and Lake Batur	Located on the rim of the volcanic crater overlooking Lake Batur in Kintamani District, Bangli Regency Temple boundaries: East: Settlement South: Main road West: Settlement North: Agricultural field
B	Subak Landscape of Pakerisan Watershed	East: 100 meters to the east of Pakerisan river South: Southern boundary of Subak Kulub Bawa West: western perimeter of village of Manukaya Let, then eastern perimeter of Royal Palace of Tampaksiring, then western perimeter of village of Pakerisan North: Northern perimeter of village of Manukaya Let
	Pura Pegulingan	Located on a hill above the Pakerisan River East: Desa Adat Basangambu settlement South: Agriculture field West: Pura Tirtha Empul North: Agriculture field
	Pura Tirtha Empul	Located on Pakerisan River bank East: Pura Pegulingan South: Agriculture field West: Tampaksiring National Palace North: Agriculture field



	Pura Mengening	<p>Located on a hill above the Pakerisan River</p> <p>East: Desa Adat Mancingan settlement South: Agriculture field West: Desa Adat Saraseda settlement North: Agriculture field</p>
	Pura Gunung Kawi (Rock Cut Temple)	<p>Located on Pakerisan River bank</p> <p>East: Agriculture field South: Agriculture field West: Desa Adat Penaka settlement North: Agriculture field</p>
	Subaks: Pulagan and Kulub (upper and lower)	<p>Located on Pakerisan River bank</p> <p>East: Banjar Selat Telen Settlement South: Banjar Tengah Settlement West: Banjar Kawan Settlement North: Agricultural field</p>
C	Subak Landscape of Caturangga Batukaru	<p>Located on Batukaru Mountain slope</p>
	Pura Luhur Batukaru	<p>Located on Batukaru Mountain slope</p> <p>East: Forest South: Settlement West: Forest North: Forest</p>
	Pura Luhur Pucak Petali	<p>Located on Batukaru Mountain slope</p> <p>East: Agriculture field South: Agriculture field West: Settlement North: settlement</p>
	Pura Luhur Besikalung	<p>Located on Batukaru Mountain slope</p> <p>East: Agriculture field South: Agriculture field West: Agriculture field North: Agriculture field</p>



	Pura Luhur Muncaksari	Located on Batukaru Mountain slope East: Forest South: Forest West: Forest North: Forest
	Pura Luhur Tamba Waras	Located on Batukaru Mountain slope East: Forest South: Forest West: Forest North: Pangkung Pekandelan Valley
	Subaks within Batukaru Area: Bedugul, Jatiluwih, Kedampal, Keloncing, Penatahan, Pesagi, Piak, Piling, Puakan, Rajasa, Sengketan, Tegallinggah, Tengkudak, and Wongaya Betan	Located on Batukaru Mountain slope East: Yeh Ho River South: Agriculture field West: Ngigih River North: Forest
D	Royal Water Temple Pura Taman Ayun	Located downtown in Mengwi District East: Desa Adat Darmayasa settlement South: Desa Adat Alangkajeng West: Desa Adat Mandalawisata settlement North: Agriculture field

Justification

Statement of Outstanding Universal Value

The *subaks* and water temple networks of Bali reflect the Balinese philosophical principle ***Tri Hita Karana*** (“three causes of goodness”), which promotes a harmonious relationship between the individual and the realms of the spirit (*parhyangan*), the human world (*pawongan*) and nature (*palemahan*). This abstract idea is given concrete realization in the lives of the Balinese through the institutions of *subaks* (ancient, democratic self-governing farmer’s associations) and water temples, which give spiritual meaning to the governance of the rice terrace ecology. Each year, the congregations of the water temples perform an intricate series of rituals, offerings and artistic performances that are intended to sustain a harmonious relationship with their natural and spiritual existence. Over



the centuries, the physical landscape of Bali has been reshaped in conformity with these philosophical ideas. Water temple networks have expanded to manage the ecology of rice terraces at the scale of whole watersheds, transforming the volcanic landscape into faceted terraces whose jewel-like perfection creates general prosperity.

Balinese water temples are unique institutions, which for more than a thousand years have drawn inspiration from several ancient religious traditions including Saivasiddhanta and Samkya Hinduism, Vajrayana Buddhism and Austronesian cosmology. The focus of water temple rites is the maintenance of harmonious relationships between humans and the natural world. This is achieved through active engagement with spiritual concepts, emphasizing the dependence of the human community on the life-sustaining forces of the natural world. These ideas are expressed through the musical traditions of various types of orchestra; dramatic performances such as topeng, gambuh, wayang, rejang and baris; the reading of poetry in four languages (Sanskrit, Balinese, Old and Middle Javanese); the creation and dedication of offerings made of flowers, fruits and rice; and the performance of rituals by priests and the congregation. The temples themselves are continually repaired and embellished by stone masons, sculptors, woodcarvers and painters.

The temple networks represent a unique response to the challenge of supporting a dense population on a rugged volcanic island in a monsoonal area. The mountainous nature of the island with deep ravines and seasonal rains has created an ecosystem that is prone to water scarcity and threats of disease and pests. Water temple networks traditionally cope with these problems by enabling clusters of *subaks* to adjust irrigation schedules at the watershed scale, controlling pests by inducing synchronized fallow cycles. Although each *subak* focuses on the management of its own rice terraces, a global solution to water allocation emerges from the temple networks, optimizing irrigation flows for all. This thousand-year-old system is now threatened with collapse, due to development pressure, fragmentation of the landscape, and pollution from agricultural chemicals.



Criteria under which the Property is Nominated

- (ii) *Exhibit an important interchange of human values, over a span of time or within a cultural area of the world, or developments in architecture or technology, monumental arts, town-planning or landscape design*
- (iii) *Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared*
- (v) *Exhibit an outstanding example of a traditional human settlement or land-use which is representative of a culture (or cultures), especially when it has become vulnerable under the impact of irreversible change*
- (vi) *Be directly or tangibly associated with events or living traditions, with ideas or beliefs, or with artistic and literary works of outstanding universal significance*

Name and Contact Information of Local Office/Institution/Agency

Junus Satrio Atmodjo

Director of Archaeological Heritage

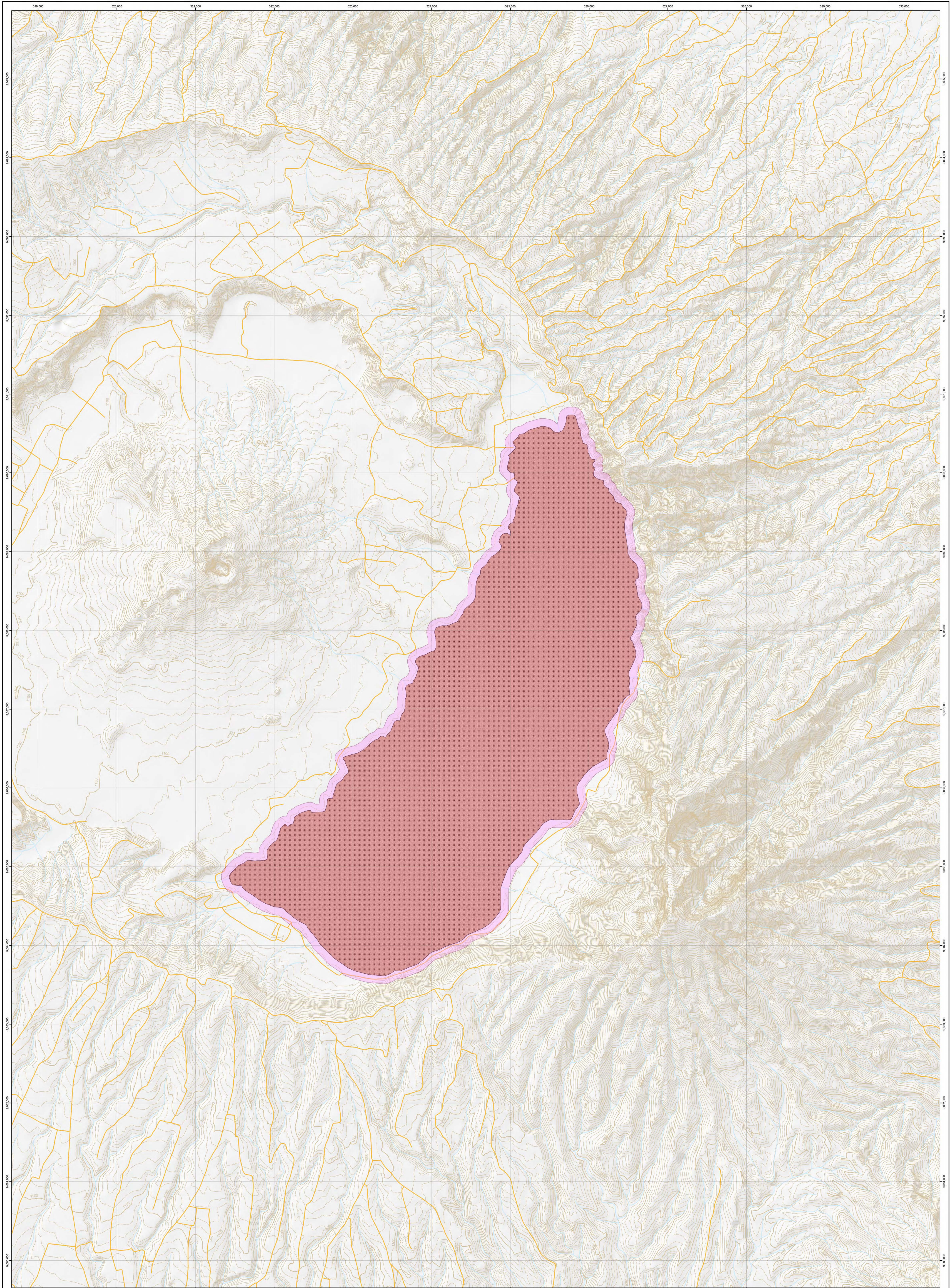
Building E 11th Floor, Ministry of National Education Complex

Jl. Jenderal Sudirman Senayan, Jakarta 10270

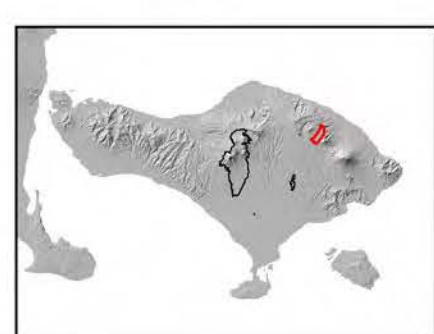
Tel. +62 21 5725512

Fax. +62 21 5725048

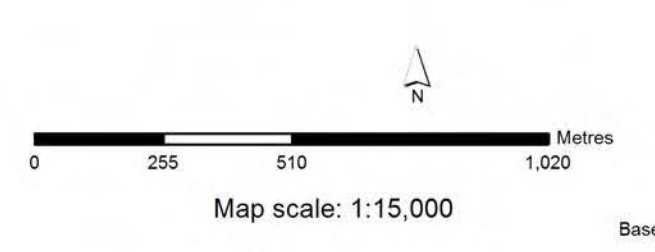
Email: junus_satrio@yahoo.com



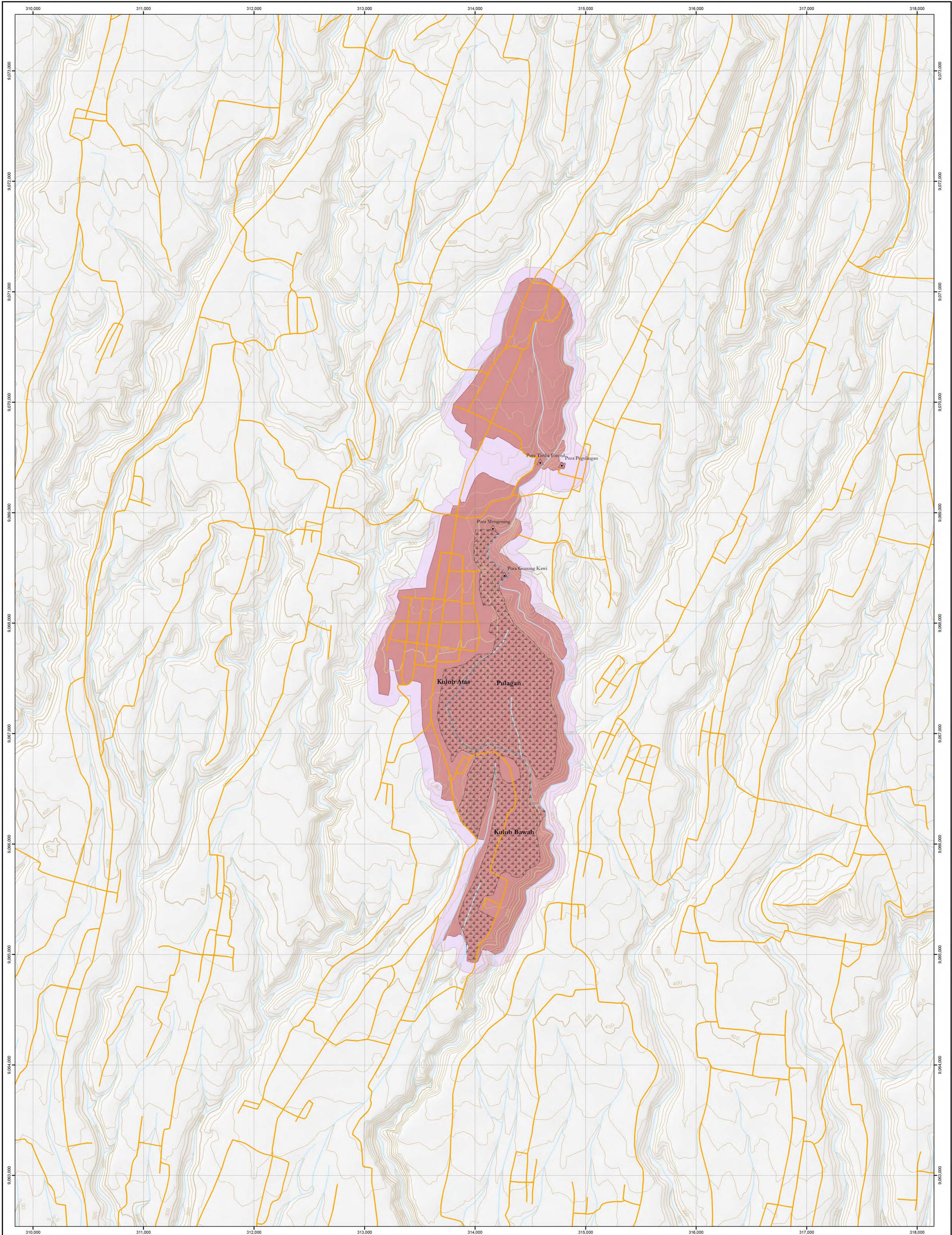
Map 001.2
Nominated property component part A1: Lake Batur



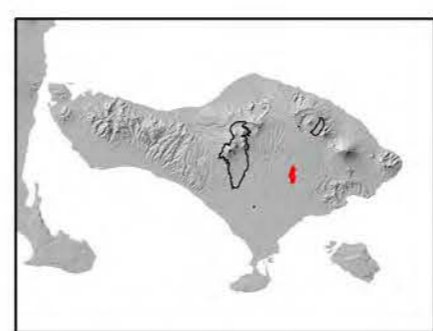
- Nominated property
- Buffer
- Water body
- Road
- Stream
- Index contour
- Contour



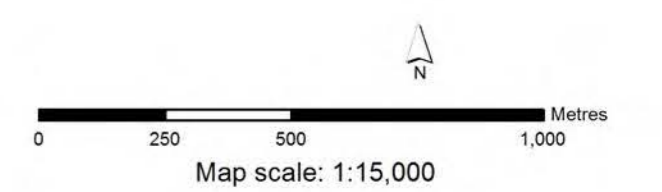
Base map source: Rupa Bumi Indonesia 1:25,000
Horizontal datum: WGS 1984
Zone: 50 South
Units: meters



Map 002.2
Component Part B1: Subak Landscape of Pakerisan Watershed

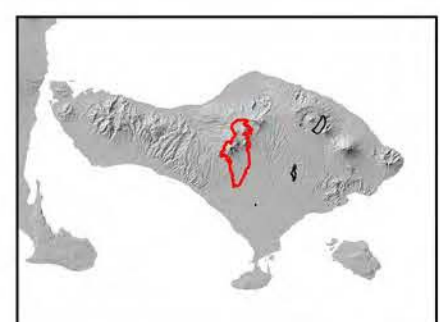


- Temple
- Nominated property
- Buffer
- Subak
- Road
- Stream
- Index contour
- Contour

