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Evaluation of UNESCO Strategic Programme Objective 3:

Leveraging scientific knowledge for the benefit of the environment and the management of natural resources

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List of Abbreviations and Acronyms

AfriMAB	African Man and the Biosphere
AMCOW	African Ministerial Conference on Water
ASPnet	Associated Schools Project Network
AU	African Union
BMG	Agency of Meteorology and geophysics
BRs	Biosphere Reserves
BSP	Bureau of Strategic Planning
BTRC	Biotechnology Research Centre
CIFOR	Centre for International Forestry Research
COSMARNews	Coastal and Marine News
CSO	Civil Society Organization
DRR	Disaster Risk Reduction
FRIEND	Flow Regimes from International Experimental and Network Data
GIS	Geographic Information systems
GLNP	Gunung Leuser National Park
HELP	Hydrology for the Environment, Life and Policy
IAH	International Association of Hydrologists
IBE	International Bureau of Education (UNESCO)
ICGEB-Cape Town	International Centre for Genetic Engineering and Biotechnology
ICZM	Integrated Coastal Zone management
ICSU	International Council for Science
IGCP	International Geological Correlation Programme
IGRAC	International Groundwater Resources Assessment Centre
IHE	International Hydrological Education
IHP	International Hydrological Programme
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange
IPCC	Intergovernmental Panel on Climate Change
ISARM	Internationally Shared Aquifer Resources Management
ISDR	International Strategy for Disaster Reduction
ISESCO	Islamic Educational, Scientific and Cultural Organization
IUCN	International Union for the Conservation of Nature and Natural Resources
IWRM	Integrated Water Resources Management
KenMet	Kenya Meteorological Department
LDCs	Least Developed Countries
LME	Large Marine ecosystem
MAB	Man and the Biosphere
MDGs	Millennium Development Goals
MLA	Main Lines of Action
MOST	Management of Social Transformation
MTS	Medium-Term Strategy
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organization
OCZM	Ocean and Coastal Zone Management
ODINAFRICA	Ocean Data and Information Network for Africa
PoWER	Global Partnership for Water Education and Research
RBM	Results-Based Management
SC	Natural Sciences Sector
SIDS	Small Island Developing States
SPO	Strategic Programme Objectives
SUMAMAD	Sustainable Management of Marginal Drylands
TEWS	Tsunami Early Warning Systems

TIGER Initiative	European Space Agency Programme for water management in Africa based on Earth Observation (EO) technology.
UNDaO	UN-Delivery-as-One
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO ASPNet	UNESCO Associated Schools Programme Network
UNIDO	United Nations Industrial Development Organization
WDC	World Data Center
WDS	world Data System
WHYMAP	World-wide Hydrogeological Mapping and Assessment Programme
WINDOW	ODINAFRICA Newsletter
WIOLab	Western Indian Ocean land-based activities
WNBR	World Network of Biosphere reserves
WWAP	World Water Assessment Programme
WWDR	World Water Development Report

EXECUTIVE SUMMARY

The achievements, challenges and recommendations with respect to the expected outcomes for SPO 3 as given in MTS 2008–2013 (34 C/4) are summarized below.

1. UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises.

Achievements

UNESCO is a formidable network spanning education, science, culture, communication and information. Its leadership role is pronounced in cases where the organization acts as a facilitator of networks dealing with global concerns (such as MAB, WWAP, IOC, IGCP) or cross-cutting issues (climate change). WWDR 3 is published in March 2009 with a focus on Global Change. In the context of UNESCO the assessment of water resources is not an aim by itself, but by linking with education, culture and cross-cutting issues the information provided becomes relevant to sustainable development. The regional offices (as part of the global network) create impact by facilitating the formulation of National Policies in collaboration with relevant National Committees of the Intergovernmental Programmes.