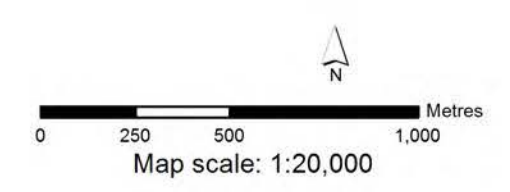




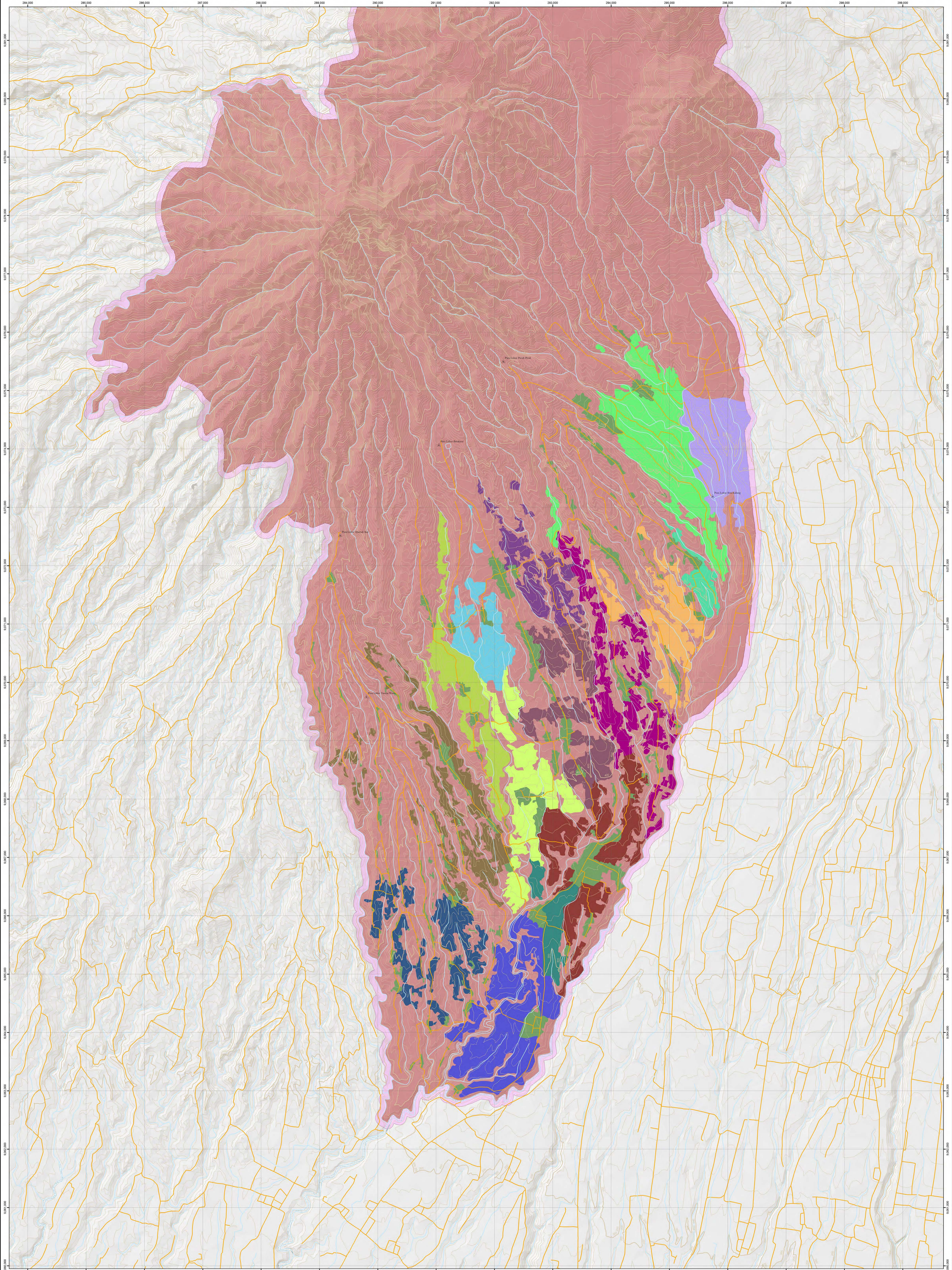
Map 003.2
C1: Subak Landscape of Catur Angga Batukaru (north)



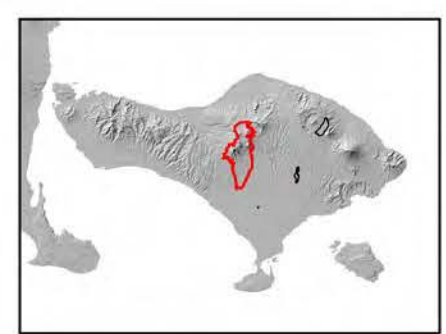
- Irrigated property
- Canal
- Water body
- Road
- Stream
- Index contour
- Contour



Base map source: Rupa Bumi Indonesia 1:25,000
 Hillshade derived from 1:25,000 contour data
 Projection: Universal Transverse Mercator
 Horizontal datum: WGS 1984
 Zone: 52 south
 UTM, meters



Map 003.3
C1: Subak Landscape of Catur Angga Batukaru (south)

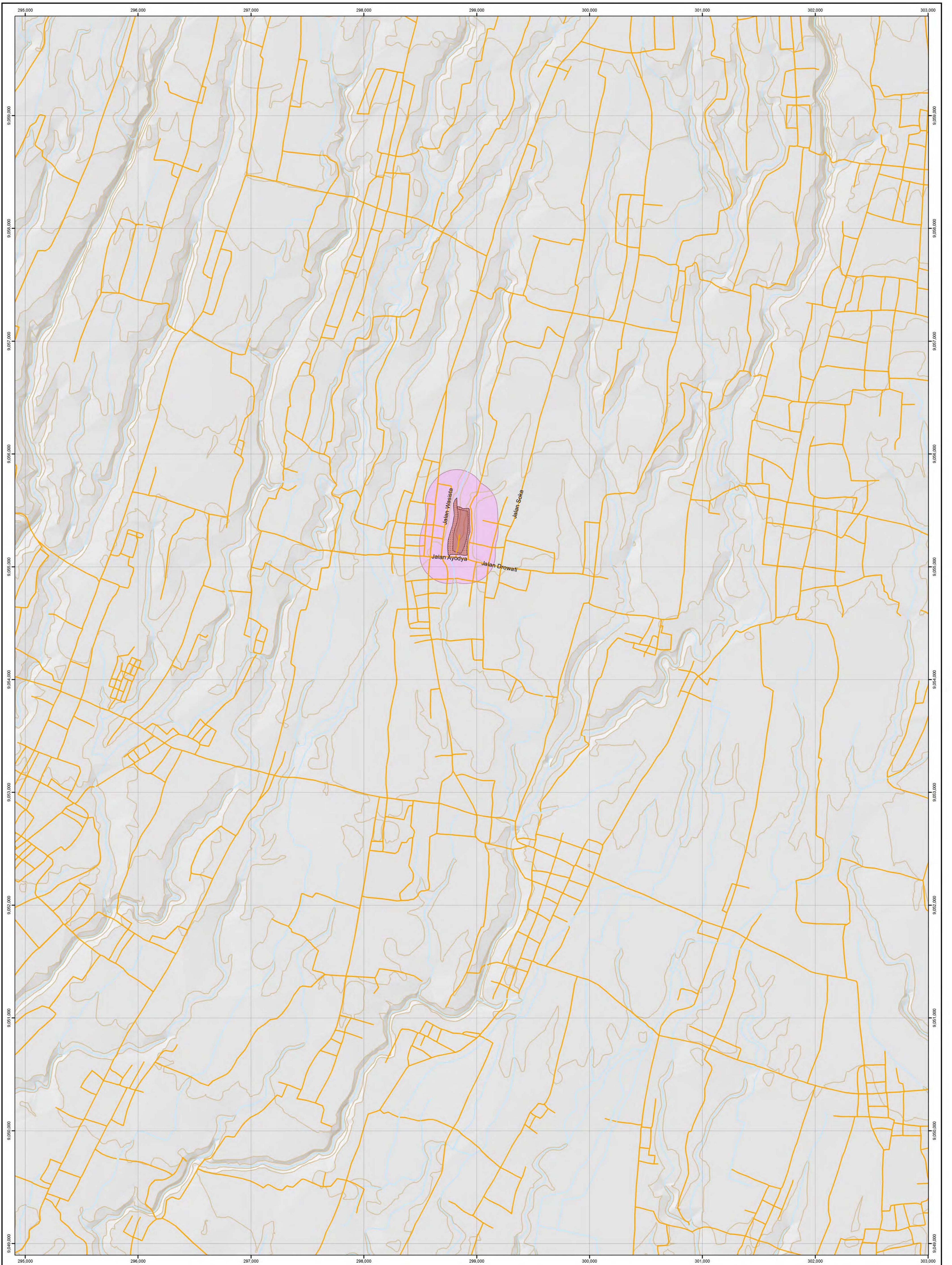


<ul style="list-style-type: none"> Subak boundary Pajagi Katiwani Katiwani Permatikan Permatikan Pukan Sangatan Saka Tegallingah Tengkulak Wengaya Betan 	<ul style="list-style-type: none"> Temple Subak boundary Buffer Water body Road Stream Index contour Contour 	<p>Subak names</p> <ul style="list-style-type: none"> Katiwani Katiwani Permatikan Permatikan Pukan Sangatan Saka Tegallingah Tengkulak Wengaya Betan
--	--	---

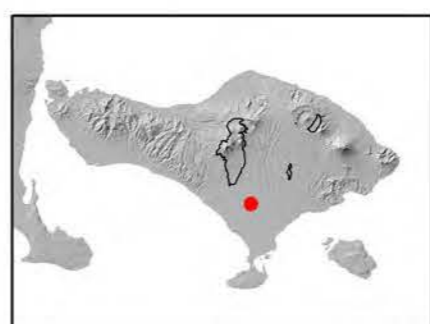
Map scale: 1:20,000

0 250 500 1,000 Meters

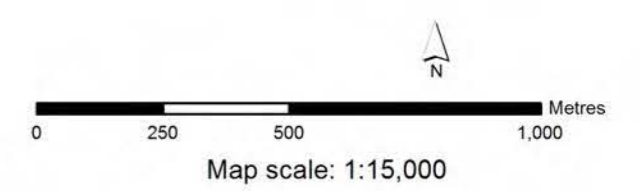
Base map source: Raster Borneo Indonesia 1:25,000
 Hillshade derived from 1:25,000 contour data
 Projection: Universal Transverse Mercator
 Horizontal datum: WGS 1984
 Zone: 65 South
 Units: meters



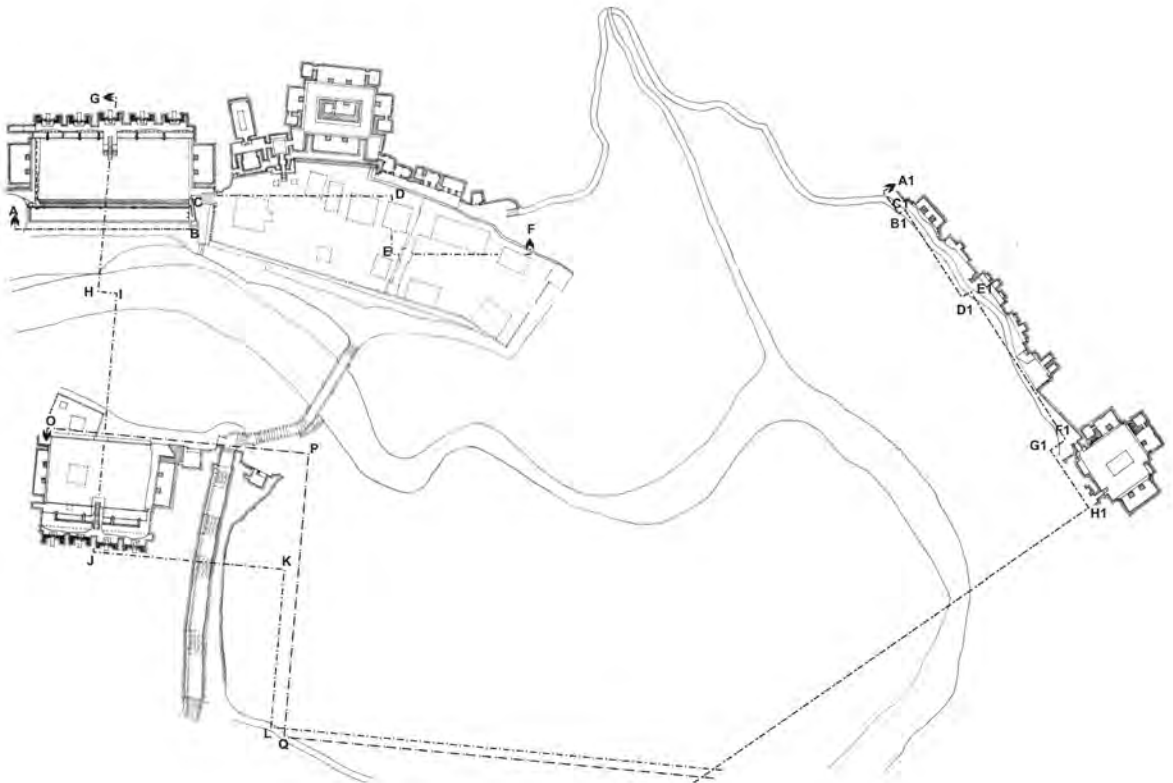
Map 004.2
 D: Royal water temple
 Pura Taman Ayun



- Nominated property
- Buffer
- Water body
- Road
- Stream
- Contour



Base map source: Rupa Bumi Indonesia 1:25,000
 Hillshade derived from 1:25,000 contour data
 Projection: Universal Transverse Mercator
 Horizontal datum: WGS 1984
 Zone: 50 south
 Units: metres



BALAI PELESTARIAN
PENINGGALAN PURBAKALA
PROPINSI BALI-NTB-NTT

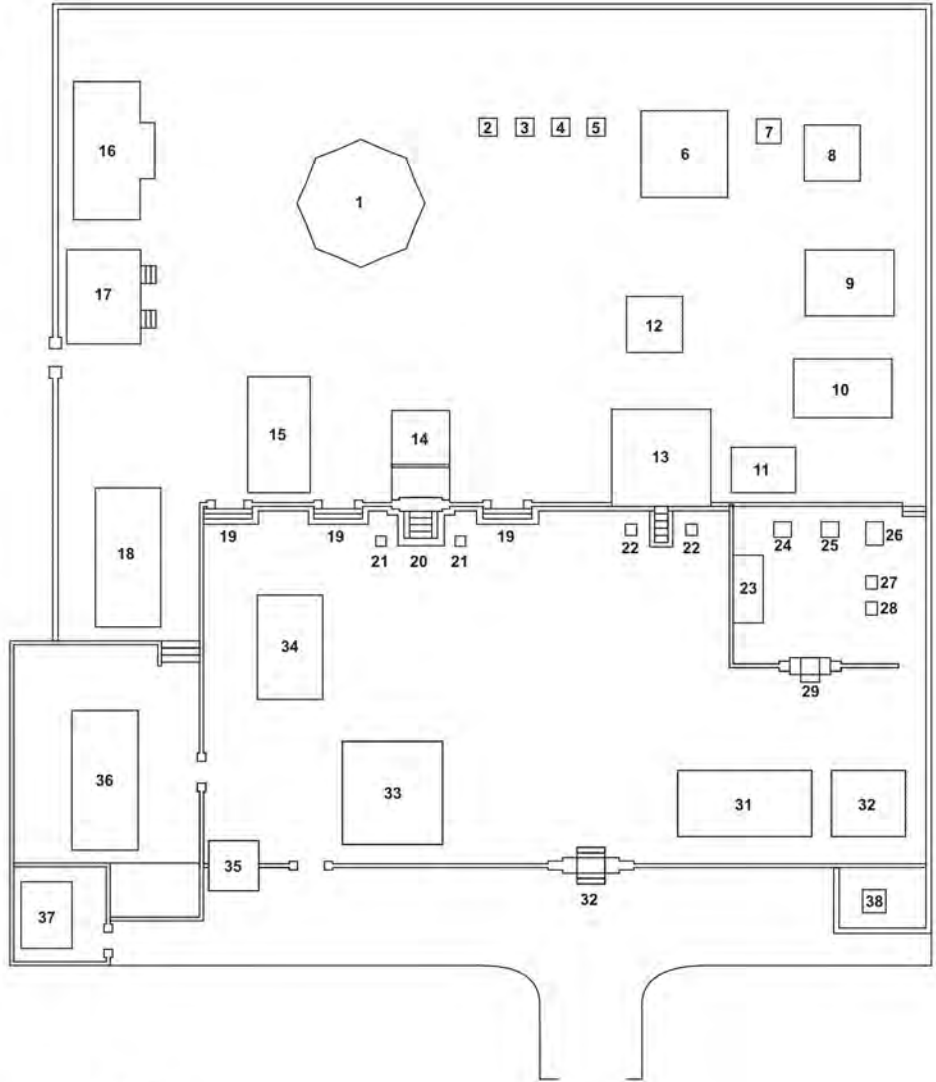
DENAH PURA
PURA GUNUNG KAWI

MENGETAHUI

Drs. I MADE KUSUMAJAYA

TAHUN

2003



KETERANGAN :

- | | |
|----------------------|------------------------|
| 1. CANDI PEGULINGAN | 20. CANDI BENTAR |
| 2. GEDONG SINE B | 21. APIT LAWANG |
| 3. GEDONG SINE B | 22. APIT LAWANG |
| 4. GEDONG TARI B | 23. PIYASAN |
| 5. GEDONG CATU | 24. GEDONG SARI |
| 6. PENGARUMAN AGUNG | 25. GEDONG LIMAS |
| 7. GEDONG LIMAS SARI | 26. PADMASANA |
| 8. MERU | 27. GEDONG CATU |
| 9. PENGARUMAN | 28. SEDAHAN NGERURAH |
| 10. BALE PESELANG | 29. CANDI BENTAR |
| 11. PANGGUNGAN | 30. BALE PENYUCIAN |
| 12. PEWEDAN | 31. BALE PENANDINGAN |
| 13. BALE CATUR | 32. CANDI BENTAR |
| 14. BALE PEMUJAHAN | 33. BALE GONG |
| 15. BALE PENGRAWOSAN | 34. BALE PENGRAWOSAN |
| 16. PIYASAN | 35. BALE KULKUL |
| 17. BALE INFORMASI | 36. BALE PENGOLAHAN |
| 18. BALE PENGOLAHAN | 37. KAMAR MANDI/TOILET |
| 19. PELETASAN | 38. TOWER |

**BALAI PELESTARIAN
PENINGGALAN PURBAKALA
PROPINSI BALI-NTB-NTT**

**DENAH PURA PEGULINGAN
BASANGAMBU TAMPAK SIRING**

MENGETAHUI

Drs. I MADE KUSUMAJAYA


TAHUN

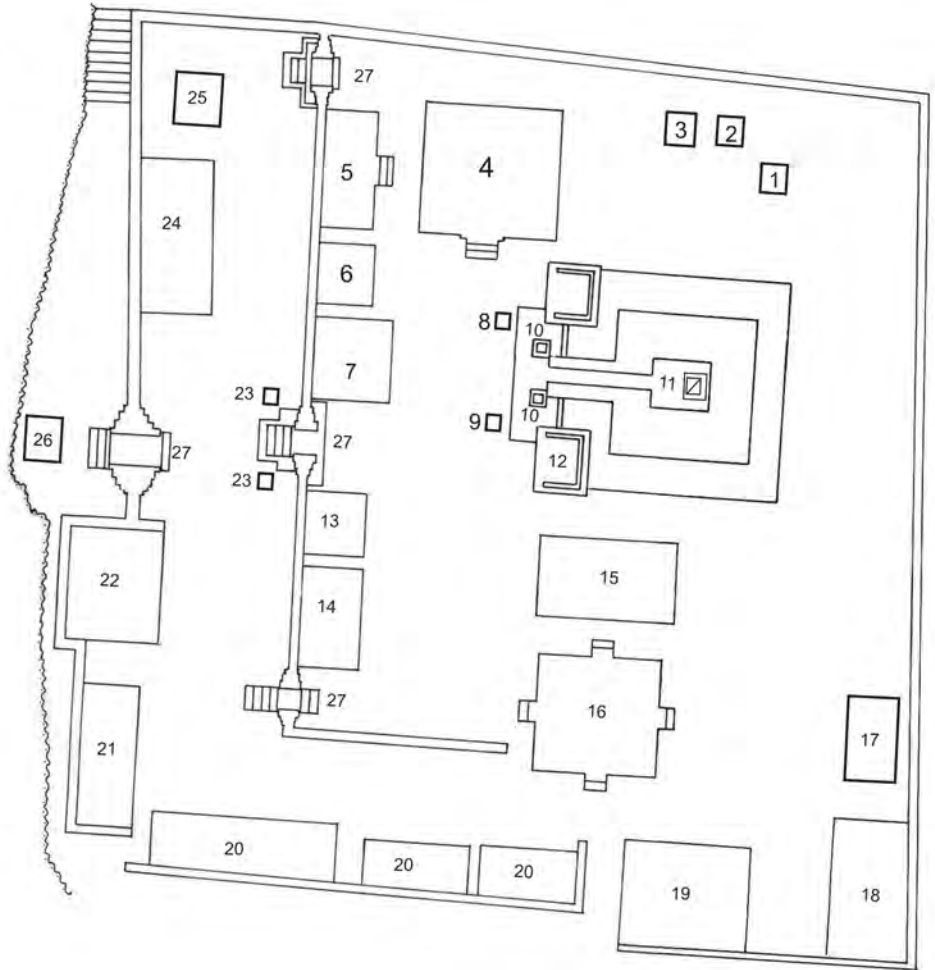
2003



KETERANGAN :

1. PERSIMPANGAN PUNCAK PADANG DAWA
2. PERSIMPANGAN GUNUNG BATUKARU
3. PELINGGIH RATU NYOMAN SAKTI
4. CANDI PENGHAYAT SARU GADING
5. PERSIMPANGAN PEDANDA SAKTI WAWU RAWUH
6. PELINGGIH RATU NGURAH SAKTI
7. PERSIMPANGAN ULUNSUWI / ULUWATU
8. PERSIMPANGAN PURA SAKENAN
9. PERSIMPANGAN PURA SADA
10. PAIBON
11. PERSIMPANGAN GUNUNG BATUR
12. PERSIMPANGAN GUNUNG AGUNG
13. PERSIMPANGAN GUNUNG BRATAN
14. PADMA TIGA
15. PERSIMPANGAN MASPAHIT
16. PERSIMPANGAN BATU NGAUS
17. PERSIMPANGAN PASURUHAN
18. PELINGGIH RATU PASEK
19. BALE PANCA RESI
20. BALE MURDA
21. GEDONG PENGANGGE
22. BALE SAKA KUTUS
23. BALE SAKA ENAM
24. BALE PEWEDAN
25. PENGARUMAN
26. PANGGUNGAN
27. TEMPAT CUCI TANGAN
28. SAMBYANGAN
29. PANGGUNGAN
30. SUMUR
31. PELINGGIH RATU ALIT
32. PIYASAN
33. KORI AGUNG
34. PEPELIK
35. GEDONG
36. PANGGUNGAN
37. BALE GONG
38. BALE SAKA PAT
39. PENGUBENGAN
40. BALE KULKUL
41. BALE PASANEKAN
42. KORI AGUNG
43. PELINGGIH BETARA DILUWUR
44. PADMASANA
45. PELINGGIH BETARA DALEM TUNGKUB
46. PELINGGIH BETARA DESA PUSEH
47. PELINGGIH RATU GEDE NUSA
48. PELINGGIH RATU NYOMAN SAKTI
49. PIYASAN
50. TEMPAT SESAJEN
51. TEMPAT SESAJEN
52. CANDI BENTAR
53. WANTILAN
54. WC
55. KOLAM AIR MANCUR
56. BALE BUNDR
57. SAMBYANGAN
58. PELINGGIH SILUH RESI
59. CANDI BENTAR
60. TEMPAT KARCIS MASUK
61. PANGGUNGAN
62. PEPELIK
63. PELINGGIH BETARA TENGAH SEGARA

	BALAI PELESTARIAN PENINGGALAN PURBAKALA PROPINSI BALI-NTB-NTT
	DENAH PURA TAMAN AYUN MENGWI - BADUNG
MENGETAHUI	Drs. I MADE KUSUMAJAYA
TAHUN	2003



KETERANGAN :

1. GEDONG LIMAS
2. GEDONG CATU
3. GEDONG SINEB
4. PENGARUMAN
5. PIASAN
6. PANGGUNGAN
7. BALE PEWEDAN
8. BATU BERDIRI
9. PESIMPANGAN BETARA TIRTA EMPUL
10. BALE PELIK
11. PRASADA AGUNG
12. PESIMPANGAN BETARA GUNUNG KAWI
13. BALE PENGANTEB
14. BALE PEWAYANGAN
15. PECANANGAN
16. PESELANG
17. PENEGTEGAN
18. PENYUCIAN
19. BALE PEGIAN
20. BALE PAEBATAN
21. BALE PEGAT
22. BALE GONG
23. SEDAHAN NGURAH AGUNG
24. BALE PEGAMBUHAN
25. BALE KULKUL
26. PANGGUNGAN
27. CANDI BENTAR



**BALAI PELESTARIAN
PENINGGALAN PURBAKALA
PROPINSI BALI-NTB-NTT**

**DENAH PURA MENGENING
TAMPAKSIRING - GIANYAR**

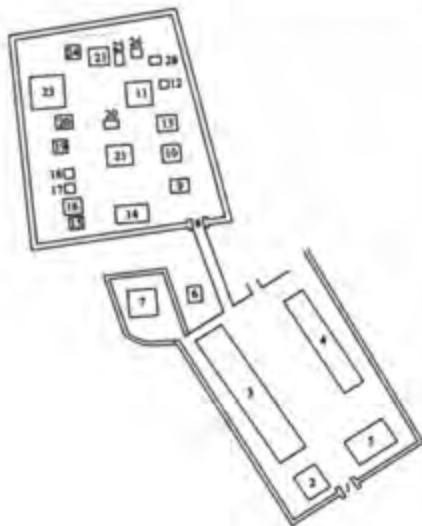
MENGETAHUI

Drs. I MADE KUSUMAJAYA

TAHUN

2003

Map 003.6 Site Plan of Pura Batukaru



LEGEND

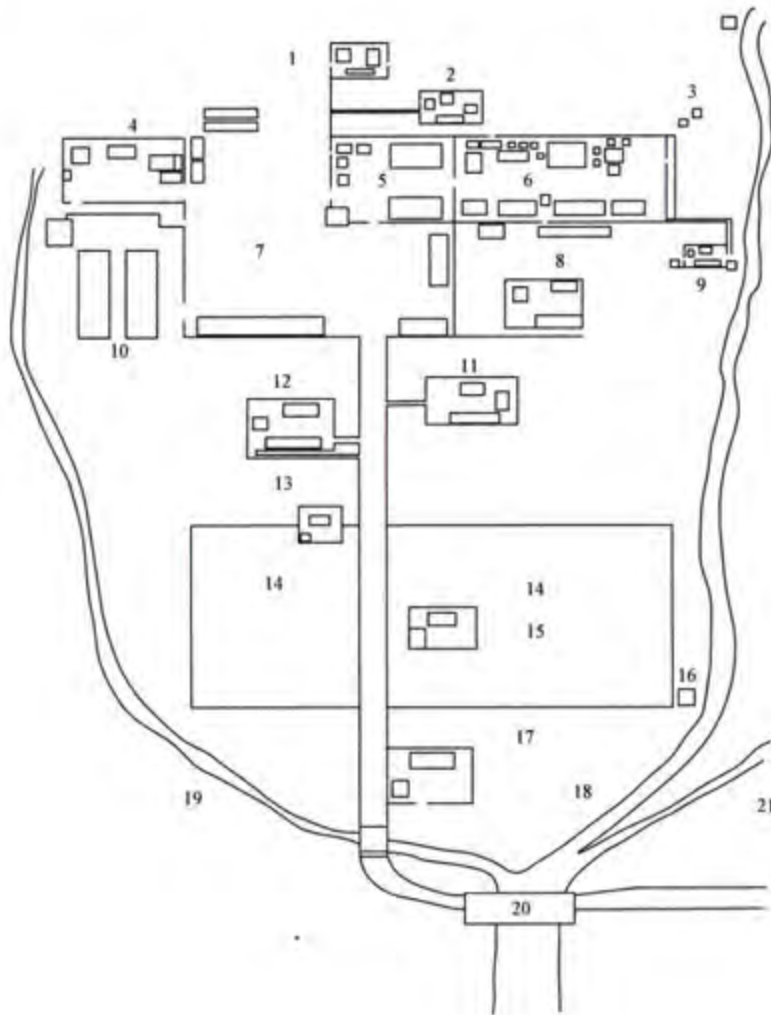
1. Besar Temple	15. Gedang Karas
2. Balai Pankas	16. Gedang Karas
3. Balai Agung	17. Petinggih Pakandean
4. Balai Ngigel	18. Mura Tampeng Tiga
5. Balai Giring	19. Mura Tampeng Lima
6. Ganyaw	20. Balai Alut
7. Pura Geduh	21. Panggangan
8. Besar Temple	22. Petinggih Sri Sada
9. Mura Tampeng Tiga	23. Balai Long Pasasan
10. Mura Tampeng Lima	24. Mura Tampeng Tajah
11. Balai Perinceman	25. Petinggih Batu Dawa Yasa
12. Petinggih Sanghyang Arif	26. Petinggih Tri Mada
13. Petinggih Para Kumbaran	27. Petinggih Batu Layang Patal
14. Gedang Tach	28. Ayat Lintang



THE ARCHAEOLOGICAL
HERITAGE CONSERVATION OFFICE FOR
BALI WEST NUSA TENGGARA AND
EAST NUSA TENGGARA PROVINCES

LAY OUT OF PURA BATU KARU
TABANAN

Map 03.5 Site Plan of Temple Pura Besikalung



LEGEND :

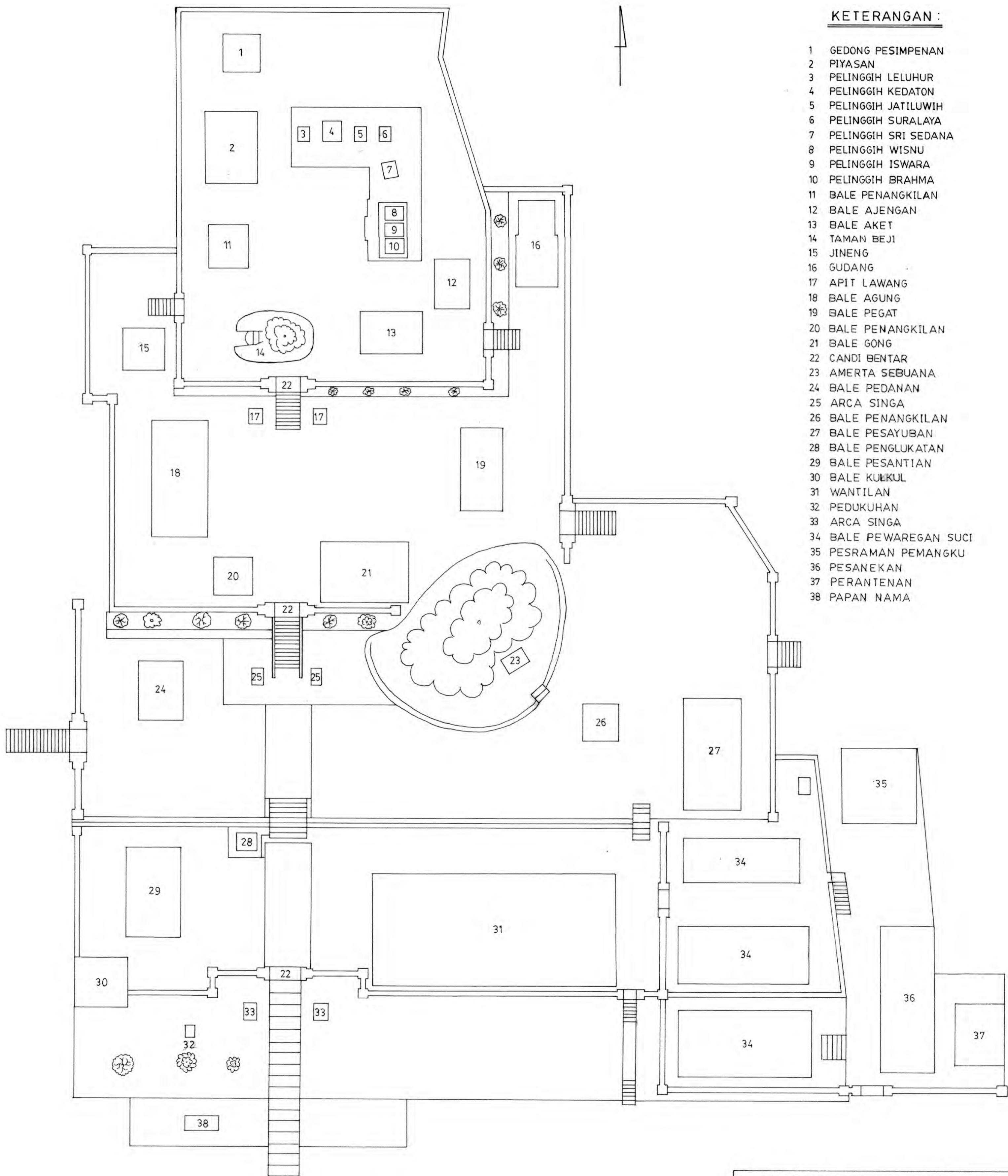
- 1 Batar
- 2 Puseh
- 3 Pura Bangbang
- 4 Beji Kaub
- 5 Jabe Tengah
- 6 Jeroman
- 7 Jabe Tandeg
- 8 Sang Hyang Meing
- 9 Beji Pingit
- 10 Puwaregan
- 11 Dalem
- 12 Ratu Nyoman
- 13 Tamarsari
- 14 Terminal
- 15 Pasar Agung
- 16 Dukuh
- 17 Pecalang Agung
- 18 Sungai Yeh Ho
- 19 Tukad Yeh Besi Kalung
- 20 Jembatan
- 21 Tukad Yeh Batu Kapas

	THE ARCHAEOLOGICAL HERITAGE CONSERVATION OFFICE FOR BALI-WEST NUSA TENGGARA AND EAST NUSA TENGGARA PROVINCES
	LAY OUT OF PURA LUHUR BESIKALUNG