A number of success stories demonstrate the unique leadership of UNESCO in regard to freshwater and marine resource management. Building on long-established programs such as IHP and IOC, existing and newly established networks of experts, actors and policy makers, prepare the ground for change to advance on issues such as artificial recharge, transboundary water management, and groundwater for emergency situations. The leading role UNESCO performs originates from the interdisciplinary environment of the organization. Without the experience and science base of IGCP and MAB – as often mentioned examples – the coordination and facilitation would be less effective.

Challenges

In the context of the UN Development Assistance Framework (UNDAF) and country programming, UNESCO needs to make its presence felt by building on its strength as a global network linking science with education, culture, communication and information. In the competition about access to extra-budgetary funds the organization has to walk a fine line between functioning as a facilitator (of networks) and acting as an implementing agency (network member). While the professional dissemination of climate change predictions by IPCC is well recognized, the implications of these predictions for different livelihoods and ecosystems in different regions have still to be assessed and communicated so that different sectors of the society can act accordingly.

The success also raises expectations. The expectation is that cooperation is stimulated by building awareness about issues and linkages, both within its own organization and in the UN family where UNESCO is increasingly called upon for coordination and guidance, e.g. taking on the coordination for GEF investments for resources in marine sciences in Africa that are made available through various initiatives, or communicating climate change impacts and exploring adaptation options. An organizational challenge is evident in the operational relationship with other UN and International Agencies under the UNDAF and the UN Delivering-as-One concept which requires walking "a fine line" of being both a facilitator and an efficient member of the consortium.

Building on the existing capacity of experts and institutions is a process which requires partnership, such as the PoWER platform, IOC's "Leadership Training Workshop" and the

fostering of south-south cooperation through the IGCP research projects. To collaborate on equal levels, efforts are required to improve the quality of education and outreach at partner institutions.

The multi-disciplinarity of UNESCO represents a promising environment for assessment of climate change drivers, their monitoring and the exploration of adaptation measures. In particular, the collaboration between natural sciences actions, culture and human sciences holds great potential.

Recommendations

UNESCO should strengthen the correlation between the different programmes by coordinating links and taking adequate measures towards the integration of activities (projects) beyond the individual sector and between H/Qs and regional offices down to the Country Offices through active participatory concerted strategic planning efforts within UNESCO, which will foster a 'UNESCO acting/delivering as One'.

It is noted during the evaluation that the ICSU Global Change community (MAB 2002) and the WDCs (IODE-IOC 2007) have recently been incorporated into the new ICSU World Data System (WDS). For Science related programs in particular, the link to global networks such as ICSU should be further explored and encouraged.

UNESCO should utilize its unique comparative advantage over other UN agencies through its various sectors as network facilitator, its strength in global assessment, its strong performance in bridging science, culture, and policy, to address cross-cutting issues such as biodiversity conservation, disaster risk reduction, etc., and to more directly participate in initiating and promoting identified and on-going activities on: a) climate research, assessments, impacts and follow-up to IPCC predictions; b) adaptation actions such as outlined in the communication of the inter-sectoral platform on climate change; c) facilitating action to disseminate knowledge and the exchange of information, taking into consideration the socioeconomic, cultural and gender aspects for policy formulation and intervention.

2. Global monitoring reports produced periodically for the state of freshwater and oceans

Achievements

The World Water Development Reports 1 and 2 have been successfully compiled and published, and volume Number 3 was launched in March 2009. The international context of WWAP and the information provided in the WWDR raise global awareness about the water crisis and strengthen regional cooperation.

The observational activities of IOC with respect to OCZM and the research stimulated and coordinated under its global network are outstanding in performance.

Challenges

The assessment of groundwater resources is still at the initial stages. Present global assessments need to be refined to include enough detail on regional level to be relevant for the development of national water management plans. The main challenge however is to move from assessment to monitoring. Effective monitoring requires the establishment of appropriate indicators and the access to observational tools and data to observe changes. In addition, global climate change predictions (IPCC reports) need to be 'translated' into local level scenarios to enable actors to develop adaptation measures for local communities.