KETERANGAN :

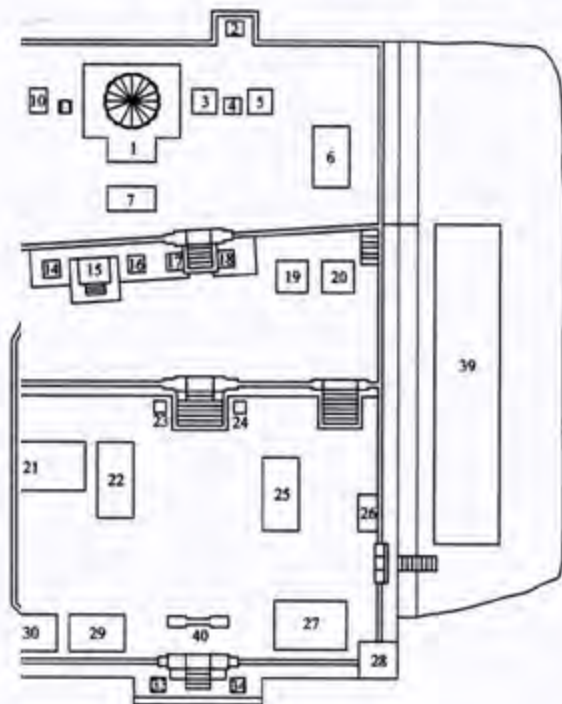
- 1 GEDONG PESIMPENAN
- 2 PIYASAN
- 3 PELINGGIH LELEHUH
- 4 PELINGGIH KEDATON
- 5 PELINGGIH JATILUWIH
- 6 PELINGGIH SURALAYA
- 7 PELINGGIH SRI SEDANA
- 8 PELINGGIH WISNU
- 9 PELINGGIH ISWARA
- 10 PELINGGIH BRAHMA
- 11 BALE PENANGKILAN
- 12 BALE AJENGAN
- 13 BALE AKET
- 14 TAMAN BEJI
- 15 JINENG
- 16 GUDANG
- 17 APIT LAWANG
- 18 BALE AGUNG
- 19 BALE PEGAT
- 20 BALE PENANGKILAN
- 21 BALE GONG
- 22 CANDI BENTAR
- 23 AMERTA SEBUANA
- 24 BALE PEDANAN
- 25 ARCA SINGA
- 26 BALE PENANGKILAN
- 27 BALE PESAYUBAN
- 28 BALE PENGLUKATAN
- 29 BALE PESANTIAN
- 30 BALE KUKKUL
- 31 WANTILAN
- 32 PEDUKUHAN
- 33 ARCA SINGA
- 34 BALE PEWAREGAN SUCI
- 35 PESRAMAN PEMANGKU
- 36 PESANEKAN
- 37 PERANTENAN
- 38 PAPAN NAMA



DENAH

DEPARTEMEN KEBUDAYAAN DAN PARIWISATA			SKALA
BALAI PELESTARIAN PENINGGALAN PURBAKALA BALI			1 : 200
WILAYAH KERJA PROPINSI BALI- NTB DAN NTT			PERMANA
DENAH PURA LUHUR MUNCAK SARI			NO PR / PMG
BANJAR ANYAR-DESA SANGKE TA N			BP3 / 2009
KECAMATAN PENEHEL-KABUPATEN TABANAN			TANGGAL
			9 - 9 - 2009
DIGAMBAR OLEH	DIKALKIR OLEH	DIPERIKSA OLEH	MENGETAHUI
A A. GEDE RAKA	IMD.RAI MULIAWAN	I MADE SUSUN	Drs.I NYM.SUMARTIKA

Map 003.4 Site Plan of Pura Petali



0 10 m

LEGEND :

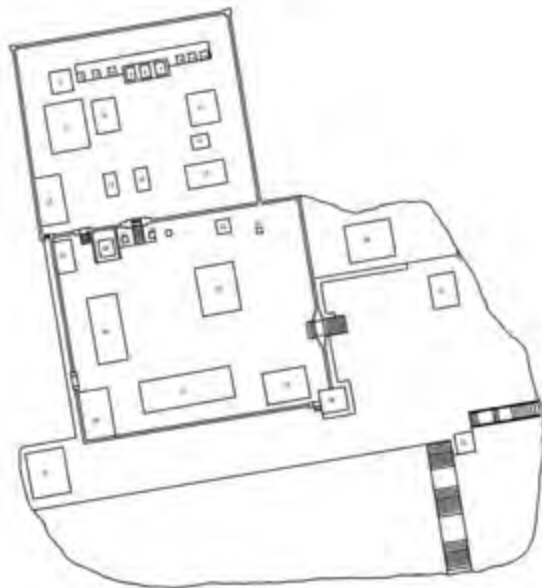
- | | |
|---------------------------------|----------------------------|
| 1. Pelinggih Ageng Luhur Petali | 21. Bale Pawang |
| 2. Beji Suniya | 22. Bale Agung |
| 3. Godong Pesimpesan | 23. Apit Lawang |
| 4. Godong Kerihinan | 24. Apit Lawang |
| 5. Pesimpangan Tamblingan | 25. Bale Pegat |
| 6. Bale Linggih | 26. Bale Posanian |
| 7. Bale Pelapa | 27. Bale Gong Jati Luwih |
| 8. Piyasan Pergronan | 28. Bale Kulul |
| 9. Pesimpangan Rambut Sodan | 29. Bale Gong Pemanis |
| 10. Pesimpangan Takus Agung | 30. Bale Gong Tonggah |
| 11. Beji Tarag | 31. Bale Gong Bawang |
| 12. Bale Panita | 32. Jineng |
| 13. Piyasan | 33. Apit Lawang |
| 14. Godong Tarib | 34. Apit Lawang |
| 15. Pelinggih Ratu Nyoman | 35. Bale Pisanakan Ajingan |
| 16. Godong Pesimpesan | 36. Pewangan Kasih |
| 17. Apit Lawang | 37. Bale Sekretariat |
| 18. Apit Lawang | 38. Bale Jejaitan |
| 19. Piyasan Sekar Taji | 39. Pewangan Kangin |
| 20. Piyasan Bulakan | 40. Aling-aling |



THE ARCHAEOLOGICAL
HERITAGE CONSERVATION OFFICE FOR
BALI-WEST NUSA TENGGARA AND
EAST NUSA TENGGARA PROVINCES

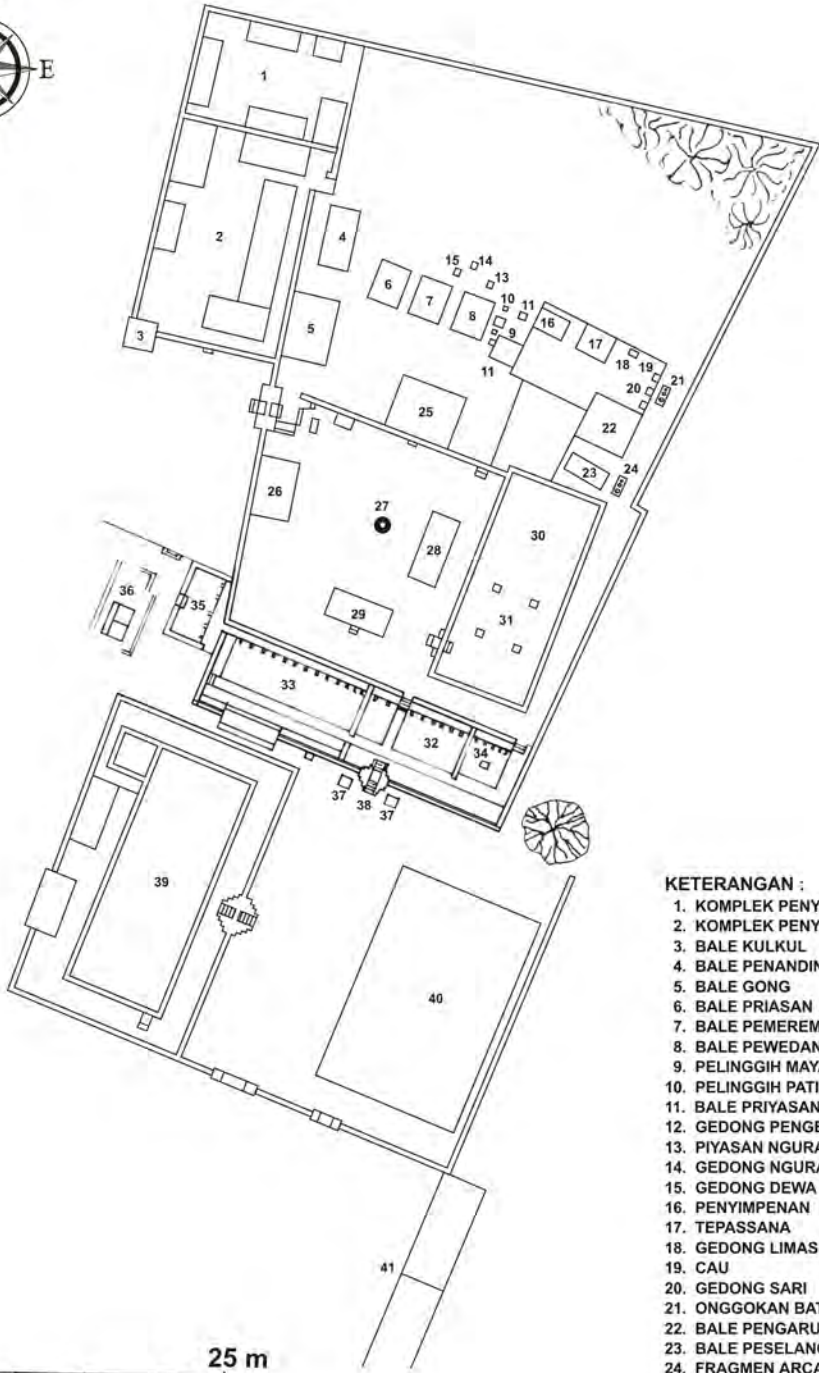
LAY OUT OF PURA LUHUR
PUCAK PETALI JATI LUWIH

Map 003.7 Site Plan of Pura Tambawaras



LEGEND

- | | |
|---------------------|------------------|
| 1. Pelinggih Danda | 18. Bale Pajagan |
| 2. Pelinggih Danda | 19. Bale A Bagan |
| 3. Pelinggih Danda | 20. Bale A Bagan |
| 4. Pelinggih Danda | 21. Bale A Bagan |
| 5. Pelinggih Danda | 22. Bale A Bagan |
| 6. Pelinggih Danda | 23. Bale A Bagan |
| 7. Pelinggih Danda | 24. Bale A Bagan |
| 8. Pelinggih Danda | 25. Bale A Bagan |
| 9. Pelinggih Danda | 26. Bale A Bagan |
| 10. Pelinggih Danda | 27. Bale A Bagan |
| 11. Pelinggih Danda | 28. Bale A Bagan |
| 12. Pelinggih Danda | 29. Bale A Bagan |
| 13. Pelinggih Danda | 30. Bale A Bagan |
| 14. Pelinggih Danda | 31. Bale A Bagan |
| 15. Pelinggih Danda | 32. Bale A Bagan |
| 16. Pelinggih Danda | 33. Bale A Bagan |
| 17. Pelinggih Danda | 34. Bale A Bagan |



KETERANGAN :

1. KOMPLEK PENYUCIAN
2. KOMPLEK PENYUCIAN
3. BALE KULKUL
4. BALE PENANDINGAN
5. BALE GONG
6. BALE PRIASAN
7. BALE PEMEREMAN
8. BALE PEWEDAN
9. PELINGGIH MAYA DENAWA
10. PELINGGIH PATIH MAYA DENAWA
11. BALE PRIYASAN DEWA
12. GEDONG PENGEMIT
13. PIYASAN NGURAH AGUNG
14. GEDONG NGURAH AGUNG
15. GEDONG DEWA
16. PENYIMPINAN
17. TEPASSANA
18. GEDONG LIMAS
19. CAU
20. GEDONG SARI
21. ONGGOKAN BATU
22. BALE PENGARUMAN
23. BALE PESELANG
24. FRAGMENT ARCA
25. BALE PECANANGAN
26. BALE PEGAT
27. BATU CENG
28. BALE AGUNG
29. BALE GONG
30. TAMAN SUCI
31. BATU PEM,BAGI AIR
32. TIRTA PENGELEBUR IMPIAN ALA
33. TIRTA PENGELEBUR SELUWIRAN MALA
34. PANCA TIRTA
35. TIRTA PELEBUR KENA GERING CAMAH
36. TOILET
37. APIT LAWANG
38. CANDI BENTAR
39. KOLAM RENANG
40. WANTILAN
41. PERMANDIAN UMUM

0 25 m

**BALAI PELESTARIAN
PENINGGALAN PURBAKALA
PROPINSI BALI-NTB-NTT**

**DENAH PURA TIRTA EMPUL
TAMPAKSIRING**

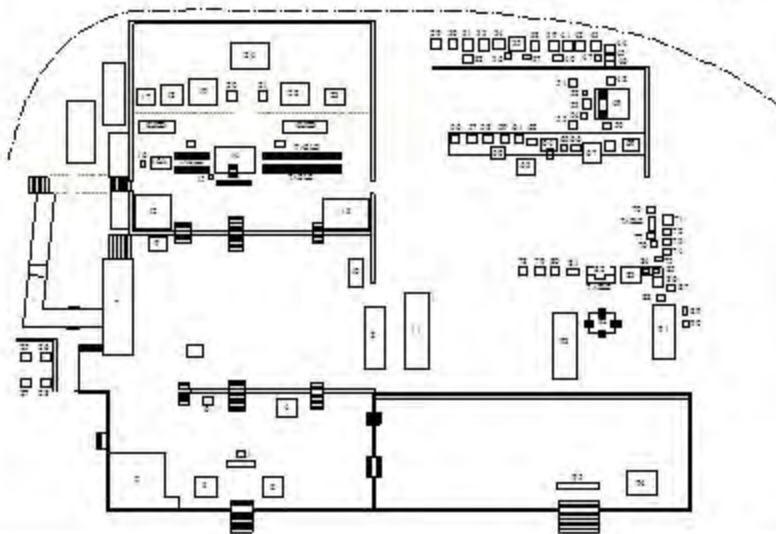
MENGETAHUI

Drs. I MADE KUSUMAJAYA

TAHUN

2003

Map 001.4 Site Plan of Temple Pura Ulun Danu Batur



LEGEND :

- | | | |
|--|---|--|
| 1. Amarahbecha | 34. Temple for Ratu Ayu Tola Sari | 61. Temple for Ratu Pektikan |
| 2. Bale Kulkul | 35. Temple for offering Ratu Gde Pasdik | 62. Temple for Ratu Ayu Jelang |
| 3. Bale Kulkul | 36. Papeklik | 63. Temple for Ratu Gde Malakom |
| 4. Bale Pektikan | 37. Papeklik | 64. Temple for Ratu Gdum |
| 5. Bale Gede Gede | 38. Ratu Gde Manik Babur | 65. Temple for Ratu Mangayana |
| 6. Komayasa | 39. Temple for Ratu Gde Manik Molele | 66. Temple for Ida Innu Mawahan |
| 7. Bale Pamestean | 40. Papeklik | 67. Temple for Ida Innu Tambang Lawar |
| 8. Bale Gajah | 41. Temple for Ratu Manik Sontari | 68. Temple for Ida Innu Dalam Mawar |
| 9. Pamestean | 42. Temple for Ratu Gde Malakadan | 69. Temple for Ida Innu Gde Dalam Molele |
| 10. Bale Amekleng | 43. Temple for Ratu Nyuhik Rucandik | 70. Sanggar Agung, Saria, Chanden, Bata |
| 11. Dapur Suci | 44-47. No longer exist | 71. Bale Kulkul Temporal Ida Bata |
| 12. Bale Badang | 48. Temple for Ratu Gde Paraha | 72. Prastun Ulung Bale Agung |
| 13. Bale Pamestean | 49. Mera Tempang Tiga | 73. Divaler |
| 14. Pamestean Agung | 50. Temple for Ratu Mawandri | 74. Temple for I Ratu Rumbat Sodani |
| 15. Jamban | 51-53. Different shrines and status | 75. Temple for I Ratu Bhatan Cih |
| 16. Polonggih I Ratu Gde Subandari | 54. Temple for Ratu Sumayana | 76. Papeklik Batah Cih |
| 16a. Pamestean Ratu Gde Subandari | 55. Temple for Ratu Batah | 77. Temple for Ratu Pamburhanjani |
| 17. Mera Tempang Tiga | 56. Temple for Ratu Manakan | 78. Papeklik |
| 18. Mera Tempang Lima | 57. Temple for Ratu Ayu Nita Mawahan | 79. Bale Pamestean Agung |
| 19. Mera Tempang Sembilan | 58. Temple Ratu Ayu Tusan | 80. Bale Agung Pedukuhan Sela Lubang |
| 20. Polonggih Pamestean | 59. Temple for Ratu Mas Saki | 81. Bale Agung Pedukuhan Sela Lubang |
| 21. Polonggih Pamestean | 60. Temple for Ratu Banyan Saki | 82. Bale Parahum |
| 22. Mera Tempang Sembilan | 61. Temple for Ratu Ayu Karmal Bumi | 83. Agni Lawang |
| 23. Mera Tempang Tiga | 62. Pamestean | |
| 24. Mera Tempang Sembilan | | |
| 25. Batah Cih and | | |
| 26. Nawa-Sangka | | |
| 27. Wall | | |
| 28. Temporal Bale for Pades Wali Kraja | | |
| 29. Temporal Pias For Bale for Pias | | |
| 30. Temple for Ratu Ayu Pasdik | | |
| 31. Temple for Ratu Ayu Pungit | | |
| 32. Temple for Ratu Ayu Mling | | |
| 33. Temple for Ratu Ayu Snel Pungit | | |
| 34. Temple for Ratu Ayu Ketok Sari | | |



THE ARCHAEOLOGICAL
HERITAGE CONSERVATION OFFICE FOR
BALI, WEST NUSA TENGGARA AND
EAST NUSA TENGGARA PROVINCES

PURA ULUN DANAU BATUR

ICOMOS

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES
CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES
CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS
МЕЖДУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ

Mr. Patrick Surya Gunawan Hasjim
Chargé d'affaires
First Secretary
Permanent Delegation of the Republic of
Indonesia to UNESCO
Maison de l'UNESCO
Bureau M1.24
1, rue Miollis
75732 PARIS Cédex 15

Our Ref. GB/MA 1194rev

Paris, 9 December 2011

World Heritage List: Cultural Landscape of Bali Province: the Subak system as a Manifestation of the Tri Hita Karana Philosophy (Indonesia) – Additional information

Dear Sir,

ICOMOS is currently assessing the World Heritage nomination of Cultural Landscape of Bali Province: the Subak system as a Manifestation of the Tri Hita Karana Philosophy and we thank you for your assistance with the recent mission to the property.

As part of our evaluation process, the ICOMOS World Heritage Panel has now reviewed this nomination and identified a few areas where it considers that further information is needed.

Governing Assembly of Bali Cultural Heritage

From the information provided we understand that, as requested by the World Heritage Committee, a Management Plan has been approved that sets out in details a management system that aims to sustain traditional practices and deflect inappropriate development through a system of 'adaptive co-management by diverse stakeholders' modified to suit the Balinese context, and that this system of adaptive governance will connect individuals, organizations, agencies, and institutions at multiple organizational levels by means of a democratic Governing Assembly.

We further understand that Regulation of the Government of Bali No. 17, 2010 approved the creation of the Governing Assembly of Bali Cultural Heritage. This Decree sets out the composition of the Governing Assembly that includes representatives from different government departments and empowers subak community members to jointly undertake a major role in the management of the nominated sites.

At the time of the ICOMOS evaluation mission, it was understood that the Governing Assembly still had not officially begun its functions and that no definite date was being given for its start up.

ICOMOS would like to request information on when the Governing Assembly will become fully operational and also on whether the Assembly will have the responsibilities and resources as are set out in the Management Plan.

Management plan

Further we would request that you provide a time-frame for the first phase of the Action Plan that is set out in the Management Plan.

ICOMOS has no obligation to contact States Parties during the evaluation process. However, with a view to being as transparent as possible, ICOMOS has agreed to approach States Parties in specific cases. This does not prejudice the ICOMOS recommendation on the nomination and should be considered as preliminary information. It also does not prejudice the World Heritage Committee's decision.

We would be grateful if you could provide ICOMOS and the World Heritage Centre with the above information by **Tuesday 28 February 2012**.

We thank you in advance for your kind cooperation.

Yours faithfully



Regina Durighello
Director
World Heritage Programme

Copy to Junus Satrio Atmodjo, Director of Archaeological Heritage, Ministry of Culture and Tourism
I Ketut Suastika, Head of Cultural Office of Bali Province
UNESCO World Heritage Centre, Paris

Kantor Wakil Republik Indonesia
pada UNESCO

1, rue Miollis, 75732 Paris Cedex 15
FRANCE

Tel. : (33)(1) 45 68 29 72

Fax : (33)(1) 45 66 02 37

E-mail: dl.indonesia@unesco-delegations.org



Permanent Delegation
of the Republic of Indonesia
to UNESCO

Délégation Permanente
de la République d'Indonésie
auprès de l'UNESCO

Ref.: 52/KWRJU/II/2012

Date: February 27th, 2012

Mme. Regina Durighello
Director
ICOMOS World Heritage Program

Subject: Additional Information

Cultural landscape of Bali Province: the Subak system as a Manifestation of the Tri Hita Karana Philosophy (Indonesia).

I have the honor to convey the letter from Vice Minister for Culture, Ministry of Education and Culture, H.E Mrs. Wiendu Nuryanti, regarding the additional information requested on the nomination of the Cultural Landscape of Bali Province. We hope this additional information will assist as part of your evaluation process.

Accept Madame, the assurance of my highest consideration.

Your Sincerely,

A handwritten signature in blue ink, appearing to read 'Carmadi Machbub', written in a cursive style.

Carmadi Machbub
Permanent Delegation of the Republic Indonesia to UNESCO



MINISTRY OF EDUCATION AND CULTURE

Jalan Jenderal Sudirman, Senayan, Jakarta - Indonesia 10270

Phone: +62 21 5711144

Website: www.kemdiknas.go.id

24 February 2012

Ref. : 14152/A1.2/TU/2012

Subject : Additional Information

Regarding the Nomination of the Cultural Landscape of Bali Province

To: Mme. Regins Durighello
Director
ICOMOS World Heritage Unit

Dear Madam,

Referring to your letter Ref. GB/MA 1194 (rev) sent on 9 December 2011, we have the honour to send to you the additional information requested regarding the nomination of the Cultural Landscape of Bali Province to ICOMOS World Heritage Unit.

Accept Madam, the assurance of my highest consideration.

Yours sincerely,

Wiendu Nuryanti
Vice Ministry for Culture

Cc:

1. Ambassador of the Permanent Delegation of Indonesia to UNESCO
2. Director for UNESCO World Heritage Committee
3. Acting Director General of History and Archaeology
4. Head of National Commission of UNESCO Indonesia
5. Director for UNESCO Office in Jakarta

**RESPONSE TO ICOMOS
REGARDING
THE NOMINATION OF THE CULTURAL LANDSCAPE
OF BALI PROVINCE**

Compiled by:

Prof. Dr. I Wayan Windia (University of Udayana)
Dr. I Wayan Alit Artha Wiguna (Institute of Agriculture Technology Assessment
in Bali)
Wirawati Bagiasih (Culture Office of Bali Province)
Yunus Arbi, M.A. (Directorate of Archaeological Heritage)
Drh. I Made Iwan Dewantama, M.Si. (PT. Sekala)
Nonette Royo (The Samdhana Institute)
D.A. Wiwik Dharmiasih, S.IP., M.A. (University of Udayana)
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Staff of the Archaeological Heritage Conservation Office in Bali

**Ministry of Education and Culture
2012**

**RESPONSE TO ICOMOS
REGARDING
THE NOMINATION OF THE CULTURAL LANDSCAPE OF BALI PROVINCE**

Query

ICOMOS would like to request information on when the Governing Assembly will become fully operational and also on whether the Assembly will have the responsibilities and resources as are set out in the Management Plan.

Clarification

The Governing Assembly for Bali's Cultural Heritage was established by the Governor's Regulation No. 32 of 2010 and has since been fully operational. A fulltime staff has been appointed.

This year, the Governor's Regulation was renewed and activity budgets were approved and funded. The Governing Assembly is tasked with compilation of all programs toward full management of the Bali Heritage sites, which have been nominated for World Heritage status.

These sites include Supreme Water Temple Pura Ulun Danu and Lake Batur; Subak Landscape of Pakerisan Watershed; Subak Landscape of Catur Angga Batukaru; and Royal Water Temple of Pura Taman Ayun located in the five Regencies of Bangli, Gianyar, Tabanan, Buleleng, and Badung in Bali.

These programs are coordinated by the Governing Assembly in the implementation of the Management Plan.

Given the extent of the sites nominated for the World Heritage and its cross-sectoral management that involves national government, local government, and local community, it is necessary that an agreement is established between various parties in the implementation of the protection and management of the sites before it is designated as a World Heritage. It is also important to work with various stakeholders to implement the protection and management of the sites in the short and medium term.

The mandate to facilitate protection and enhancement of the World Heritage site through proper implementation of the management plan will be given to the Governing Assembly through a Memorandum of Understanding (MoU) signed by three parties.

These parties are the Ministry of Education and Culture; the Government of Bali Province; and Regency Governments of Bali (Regencies of Buleleng, Tabanan, Bangli, Badung, and Gianyar).

This MOU will be followed by a Letter of Cooperation (LOC) between the three parties that will further describe the shared roles and responsibilities of the Governing Assembly in the management of the sites.

In addition, the Governing Assembly is facilitating extension of the existing Tabanan Regency Tax Subsidies to the Subak farmers in all proposed World Heritage sites. This tax subsidy, a key benefit to the farmers, will be formalized by both the provincial and district tax systems.

With regard to staffing, the Governing Assembly of the Cultural Landscape of Bali has established and officially appointed appropriate members including a Secretariat and Working Units under the renewed Governor's Regulation of 2012 (still in progress of signing from the Governor of Bali). It has recently appointed also permanent staff that will work full time under the Secretariat as an Executive Secretary for a period of one year. In the near future, the permanent staff will work under multi-year contract.

To support the work of the Governing Assembly, an office has been established and equipped in the Bali Provincial Cultural Office.

Regular organizational meeting of the entire General Assembly are held once a month to clarify the rights and duties and to organize working group schedules. Through these meetings, the Governing Assembly will also ensure that financial support is available from government agencies, public sources, and private sector.

The Governing Assembly will establish legal status for each site including core and buffer zones through participatory mapping that will begin later this month and continue for a period of six months. The project will be fully funded by the Ministry of Education and Culture and supported by the Provincial Government of Bali.

These activities will include:

1. Consultation with owners and residents of the proposed core and buffer zones to determine the legal status of core and buffer zones;
2. Consultation meetings with all stakeholder to discuss land use regulations to be applied and enforced within the core and buffer zones;
3. Conducting a process to establish legal land use regulations for core and buffer zones through Spatial Planning that will be updated as National Strategic Areas for the conservation of critical cultural landscapes following National and Regional Spatial Planning laws;
4. Ongoing consultations with stakeholders.

Query

What is the timeframe of the First Phase of the Action Plan?

Clarification

Referring to the Management Plan of the nomination document, the work of the Governing Assembly for the First Phase of the Action Plan covers one year, so that for 2012 we will focus on five strategic priorities:

1. Livelihood protection and enhancement for *subak* institutions and their members as guardians of Bali's unique cultural landscape;
2. Conservation and promotion of ecosystem services to ensure sustainable use

of natural resources upon which *subak* and their farming systems depend;

3. Conservation of material culture to preserve and enhance the authenticity of sites and structures as a living manifestation of Bali's heritage;
4. Appropriate tourism development within the sites, to achieve a balance between public and visitor education, generation of tourism-based revenue, and conservation;
5. Infrastructure and facility development consistent with preservation and enhancement of the cultural landscape.

Livelihood protection and enhancement

To protect and enhance the livelihood of *subak* institutions and their members, the Governing Assembly will provide *subak* assistance in the form of technical assistance and financial aid for the amount of Rp 20,000,000 (*Indonesian rupiah* = US\$1 \$2200 @ approximately 9000 rp per US\$1 exchange rate) per *subak* to support *subak* transition to organic farming that. This subsidy will come from the Provincial Government of Bali through the Department of Culture of Bali Province. This assistance will be given to 17 *subaks* within the proposed sites for a period of one year.

Agricultural assistance will be prioritized for the development of roads, irrigation system within the sites, and water use and conservation. The program will be funded by relevant regencies through their regional budgets.

Further, the development of roads to the plantation and embankment in Bangli will be carried out and funded by the regencies through their regional budgets. The regencies will also provide a tomato processing machine to enhance agricultural facilities and infrastructure after harvesting. Community 'socialization' (*outreach and discussion*) on agriculture will also be conducted around Lake Batur.

Water use and conservation within the sites will be implemented through the making of a small water reservoir in Kedisan village in Bangli regency and the development of an irrigation system in Bangli and Gianyar regencies. Floating net-cages will be restored and fish healthcare posts will be built in order to enhance the program on aquaculture production,

Conservation and promotion of ecosystem services

To ensure sustainable use of natural resources upon which *subak* and their farming systems depend, the Governing Assembly will focus on water resource improvement and to build roads to support agriculture and livestock production. The sources to fund this program come from the Regional Budgets of relevant regencies and the National Budget.

Tabanan regency will develop and improve water resources and roads for agriculture and livestock production in their region within the proposed sites.

The Bureau of Agricultural Research and Technology Assessment will introduce a model study of aerobic rice intensification technology of organic materials. This will be based on a cattle integration system in the *subak* system and will be funded under the National Budget. Likewise, an integrated crop management field school-rice (*SLPTT-Padi*) and integrated farming system (*SIMANTRI*) will be conducted for a period of one year to support and improve farming systems under the National Budget.

Conservation of material culture

The preservation and enhancement of the authenticity of the sites and structures is carried out through programs of improvement and support for the physical activities of *subak*. The program will improve the irrigation systems, continue developing the existing irrigation systems, and restore damaged irrigation systems.

The conservation will also include the development of walls (*penyengker*) in Ulun Suwi temple, *Bale Gong* restoration, and continuing development of Bedugul temple's *senderan* whilst supporting physical activities of *subak*. The work carried in this program will be funded by relevant regencies through their Regional Budget.

The Government of Indonesia through its Ministry of Education and Culture will assist the assessment of cultural heritage within the nominated sites of Tabanan and Buleleng regencies and perform participatory mapping within the entire nominated sites. Referring to UU No. 11 of 2010 (Article 97) concerning Cultural Property, the Ministry will help the preparation of the Governing Assembly of the Cultural Landscape of Bali Landscape.

Appropriate tourism development

The Governing Assembly has established agreements with international advisers to achieve a balance between public and visitor education, generation of revenue based on tourism, and conservation. These agreements will maintain international support and develop networking for Bali Cultural Heritage.

To improve database collection, research and surveys will be conducted starting next month for a period of six months. This program will be funded by the Provincial Government of Bali). There will be improvement in site mapping to provide thematic maps, a program that will be supported by the community and will be carried out for a period of six months through participatory mapping. This program will also be funded from the Provincial Budget. Regency-funded research by the Bangli Regency Government will conduct a survey of the Lake Batur area to improve data on cultural resources in the region.

Furthermore, the Governing Assembly through the Government of Bali is planning to restore and improve the Subak Museum and its operations in Tabanan to provide an information and conservation centre to support Bali Cultural Heritage as a cultural gate of *subak* system. This work will be funded under the National Budget.

Infrastructure and facility development

Infrastructure and facility development that is consistent with preservation and enhancement of the cultural landscape is a top priority of the General Assembly.

Programs that are being conducted to achieve these goals include:

- The conservation of *subak* and sites within DAS Pakerisan;
- Subak roads improvement and maintenance;
- Rehabilitation of temples within sites;
- Reconstruction of hall (*wantilan*) in Taman Ayun;and,
- Provision of drinking water infrastructure.

Socialization programs for the local community in hygiene and sanitation to improve the health of the community within the sites begin with the installation of toilet units in Tabanan regency. The regency will also provide ambulance services and a health-care centre to support this program.

To manage the supply of clean water in Tabanan regency, the local government will develop water vessels and pipe connection two km in length. to a fresh water spring To help ensure a cleaner environment, permanent trash bins and provision of garbage carts will be provided to support the management of waste. As well, basin, trenches, and infiltration wells will be installed to support sewage disposal facilities in the region. A drainage system will also be built within and outside Batukaru temple.

Tabanan regency will introduce housing programs for poor people within the sites in the region that will be funded from their Regional Budget to improve the welfare of the local community.

Full details of each work plan are provided in *Annex: Governing Assembly for Bali's Cultural Heritage - 2012 Work Plan*

The entire work plan in 2012 will be monitored and evaluated by the Monitoring and Evaluation Unit in the Governing Assembly. The outcome will be used as recommendations for future planning of each working group at the end of the working year.

We trust that the above answers and information fully respond to the important points you raised in the letter dated 2 December 2011.