Recommendations

The present global assessments of groundwater resources, including transboundary aquifers that are still at the initial stages need to be refined to include enough detail at regional level to be relevant for the development of national water management plans and their implementation. Efforts to deliver crucial information on freshwater resources management in a timely manner should be stepped-up as one measure to support/promote the achievement of MDGs.

UNESCO should proactively participate, in collaboration with relevant UN and International Organizations, in the scientific assessment of the vulnerability of water resources and ecosystems to climate change and anthropogenic threats through the IHP and MAB programmes and disseminate the technical information to member countries, especially in Africa, to support adaptation, mitigation and preparedness (early warning) measures.

3. Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.

Achievements

For capacity building and outreach, UNESCO continues to be the prime point-of-contact, in water resources management through UNESCO-IHE, in maritime affairs through IOC. Effective support has been provided to partners through active and operational networks such as the African Ministers Conference on Water (AMCOW) and the Africa Groundwater Commission.

UNESCO's achievements in the field of DRR are publicized among other UN agencies and the active participation in UNDAF theme group meetings gave UNESCO a good visibility as a specialized agency working on DRR as demonstrated in particular by IOC and IGCP.

Challenges

Recognizing the reform of the IGCP from a discipline to a societal benefit-oriented approach, the impact of the five priority areas (namely: Earth resources sustaining our society; Geohazards – mitigating the risk; Global change and the evolution of life; Geosciences and the water cycle; Study of the deep earth) still needs to be felt.

One of the challenges in promoting a “Culture of Maintenance” is that asset management and the management of maintenance is not regarded as a priority by governments around the world, although this situation appears to be changing in response to the economic crisis. UNESCO needs to respond to this issue, for example, by expanding the “Leadership Training Workshop” and the “Proposals Writing Seminar” to benefit other levels of management personnel, more institutions and countries.

Through JTIC several culturally adapted tsunami educational materials were produced and widely disseminated – linking science, culture and education. Now, Tsunami early warning efforts are maintained by improving infrastructure, providing capacity building, and spreading awareness. At regional and national level, the Disaster Risk Reduction is supported by awareness measures, education, and capacity building. The challenge is for UNESCO to move from the role of coordinator of the activities of the JTIC to that of facilitation and support in terms of resources provision on a sustainable basis.

Recommendations

UNESCO should continue supporting the transformation of the Jakarta Tsunami Information Centre to put in place mechanisms for the sustainability of the centre's activities. For the Tsunami Early Warning System in Indonesia, UNESCO's role should move from that of acting as coordinator to that of facilitating and supporting the coordination of local experts and regional/national institutions to regularly monitor the situation of tsunami, earthquake hazards and floods, strengthen advocacy to mobilise resources for the maintenance/replacement of ocean monitoring equipments where needs arise, and foster the capacity to effect warnings along the 'last mile'.

UNESCO should promote the "Culture of Maintenance" among member States, (for example, the ocean monitoring equipments in the Indian Ocean). One way for UNESCO to respond to this issue is by expanding the "Leadership Training Workshop" and the "Proposals Writing Seminar" to include training on the culture of maintenance and to include all levels of management personnel, more institutions and countries.

4. Priority on Africa

Achievements

Concerning biodiversity conservation, the AfriMAB network was revitalised, an action plan established, and the African Biosphere Reserves Network Charter drafted.

The research network of hydro-geologists of volcanic areas in three countries in East Africa was strengthened. The results of remote sensing capacity building projects in TIGER (European Space Agency ESA TIGER Initiative Looking after Water in Africa) were compiled, reviewed and edited for publication, serving as a showcase of how satellite information can help in water management in Africa.

Challenges

The institutionalisation of the AfriMAB Charter and the implementation of the Madrid Action Plan, especially for making BRs sustainable development poles in Africa, still require outreach, strong advocacy and legal recognition to move ahead.

One of the challenges of working to promote the "Culture of Maintenance" is that asset management and the management of maintenance is not regarded by governments around the world with any sense of priority, although this situation appears to be changing in response to the economic crisis. UNESCO needs to respond to this issue. Funds have their limitations; more efforts to join forces with other initiatives will add value to the efforts undertaken. To respond to the enormous needs for enhancing local capacities in Africa to manage, use and maintain observation systems will require the mobilization of additional resource and funding opportunities.