GOVERNING ASSEMBLY FOR BALI'S CULTURAL HERITAGE 2012 WORK PLAN

PROGRAM	ACTIVITY	NAME OF PROPERTY	WORKING UNIT	PURPOSE	PERIOD												EXPENDITURE (in Rupiah)	SOURCES
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Appointment of professional staff	Appointment of professional staf for Governing Assembly under the Bali Governor Regulation		Governing Assembly	To give legal basis of the Governing Assembly to conduct their roles based on 2012 work plan														
General organizational meeting	General organizational meeting of the entire General Assembly every once a month		Governing Assembly	To clarify their rights and duties and to organize working group schedules													59.800.000	PB
Meeting with Governor	Regular meeting with Governor		Governing Assembly	To clarify specific benefits to stakeholders (follow-up on verbal commitments) such as protection to agriculture under local regulation														
Socialization	Regular socialization with stakeholders and organizational meeting of Governing Assembly		Governing Assembly	Updated program in sharing roles and responsibilities and to coordinate 2012 work plan													160.000.000	PB
Organize working groups and schedules	Organize working groups and schedules		Governing Assembly	To share roles and responsibilities and to coordinate 2012 work plan													44.000.000	Samdhana Institute
Livelihood protection and enhancement	Subak assistance	17 subaks within proposed sites	Department of Culture of Bali	To support subak transition to organic farming													340.000.000	PB
	Agricultural assistance (<i>Jalan Usaha Tani</i>)	Bangli	Department of Agriculture, Department of Estate	To develop roads to the plantation and embankment													700.000.000	RB
	Small water reservoir (<i>embung</i>) construction	Kedisan, Bangli	Crops, Department of Animal Husbandry of Bangli Regency	To make small water reservoir in Kedisan village													200.000.000	RB
	People's plantations	Songan, Landih, Daup, Blantih		To construct Mung's irrigation system													200.000.000	RB
	Agricultural socialization			To implement socialization in agriculture around Lake Batur													20.000.000	RB
	Agricultural facilities and infrastructure after harvesting	Songan, Bangli		To provide tomato processing machine													In the form of a machine	RB
	Enhancement program on aquaculture production	Kedisan, Bangli	Department of Animal Husbandry and aquaculture of Bangli Regency	To restore the floating net cages (<i>Keramba Jaring Apung - KJA</i>)													15.000.000	RB
					To build fish healthcare post												180.000.000	RB
	Irrigation developments	Gianyar	Department of Agriculture of Gianyar Regency	To develop irrigation system													75.000.000	RB
Conservation of material culture	Irrigation system improvement and support for physical activities of subak	Subak Jatiluwih, Jatiluwih	Department of Revenue and <i>Pasedahan Agung</i> of Tabanan Regency	To improve irrigation system and to support physical activities of subak Jatiluwih in Br. Jatiluwih Kangin													25.000.000	RB
		Subak Kedampak, Mengesta		To improve irrigation system and to support physical activities of subak Kedampak in Br. Belulang													23.000.000	RB
		Subak Piling, Mengesta		To improve irrigation system and to support physical activities of subak Piling in Br. Piling Kawan													23.000.000	RB

PROGRAM	ACTIVITY	NAME OF PROPERTY	WORKING UNIT	PURPOSE	PERIOD												EXPENDITURE (in Rupiah)	SOURCES	
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
		Subak Keloncing, Wongaya Gede		To develop walls (<i>penyengker</i>) and to support physical activities of subak Keloncing in Br. Wongaya Kelod														25.000.000	RB
		Subak Penatahan, Penatahan		To develop walls (<i>penyengker</i>) in Ulun Suwi temple and to support physical activities of subak Penatahan in Br. Penatahan Kelod														23.000.000	RB
		Subak Wangaya Betan, Mengesta		To develop walls (<i>penyengker</i>) in Ulun Suwi temple and to support physical activities of subak Wangaya Betan in Br. Wangaya Betan														23.000.000	RB
		Subak Pesagi, Pesagi		To develop subak hall and to support physical activities of subak Pesagi in Br. Kuum Kelod														23.000.000	RB
		Subak Tegalinggah, Tegalinggah		To continue the development of subak hall and to support physical activities of subak Tegalinggah in Br. Tatag														23.000.000	RB
		Subak Piak, Wongaya Gede		To continue the development of irrigation system and to support physical activities of subak Piak in Br. Sandan														23.000.000	RB
		Subak Tengkidak, Tengkidak		To restore the irrigation system and to support physical activities of subak Tengkidak in Br. Denuma														23.000.000	RB
		Subak Puakan, Tengkidak		To restore <i>Bole Gang</i> and to support physical activities of subak Puakan in Br. Puluk-Puluk														23.000.000	RB
		Subak Rejasa, Rejasa		To harden the subak roads and to support physical activities of subak Rejasa in Br. Rejasa Kelod														23.000.000	RB
		Subak Sangketan, Sangketan		To continue the development of Bedugul temple's <i>senderan</i> and to support physical activities of subak Sangketan in Br. Sangketan														23.000.000	RB
	Cultural Heritage assessment in the Catur Angga site	Tabanan	The Conservation of Archaeological Heritage Office (BP3)	To assess cultural heritage within the nominated sites in Tabanan and Buleleng regencies														75.000.000	NB
		Buleleng																	
	Social participatory mapping	Within the nominated property	Ministry of Education and Culture	To conduct social participatory mapping within the nominated property														1.000.000.000	NB
	Preparation Board of Management of the Cultural Landscape of Bali Landscape			To prepare the Board of Management of the Cultural Landscape of Bali Landscape by the Ministry of Education and Culture as refer to IJU No. 11 of 2010 article 97 concerning Cultural Property														500.000.000	NB
Conservation and promotion of ecosystem services	Water resources improvement	Penatahan, Periebel	Department of Animal Husbandry of	To develop water resources <i>KTT Karya Nondini</i> in Br. Tegayang, Penatahan														60.000.000	RB

PROGRAM	ACTIVITY	NAME OF PROPERTY	WORKING UNIT	PURPOSE	PERIOD												EXPENDITURE (in Rupiah)	SOURCES	
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
		Penebel	Tabanan Regency	To develop water resources <i>KTT Merta Sedana</i> in Br. Sangketan, Penebel													60.000.000	RB	
	Agricultural roads	Penebel		To build agricultural roads <i>KTT Kuum Linggah</i> in Br. Wongaya Gede, Penebel												1.000.000.000	RB		
		Mengesta, Penebel		To build agricultural roads <i>KTT Werdi Putra</i> in Br. Piling, Mengesta															
	Livestock production roads	Wongaya Gede, Penebel		To build livestock production roads <i>KTT Batur Cempaka</i> in Br. Bengkel, Penebel												200.000.000	RB		
		Penatahan, Penebel		To build livestock production roads <i>KTT Elang Buana</i> in Penatahan, Penebel															
	Model study of aerobic rice intensification technology	Subak Jatiluwih, Penebel	Assessment Institute for Agricultural Technology	To build a model study of aerobic rice intensification technology of organic materials based on cattle integration system in subak ecosystem in Bali												120.000.000	RB		
	Integrated crop management field school-rice (<i>Sekolah Lapang Pengelolaan Tanaman Terpadu-Padi (SLPTT-Padi)</i>)	Subak Jatiluwih, Tabanan	Department of Agriculture of Bali Province													7.400.000	RB		
		Subak Penatahan, Tabanan														7.400.000			
		Subak Pesagi, Tabanan														11.100.000			
		Subak Piling, Tabanan														7.400.000			
		Subak Puakan, Tabanan														7.400.000			
		Subak Rejasa, Tabanan														7.400.000			
		Subak Sangketan, Tabanan														3.700.000			
		Subak Tegallinggah, Tabanan														7.400.000			
		Subak Tengkidak, Tabanan														7.400.000			
		Subak Wongaya Betan, Tabanan														3.700.000			
		Subak Pulagan, Gianyar														3.700.000			
		Subak Kulub, Gianyar														3.700.000			
		Integrated farming system (<i>Sistem Pertanian Terintegrasi - SIMANTRI</i>)		Penatahan, Tabanan														200.000.000	PB
				Tengkidak, Tabanan														200.000.000	
	Rejasa, Tabanan														200.000.000				
Appropriate tourism development	Establish consultancy agreements with international advisers		Governing Assembly	To maintain international supports and develop networking for Bali Cultural Heritage															
	Database improvements		Governing Assembly	To improve database collection												45.200.000	PB		

PROGRAM	ACTIVITY	NAME OF PROPERTY	WORKING UNIT	PURPOSE	PERIOD												EXPENDITURE (in Rupiah)	SOURCES
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
	Sites mapping improvements		Governing Assembly	To provide thematic maps supported by the community (participatory mapping)													85.000.000	PB
	Improvement of Subak Museum and its function as information and conservation centre	Subak Museum, Tabanan	Department of Culture of Bali Province	To functioning Subak Museum to support Bali Cultural Heritage as a cultural gate of subak system													1.100.000.000	MB
	Research on cultural resources	Lake Batur, Kintamani	Archeology Office of the Government of Indonesia in Denpasar	To perform survey in Lake Batur on cultural resources													81.200.000	MB
Infrastructure and facility development	Infrastructure and facility developments	DAS Pakerisan	Department of Culture of Gianyar Regency	To conserve subak and sites within DAS Pakerisan													50.000.000	RB
	Roads maintenance	Gianyar	Department of Public Works of Gianyar Regency	To reconstruct and preserve infrastructure such as roads in Gianyar													100.000.000	RB
	Reconstruction of Taman Ayun's hall (<i>wantilan</i>)	Taman Ayun	Department of Creative Works of Badung Regency (<i>Dinas Cipta Karya</i>)	To reconstruct Taman Ayun's hall													2.865.000.000	RB
	Documentation of Taman Ayun reconstruction			To provide visual and non-visual documentation of Taman Ayun reconstruction													150.000.000	RB
	Crossing facilities	Lake Batur, Kintamani	Department of Transportation of	To provide boat for crossing facilities in Lake Batur													35.000.000	RB
	Dock maintenance	Kedisan, Bangli	Bangli Regency	To maintain the dock in Kedisan													113.174.000	RB
	Provision of drinking water infrastructure	Wongaya Gede, Penebel	Department of Public Works of Tabanan Regency	To provide drinking water infrastructure in Wongaya Gede village													341.101.000	RB
		Tegal Linggah Pondok		To provide drinking water infrastructure in Tegal Linggah Pondok													99.500.000	RB
	Road improvements	Subak Kekeran		To improve the road in subak Kekeran, Penatahan village													50.000.000	RB
		Br. Tingkih Kerep, Tengkidak		To improve Tingkih Kerep's roads													70.000.000	RB
	Environment road (<i>boag duiker</i>) construction	Br. Bongli, Sangketan		To build environment road (<i>jalan lingkungan</i>) on Bongli's road													65.000.000	RB
	Subak roads improvement	Subak Pesagi		To improve the roads in subak Pesagi													100.000.000	RB
	Socialization on hygiene and sanitation		Departement of Health of Tabanan Regency	To socialize hygiene and environment sanitation													9.000.000	RB
	Development and improvement of basic sanitation			To develop 5 units of WC (toilet)													125.000.000	RB
	Clean water management			To build 2 units of water vessel and pipe connection to spring for 2 km													882.000.000	RB
Waste management			To provide 4 units of garbage cart and 2 units of permanent trash bin													64.000.000	RB	
Sewage disposal facilities			To provide 2 units of basin and 2 trenches and infiltration well													76.000.000	RB	
Drainage			To create drainages within and outside Batukaru temple													200.000.000	RB	

PROGRAM	ACTIVITY	NAME OF PROPERTY	WORKING UNIT	PURPOSE	PERIOD												EXPENDITURE (in Ruplah)	SOURCES
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
	Provision of ambulance			To provide ambulance													300.000.000	RB
	Healthcare Centre			To provide healthcare centre													150.000.000	RB
	Temples rehabilitation	Pucak Petali temple in Tabanan	Department of Public Works of Bali	To rehabilitate Pucak Petali temple													100.000.000	PB
		Besi Kalung temple in Tabanan	Province	To rehabilitate Besi Kalung temple													100.000.000	PB
		Tambawaras temple in Penebel, Tabanan		To rehabilitate Tambawaras temple													50.000.000	PB
		Ulun Danu Batur temple in Bangli		To rehabilitate Ulun Danu Batur temple													100.000.000	PB
	Housing improvement	Mengesta	Department of Social Affairs of Tabanan	To build 4 units of house for poor people													80.000.000	RB
		Penatahan	Regency	To build 3 units of house for poor people													60.000.000	RB
		Sangkanan		To build 5 units of house for poor people													120.000.000	RB
Monitoring and evaluation			Governing Assembly	To evaluate current activities and to provide recommendation for future planning														

Head of Culture Office of Bali Province
Acting Chairman of Governing Assembly

I Ketut Suastika, S.H.



United Nations
Educational, Scientific and
Cultural Organization

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Organización
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منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

The Culture Sector World Heritage Centre

H. E. Mr Rezlan Ishar Jenie
Ambassador
Permanent Delegation of Indonesia
to UNESCO
UNESCO House

Ref: CLT/WHC/PSM/12/LJ/APA/224 16 August 2012

Subject: **Inscription of *Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana Philosophy* (C 1194 Rev), Indonesia, on the World Heritage List**

Sir,

I have the pleasure to inform you that the World Heritage Committee, at its 36th session (Saint Petersburg, Russian Federation, 24 June – 6 July 2012), examined the nomination of the ***Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana Philosophy*** and decided to **inscribe** the property on the World Heritage List. The decision of the Committee concerning the inscription is attached.

I am confident that your government will take the necessary measures for the effective conservation of this new World Heritage property. The World Heritage Committee and its Secretariat, the World Heritage Centre, will do everything possible to collaborate with you in these efforts.

The *Operational Guidelines for the Implementation of the World Heritage Convention* (paragraph 168), request the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map and inform us of any discrepancies in the information by **1 December 2012**.

The inscription of the property on the World Heritage List is an excellent opportunity to draw the attention of visitors to, and remind local residents of, the *World Heritage Convention* and the outstanding universal value of the property. To this effect, you may wish to place a plaque displaying the World Heritage emblem and the UNESCO logo at the property. You will find suggestions on this subject in the *Operational Guidelines for the Implementation of the World Heritage Convention*.

In many cases States Parties decide to hold a ceremony to commemorate the inscription of a property on the World Heritage List. Upon request to the World Heritage Centre by the State Party, a World Heritage Certificate can be prepared for such an occasion.

I would be grateful if you could provide me with the name, address, telephone and fax numbers and e-mail address of the person or institution responsible for the management of the property so that we may send them World Heritage publications.

Please find attached the brief descriptions of your site, prepared by ICOMOS and the World Heritage Centre, in both English and French. As these brief descriptions will be used in later publications, as well as on the World Heritage website, we would like to have your full concurrence with their wording. Please examine these descriptions and inform us, by **1 December 2012** at the latest, if there are changes that should be made. If we do not hear from you by this date, we will assume that you are in agreement with the text as prepared.

Furthermore, as you may know, the World Heritage Centre maintains a website at <http://whc.unesco.org/>, where standard information about each property on the World Heritage List can be found. Since we can only provide a limited amount of information about each property, we try to link our pages to those maintained by your World Heritage property or office, so as to provide the public with the most reliable and up-to-date information. If there is a website for the newly inscribed property, please send us its web address.

All the Decisions adopted by the 36th session of the World Heritage Committee are available at the following web address of the World Heritage Centre: <http://whc.unesco.org/archive/2012/whc12-36com-19e.pdf>.

As you know, according to paragraph 172 of the *Operational Guidelines for the Implementation of the World Heritage Convention*, the World Heritage Committee invites the States Parties to the *Convention* to inform the Committee, through the World Heritage Centre, of their intention to undertake or to authorize in the area protected under the *Convention* major restorations or new constructions which may affect the outstanding universal value of the property.

May I take this opportunity to thank you for your co-operation and for your support in the implementation of the *World Heritage Convention*.

Please accept, Sir, the assurances of my highest consideration.


Kishore Rao
Director

cc: National Commission of Indonesia for UNESCO
ICOMOS
UNESCO Office in Jakarta

Decision: 36 COM 8B.26

The World Heritage Committee,

1. Having examined Documents WHC-12/36.COM/8B and WHC-12/36.COM/INF.8B1,
2. Inscribes the **Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana Philosophy, Indonesia**, on the World Heritage List as a cultural landscape on the basis of **criteria (iii), (v) and (vi)**;
3. Adopts the following Statement of Outstanding Universal Value:

Brief synthesis

A line of volcanoes dominate the landscape of Bali and have provided it with fertile soil which, combined with a wet tropical climate, make it an ideal place for crop cultivation. Water from the rivers has been channelled into canals to irrigate the land, allowing the cultivation of rice on both flat land and mountain terraces.

Rice, the water that sustains it, and *subak*, the cooperative social system that controls the water, have together shaped the landscape over the past thousand years and are an integral part of religious life. Rice is seen as the gift of god, and the *subak* system is part of temple culture. Water from springs and canals flows through the temples and out onto the rice paddy fields. Water temples are the focus of a cooperative management of water resource by a group of *subaks*. Since the 11th century the water temple networks have managed the ecology of rice terraces at the scale of whole watersheds. They provide a unique response to the challenge of supporting a dense population on a rugged volcanic island.

The overall *subak* system exemplifies the Balinese philosophical principle of *Tri Hita Karana* that draws together the realms of the spirit, the human world and nature. Water temple rituals promote a harmonious relationship between people and their environment through the active engagement of people with ritual concepts that emphasise dependence on the life-sustaining forces of the natural world.

In total Bali has about 1,200 water collectives and between 50 and 400 farmers manage the water supply from one source of water. The property consists of five sites that exemplify the interconnected natural, religious, and cultural components of the traditional *subak* system, where the *subak* system is still fully functioning, where farmers still grow traditional Balinese rice without the aid of fertilisers or pesticides, and where the landscapes overall are seen to have sacred connotations.