Recommendations

UNESCO should assist African member countries to implement the AfriMAB Charter for effective compliance with the Madrid Action Plan in the region, especially as concerns making BRs sustainable development centres, the introduction of the MAB/BR concept in the management of National Parks, natural resources and human development through the ecosystem approach and landscape level planning. Information should also be disseminated on the synergies and complementarities between BRs and other types of conservation areas.

UNESCO should encourage and assist member countries to enact laws and regulations that give the BRs legal status, and for BRs to be publicized and promoted at national/international levels. Legal recognition of biosphere reserves could facilitate the resolution of natural resources-related conflicts affecting BRs.

It is recommended that some BR Managers, Government Officials and Civil Society Organization representatives that are involved in Park management from Africa, together with Programme Specialists from the Africa Regional Bureau undertake study visits to appropriate BR sites/institutes to learn from various good practices that experience in order to take back some lessons-learnt for implementation within the AfriMAB/BRs networks.

UNESCO should continue its strong support and leadership role for the water sector in Africa, especially with regards to AMCOW, the establishment of an Africa Groundwater Commission, and the sponsorship of studies/research on the groundwater linkages between the Lakes of the East African Rift Valley because these lakes play very important roles in the hydrological, socioeconomic, and eco-system functions of the sub-region – UNESCO can achieve this through cooperative action with international organisations such as the European Union Commission.

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1. INTRODUCTION

Science and technology are critical drivers for achieving sustainable development, poverty eradication, and ultimately peace and security, in addition to being tools for attaining the internationally agreed development goals, including the MDGs, on which the framework for UNESCO's actions in science and technology are built.

Strategic Programme Objectives (SPOs) were introduced first in the Medium-Term Strategies (MTS) for 2002-2007 (33 C/4). In 34 C/4 (2008-2013), SPO 3, which reads "Leveraging scientific knowledge for the benefit of the environment and the management of natural resources", is one of the three Strategic Programme Objectives directly contributing to the attainment of overarching objective 2, "Mobilizing science knowledge and policy for sustainable development".

In general the evaluations of the SPOs were decided upon as a vehicle to respond to the Executive Board's decision: "*ensure provision for systematic evaluation of all programmes within the C/4 cycle*" (177EX/Decision 26). The evaluation of SPO 3 comprises activities that were programmed within the regular budget, including activities funded from extra-budgetary sources. Specifically, the evaluation assesses progress towards achieving the objectives of SPO 3 and how progress might be enhanced through improving programme policy, design and delivery based on the following indicators which are the expected outcomes given in MTS 2008–2013: 34 C/4 as:

- UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises
- Global monitoring reports produced periodically for the state of freshwater and oceans
- Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.

SPO 3 is translated into Biennial Sectoral Programme Priorities and programmed under three Main Lines of Action (MLAs) in the Approved Programme and Budget for 2008 – 2009 (the 34 C/5) as:

- MLA-1: Fostering policies, technical capacity-building, research, networking, education and international cooperation in the fields of water, ecological and earth sciences for enhancing societal responses;
- MLA-2: Oceans and coastal zones: improving governance and fostering intergovernmental cooperation through ocean sciences and services.
- MLA-3: Promoting science, knowledge and education for disaster preparedness and mitigation, and enhancing national and regional coping capacities, including through support for the development of risk reduction networks and monitoring and assessment measures, such as tsunami early warning systems

This SPO 3 evaluation, as carried out, has both a summative and a formative character focusing on programme activities that were planned (and implemented) for the 32 C/5 and 33 C/5 Programme and Budget 2004-2007, and those still ongoing in 2008 for the 34 C/5.