The sites are the Supreme Water Temple of Pura Ulun Danu Batur on the edge of Lake Batur whose crater lake is regarded as the ultimate origin of every spring and river, the *Subak* Landscape of the Pakerisan Watershed the oldest known irrigation system in Bali, the *Subak* Landscape of Catur Angga Batukaru with terraces mentioned in a 10th century inscription making them amongst the oldest in Bali and prime examples of Classical Balinese temple architecture, and the Royal Water temple of Pura Taman Ayun, the largest and most architecturally distinguished regional water temple, exemplifying the fullest expansion of the *subak* system under the largest Balinese kingdom of the 19th century.

Subak components are the forests that protect the water supply, terraced paddy landscape, rice fields connected by a system of canals, tunnels and weirs, villages, and temples of varying size and importance that mark either the source of water or its passage through the temple on its way downhill to irrigate *subak* land.

Criterion (iii): The cultural tradition that shaped the landscape of Bali, since at least the 12th century, is the ancient philosophical concept of *Tri Hita Karana*. The congregations of water

temples, that underpin the water management of the *subak* landscape, aim to sustain an harmonious relationship with natural and spiritual world, through an intricate series of rituals, offerings and artistic performances.

Criterion (v): The five landscapes within Bali are an exceptional testimony to the *subak* system, a democratic and egalitarian system focused on water temples and the control of irrigation that has shaped the landscape over the past thousand years. Since the 11th century the water temple networks have managed the ecology of rice terraces at the scale of whole watersheds. They provide a unique response to the challenge of supporting a dense population on a rugged volcanic island that is only extant in Bali.

Criterion (vi): Balinese water temples are unique institutions, which for more than a thousand years have drawn inspiration from several ancient religious traditions, including Saivasiddhanta and Samkhyā Hinduism, Vajrayana Buddhism and Austronesian cosmology. The ceremonies associated with the temples and their role in the practical management of water together crystallise the ideas of the *Tri Hita Karana* philosophy that promotes the harmonious relationship between the realms of the spirit, the human world and nature. This conjunction of ideas can be said to be of outstanding significance and directly manifest in the way the landscape has developed and is managed by local communities within the *subak* system.

Integrity

The property fully encompasses the key attributes of the *subak* system and the profound impact that it has had on the landscape of Bali. The processes that shaped the landscape, in the form of irrigated, terraced agriculture organised by the *subak* system, are still vibrant and resilient. The agricultural areas are all still farmed in a sustainable way by local communities and their water supplies are democratically managed by the water temples.

None of the component parts is under threat but the terraced landscape is highly vulnerable to a range of social and economic changes, such as changes in agricultural practices and increasing tourism pressures. The management system will need to provide support to sustain the traditional systems and to provide benefits that will allow farmers to stay on the land.

Furthermore the setting of the various sites is fragile and under pressure from development particularly associated with tourism. The visual setting for the five sites extends beyond the boundaries and in many instances beyond the buffer zones. In a few cases some adverse development has already occurred. It will be essential to protect the wider context of the sites to avoid further loss of visual integrity. The management of water is also a critical element in maintaining the visual quality of the property.

Authenticity

The authenticity of the terraced landscapes, forests, water management structures, temples and shrines in terms of the way they convey Outstanding Universal Value and reflect the *subak* system is clear.

The overall interaction between people and the landscape is however highly vulnerable and, if the sites are still to reflect the harmonious relationship with the spiritual world and the ancient philosophical concept of *Tri Hita Karana*, it will be essential for the management system to offer positive support.

The village buildings have to a degree lost some of their authenticity in terms of materials and construction, although they are still functionally linked to the landscape.

Protection and management requirements

The broad legal framework for the protection of the property was established by Provincial Decree of 2008 for conservation and spatial planning for the proposed sites. A specific legal framework for the areas has been established by a Memorandum of Understanding between the Government of Bali and Regencies of Bali for the Establishment of the Strategic Area of Bali. This agreement legally codifies conservation and spatial planning for the five sites, including tangible and intangible heritage and agricultural and forest ecosystems within the

site boundaries. The Provincial Decree is based on National Law No. 26/2007, and National Government Decree No. 26/2008, concerning spatial planning and the establishment of National Strategic Areas for conservation of critical cultural landscapes.

Most *subaks* possess written legal codes, called *awig-awig*, which detail the rights and responsibilities of *subak* membership. *Awig-awig*, or traditional customary laws and regulations, including *subak* management and the traditional protection and conservation of cultural properties are covered by regulations of Bali Province Number 5 (2005) Section 19, that clarify zoning for protected sacred sites such as temples, based on local *awig-awig*. Rice terraces within the sites are also protected against large-scale tourism development by Tabanan Regency Decree No 9/2005. The temples and archaeological sites are currently protected under National Law No.5/1992 concerning Items of Cultural Heritage. The component sites are designed as Strategic Areas which may receive unusual levels of support from the Provincial Government.

A Management Plan has been adopted by the Provincial Government of Bali. This Plan puts in place a management system that aims to sustain traditional practices and deflect inappropriate development. The uses established management principles of 'adaptive co-management by diverse stakeholders' and modifies these to suit the Balinese context. It connects individuals, organisations, agencies, and institutions at multiple organizational levels by means of a democratic Governing Assembly.

Regulation of the Government of Bali No. 17, 2010 approved the creation of the Governing Assembly of Bali Cultural Heritage. This Decree sets out the composition of the Governing Assembly that includes representatives from different government departments and empowers *subak* community members to jointly undertake a major role in the management of the sites. To foster links between Ministries with an interest in the property, two inter-Ministerial Committees have been put in place, under the Coordination of the Ministry for People's Welfare.

All of the properties and their component parts are living sites still in heavy and continuous use by the local community. These sites are communally maintained by the *subak* system in the traditional manner. Temple maintenance is in the hands of the community who traditionally contribute funds and materials, and also volunteer labour for routine conservation measures that are carried out in cooperation with the local government and the Archaeological Office for Bali-NTB-NTT Province who provide the necessary expertise.

To sustain the living landscape ways will need to be found to provide more support to support the traditional systems and to provide benefits that will allow farmers to stay on the land. The protection of the setting of the landscapes will also be essential in order to protect the source of water that underpins the *subak* system.

4. Recommends that the State Party give consideration to the following:
 - a) Adapting the buffer zone boundaries to landscape features, and particularly watersheds, through detailed studies,
 - b) Elaborating a disaster preparedness plan,
 - c) Developing detailed monitoring indicators,
 - d) Creating low-key site specific information to raise awareness of the *subak* system,
 - e) Promoting traditional building practices for village houses.

Surface and coordinates of the property inscribed on the World Heritage List by the 36th session of the World Heritage Committee (Saint Petersburg, 2012) in accordance with the *Operational Guidelines*.

Indonesia				
C 1194 Rev Cultural Landscape of Bali Province: the <i>Subak</i> System as a Manifestation of the <i>Tri Hita Karana</i> Philosophy				
Serial ID No.	Name	Property	Buffer zone	Centre point coordinates
1194rev-001	Supreme Water Temple Pura Ulun Danu Batur	1.4	31.1	S8 15 17 E115 20 10
1194rev-002	Lake Batur	1606.4	210	S8 15 33 E115 24 10
1194rev-003	Subak Landscape of Pakerisan Watershed	529.1	188.0	S8 25 46 E115 18 44
1194rev-004	Subak Landscape of Catur Angga Batukaru	17376.1	974.4	S8 20 37 E115 07 20
1194rev-005	Royal Water Temple Pura Taman Ayun	6.9	51.3	S8 32 31 E115 10 21
TOTAL		19 519.9	1 454.8	

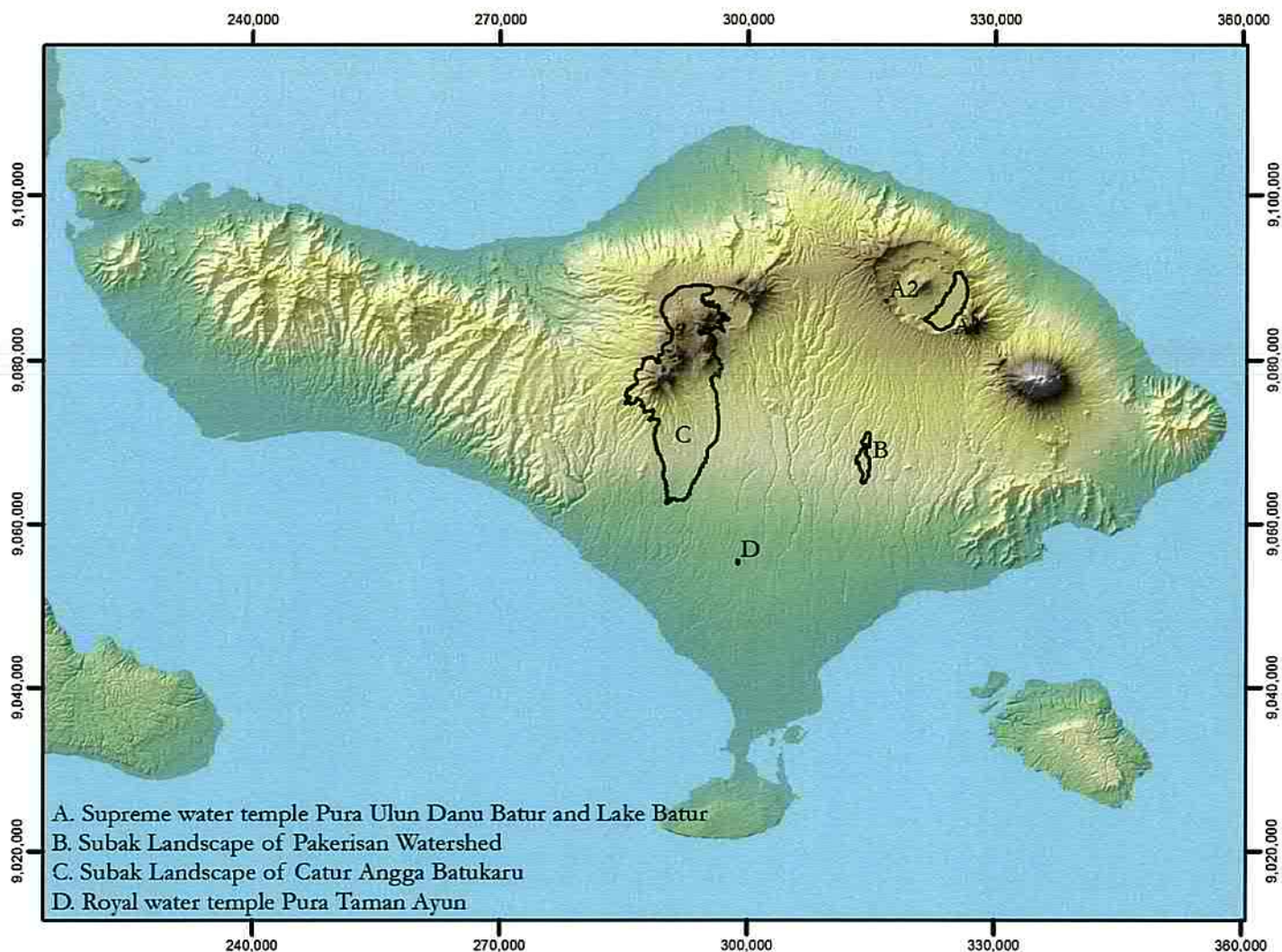
Brief Description in English

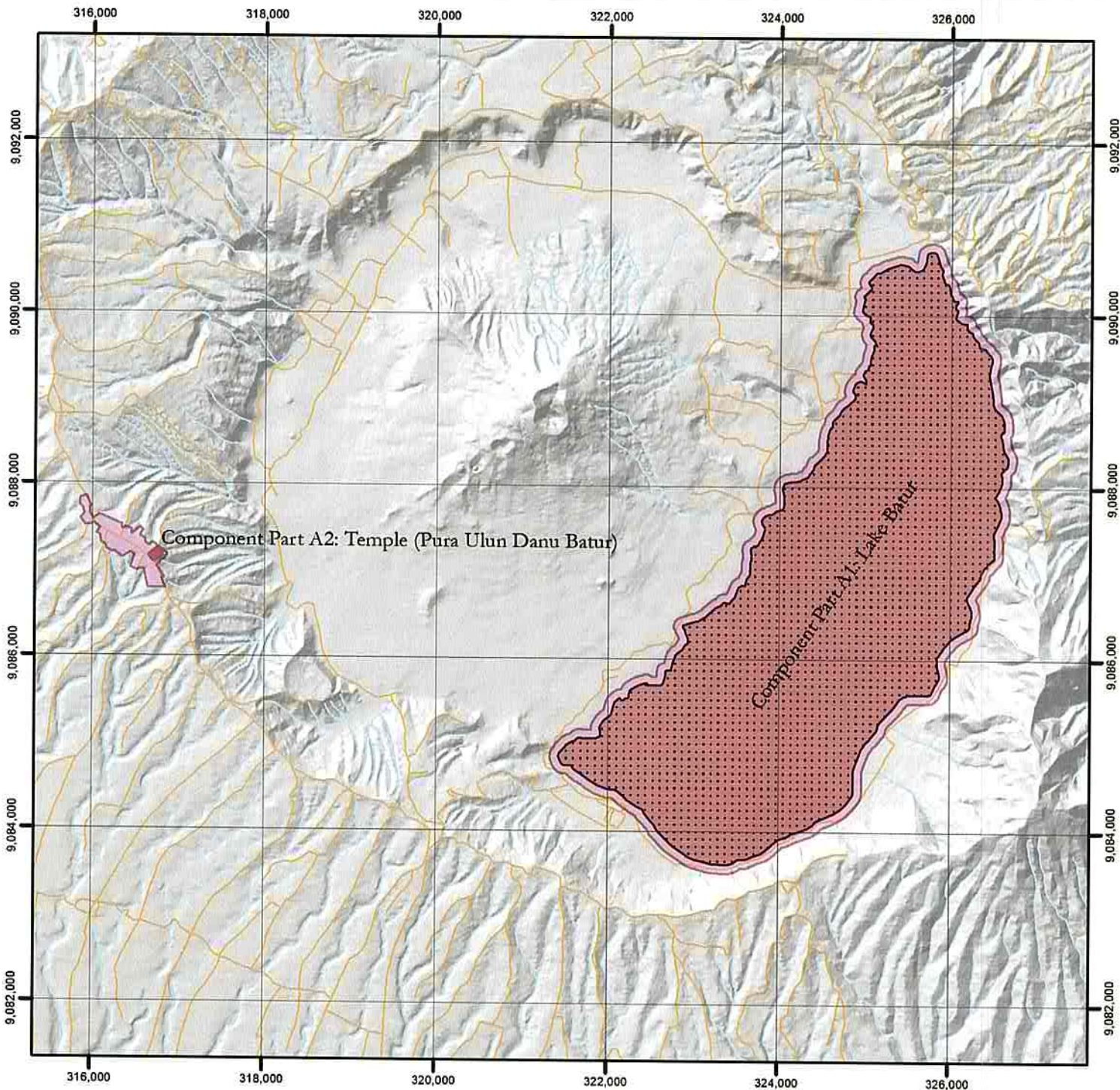
The cultural landscape of Bali consists of five rice terraces and their water temples that cover 19,500 ha. The temples are the focus of a cooperative water management system of canals and weirs, known as subak, that dates back to the 9th century. Included in the landscape is the 18th-century Royal Water Temple of Pura Taman Ayun, the largest and most impressive architectural edifice of its type on the island. The subak reflects the philosophical concept of Tri Hita Karana, which brings together the realms of the spirit, the human world and nature. This philosophy was born of the cultural exchange between Bali and India over the past 2,000 years and has shaped the landscape of Bali. The subak system of democratic and egalitarian farming practices has enabled the Balinese to become the most prolific rice growers in the archipelago despite the challenge of supporting a dense population.

Brief Description in French

Étalé sur 19 500 hectares, le paysage culturel de Bali comprend cinq rizières en terrasses et des temples d'eau qui illustrent le système des subak, une institution coopérative de gestion de l'eau par des canaux et des barrages qui remonte au IXe siècle. On y trouve aussi le temple d'eau royal Pura Taman Ayun, datant du XVIIIe siècle, le plus grand de Bali mais aussi le plus original du point de vue architectural. Le subak reflète le concept philosophique de Tri Hita Karana qui vise à une relation harmonieuse entre les domaines de l'esprit, du monde humain et de la nature. Cette philosophie, issue de l'échange culturel existant entre l'Inde et Bali depuis plus de deux mille ans, a façonné le paysage de Bali. Le système subak recouvre des pratiques agricoles démocratiques et égalitaires qui ont permis aux habitants de Bali de devenir les plus efficaces producteurs de riz de tout l'archipel, malgré la pression d'une grande densité de population.