2. DESCRIPTION OF THE OBJECTIVES AND ACTIVITIES OF SPO 3

UNESCO's Mission Statement

As a specialized agency of the United Nations, UNESCO contributes to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication and information. To fulfil this mission, UNESCO has established the following five core functions: (i) laboratory of ideas; (ii) standard-setter; (iii) clearing house; (iv) capacity-builder in Member States in UNESCO's fields of competence; (v) catalyst for international cooperation. These core functions and the ways in which they are pursued are expected to evolve in order to respond to the changing circumstances within the international community.

Pursuant to its mission, UNESCO's fourteen Strategic Programme Objectives (SPOs) were adopted in the Medium Term Strategy (MTS) for 2008 – 2013 (34 C/4), and programmed for implementation in the biennium (34 C/5 2008 – 2009). SPO 3 is one of the three objectives contributing to the attainment of OO 2, and reads:

Leveraging scientific knowledge for the benefit of the environment and the management of natural resources

The expected outcomes for SPO 3 as given in the MTS 2008–2013 are:

- UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises;
- Global monitoring reports produced periodically for the state of freshwater and oceans;
- Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.

SPO 3 and its linkages of with other SPOs (34 C/4)

UNESCO has established the linkages between document 34 C/4 with document 34 C/5 and subsequent documents during the 2008-2013 period by focussing the activities undertaken to achieve the SPOs by a limited set of Biennial Sectoral Programme Priorities that determine the programmatic profile for each major programme resulting in a "rolling strategy", depicted in the table below (Table 1). By nature the planned activities are multidisciplinary and intersectoral.