Index Map of the Cultural Lanscapes of Bali







Map 001.1
 A. Supreme water temple Pura
 Ulun Danu Batur and Lake Batur

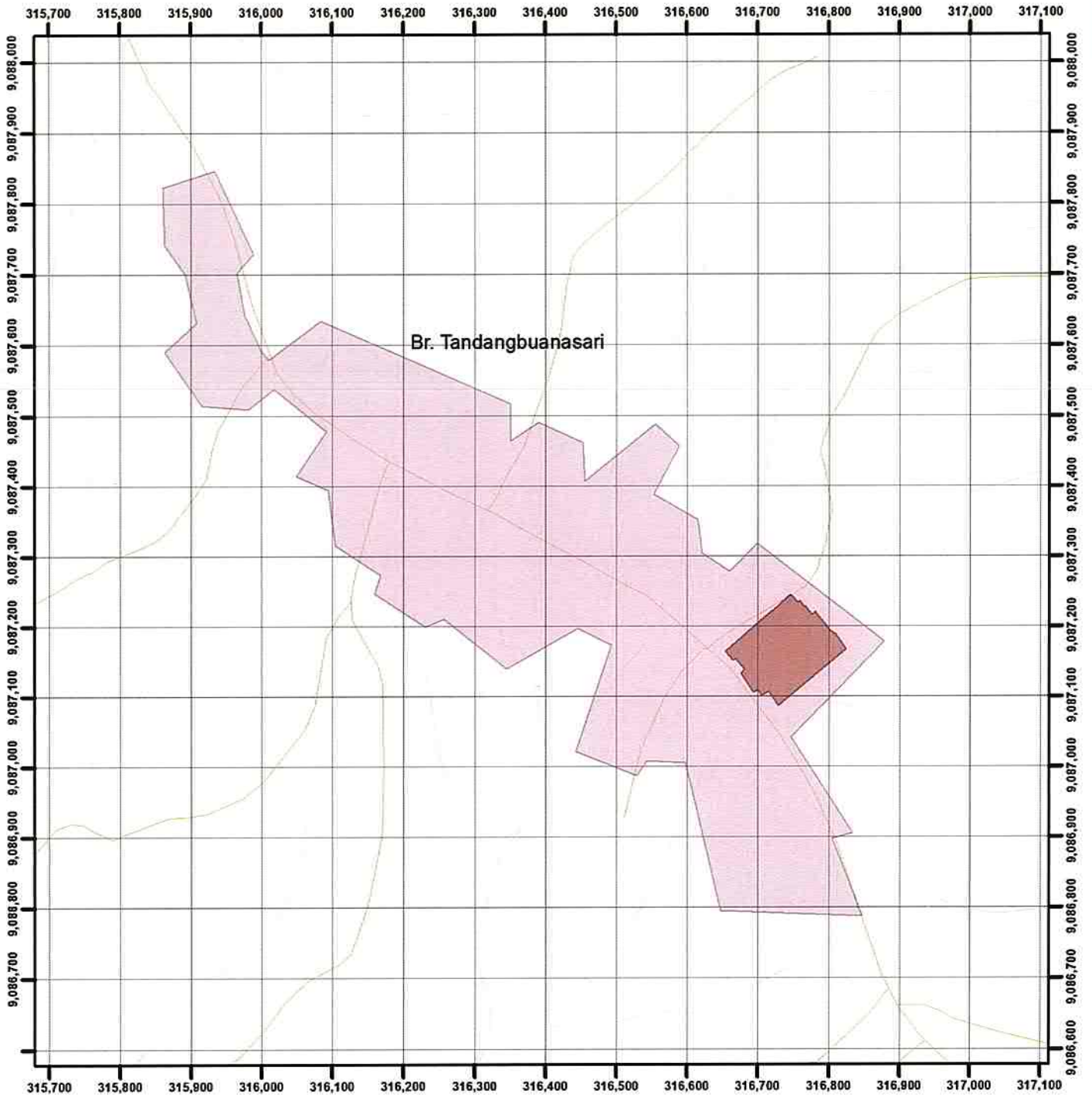
For general reference only.
 Not intended for navigation or
 exact boundary delineation.
 Please refer to A0-sized maps.

- Nominated property
- Buffer
- Water body
- Roads
- Streams

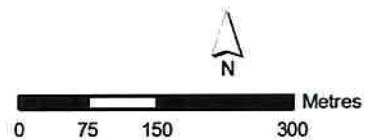

 Metres


Hillshade derived from 1:25,000 contour data
 Projection: Universal Transverse Mercator
 Horizontal datum: WGS 1984
 Zone: 50 south
 Units: metres

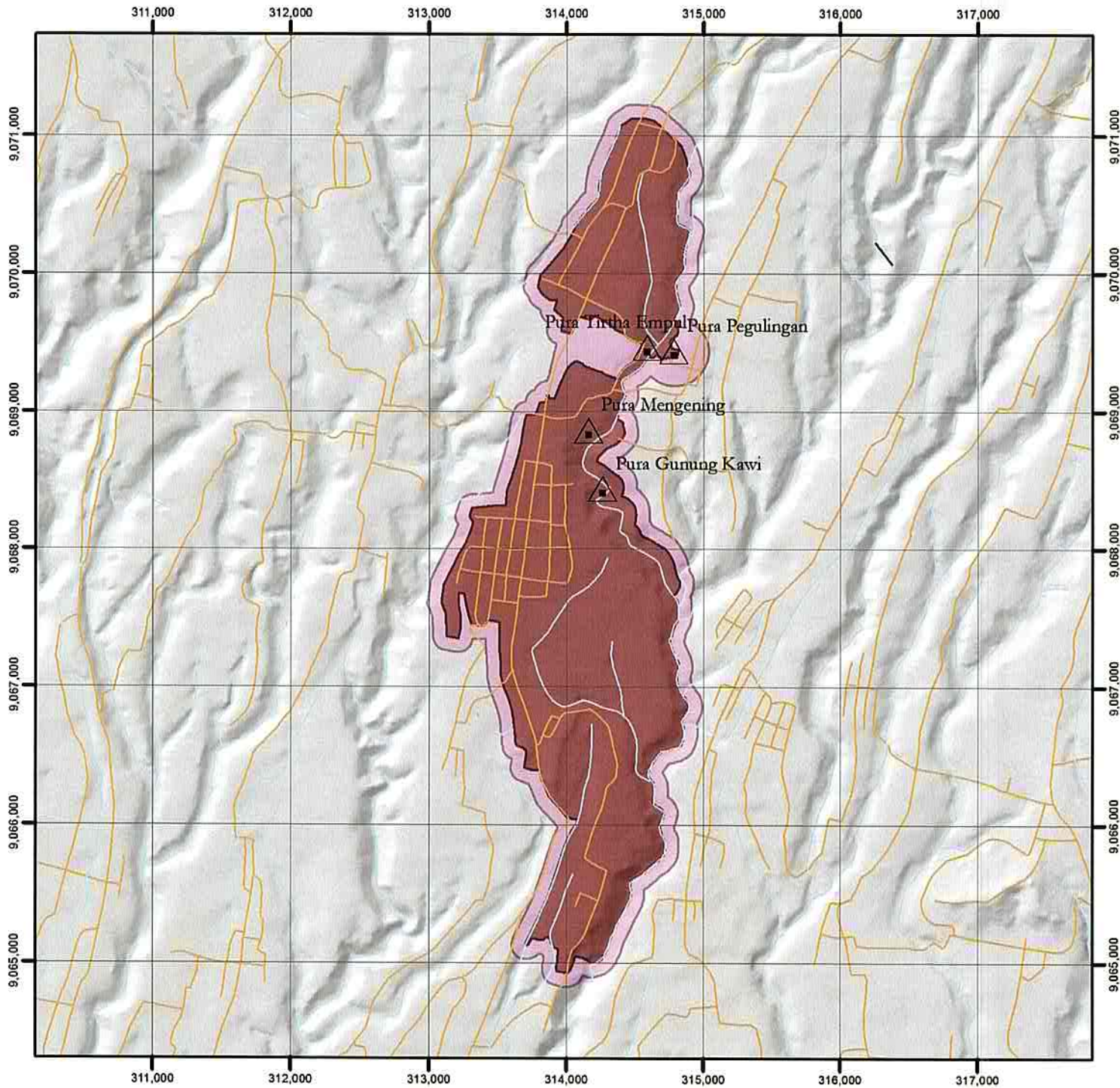
Map 001.3
Component Part A2: Temple (Pura Ulun Danu Batur)



- Nominated property
- Buffer
- Roads
- Streams



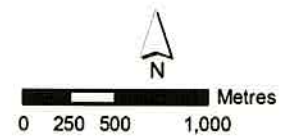
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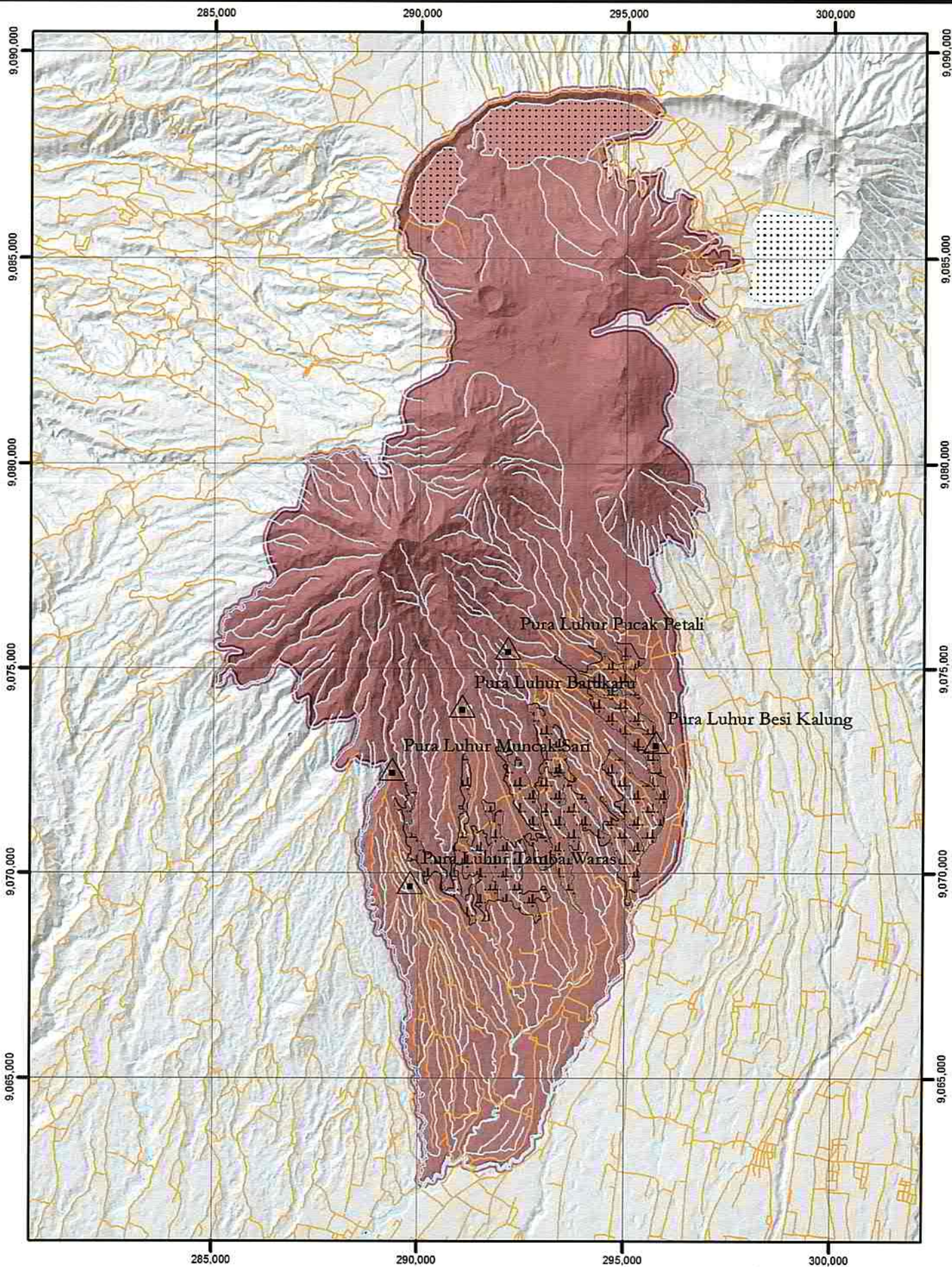
Map 002.1
Component Part B1: Subak
Landscape of Pakerisan
Watershed

For general reference only.
 Not intended for navigation or
 exact boundary delineation.
 Please refer to A1-sized maps.

-  Temple
-  Nominated property
-  Buffer
-  Road
-  Stream










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 Zone: 50 south
 Units: metres

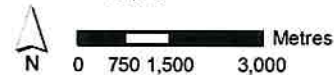


Map 003.1

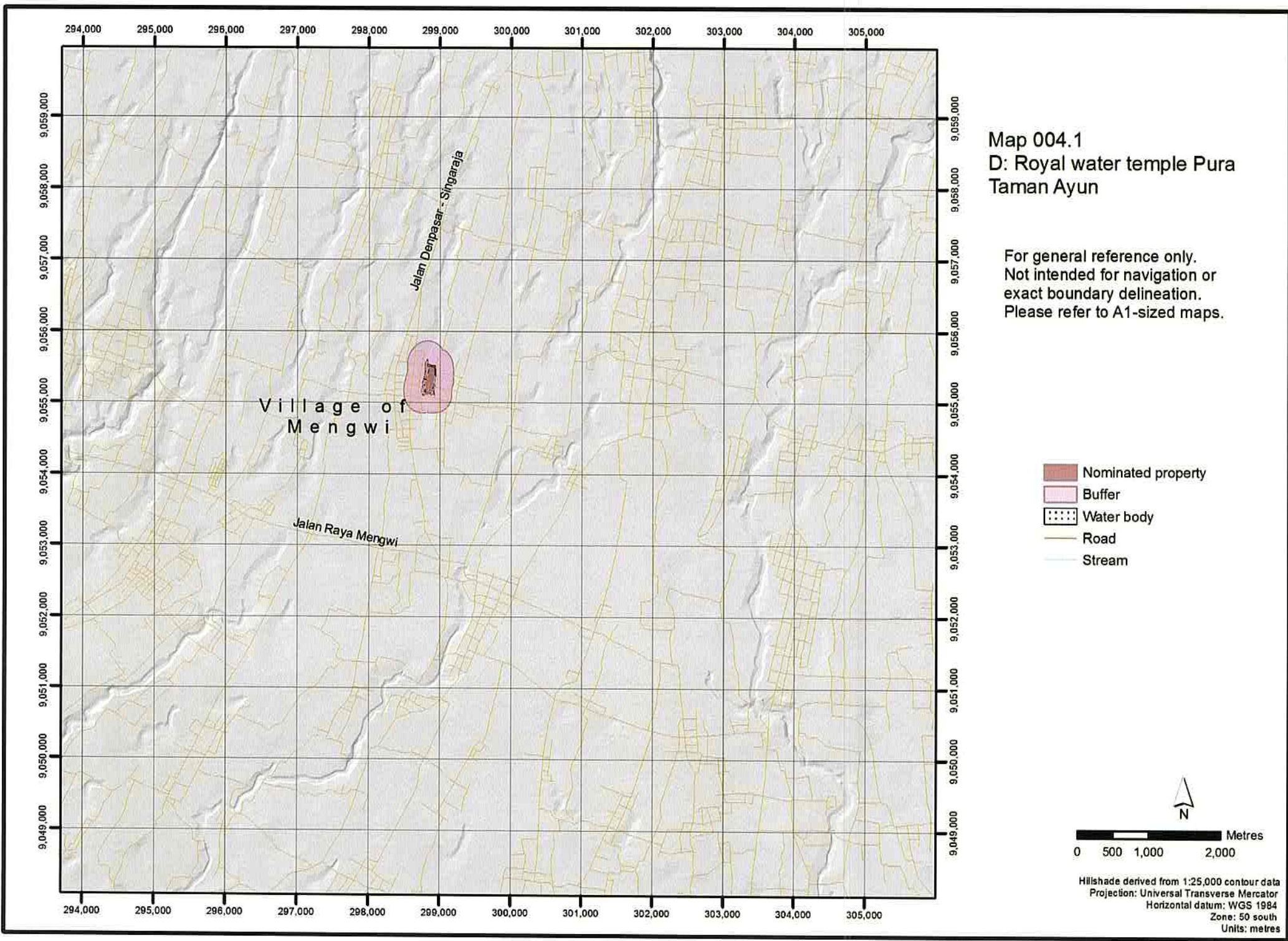
C: Subak Landscape of Catur Angga Batukaru

For general reference only. Not intended for navigation or exact boundary delineation. Please refer to A0-sized maps.

-  Temple
-  Nominated property
-  Buffer
-  Subak
-  Road
-  Stream
-  Water body



Hillshade derived from 1:25,000 contour data
 Projection: Universal Transverse Mercator
 Horizontal datum: WGS 1984
 Zone: 50 south
 Units: metres



Map 004.1
D: Royal water temple Pura
Taman Ayun

For general reference only.
Not intended for navigation or
exact boundary delineation.
Please refer to A1-sized maps.

-  Nominated property
-  Buffer
-  Water body
-  Road
-  Stream



Hillshade derived from 1:25,000 contour data
Projection: Universal Transverse Mercator
Horizontal datum: WGS 1984
Zone: 50 south
Units: metres