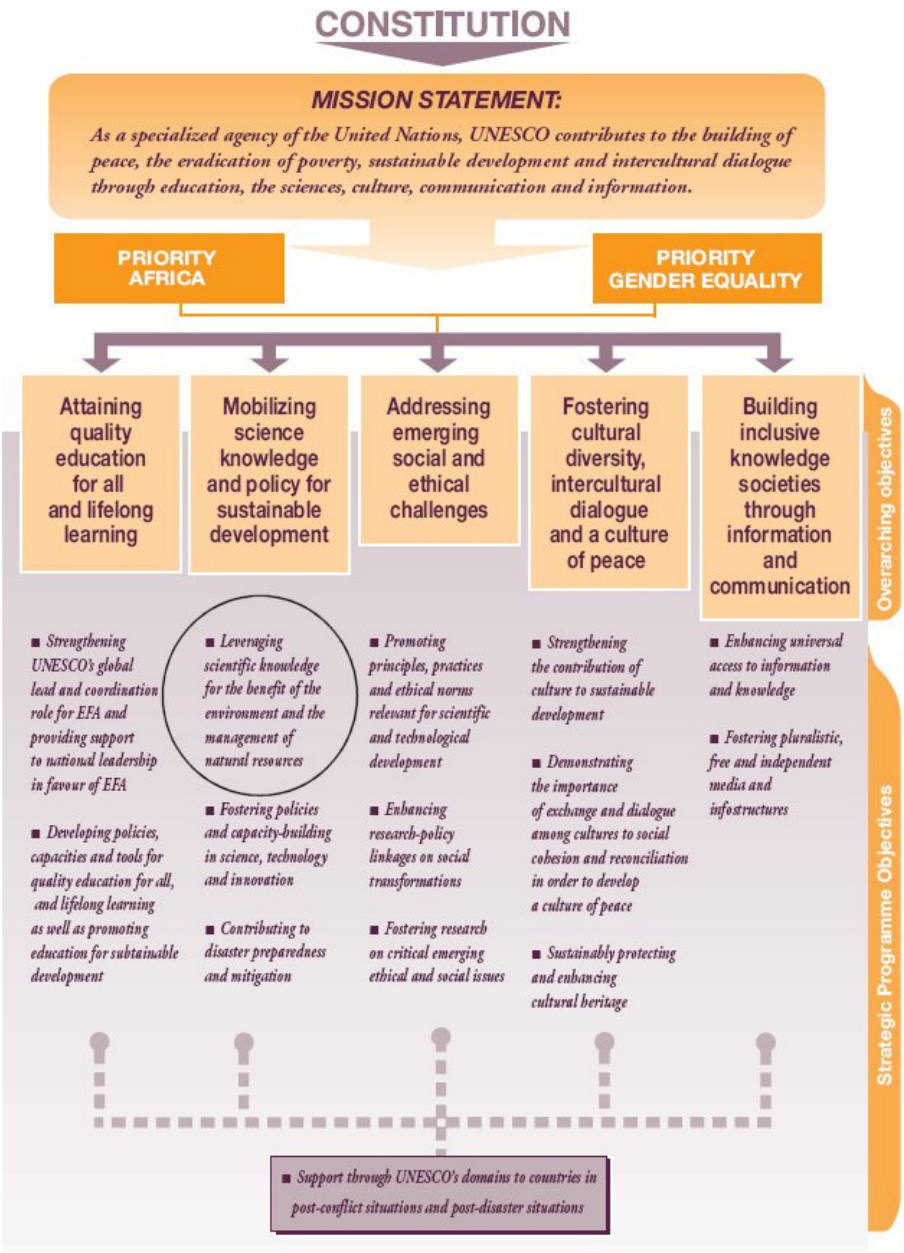


Table 1: UNESCO's Strategic Objectives (from 34 C/4) and the location of SPO 3

Global priorities of the MTS

The **mid-term priorities** selected under the MTS 34 C/4 provide further guidance, whereby UNESCO shall accord priority to Africa and to gender equality in all its fields of competence throughout the duration of the Medium-Term Strategy, with specific interventions envisaged for youths, the least developed countries (LDCs), and the small island developing States (SIDS). UNESCO will respond to the exigencies of regional integration articulated by African countries, the African Union (AU), including through its New Partnership for Africa's Development (NEPAD) programme, and subregional organizations. UNESCO will continue assistance in post-conflict and disaster situations, concentrating on efforts to help avoid the

recurrence of conflicts, and to ensure recovery and reconstruction. Special emphasis will be articulated on capacity-building, assistance in the formulation of policies based on factual data, support networks of excellence for the transfer of experience/knowledge and best practices, cooperation and the free flow of ideas and knowledge, the practical applications of research, women's empowerment and gender equality.

With regard to Africa for which priority will be given also to addressing the specific needs of youth and populations living in rural areas, the planned focus areas for action with relevance to SPO 3 are:

- strengthening cooperation with African Member States in follow-up to the Addis Ababa Declaration on Science, Technology and Scientific Research for Development adopted by the Heads of State and Government of the African Union in January 2007;
- supporting strategies to strengthen national, subregional and regional capacities and develop human resources;
- contributing to the regional integration process in the Organization's fields of competence;
- promoting cooperation and partnership with multilateral, bilateral and private stakeholders, and broader participation of civil society representatives and NGOs in existing mechanisms;
- assisting countries in post-conflict or post-disaster reconstruction situations.

Overarching objective 2 of the MTS

The **overarching objective** (OO-2) for Science has been established for the MTS as:

Mobilizing science knowledge and policy for sustainable development

for which the following expected outcomes were selected:

- Science components integrated into United Nations country programming exercises (e.g. UNDAF, PRS) during 2008-2013.
- Scientific knowledge translated into national science policies supporting sustainable development in all regions.
- Lead roles exercised in United Nations inter-agency efforts pertaining to scientific dimensions of sustainable development.

The mission statement, the overarching objectives and the mid-term priorities together with the established expected outcomes for SPO 3 provide the frame for the biennial programming of SPO 3.

Programme components of SPO 3 (34 C/5)

Responding to the **priority** to address the needs of **Africa**, the following expected outcomes during the Biennium 2008-2009 are noted:

- UNESCO Action Plan developed and implemented in response to the African Union action platform for science and technology (*10 African countries supported in integrating S&T into development strategies*).
- Science and technology policies and planning capacities of African Member States strengthened (*STI integrated in national development strategies; Centres of excellence reinforced; Availability of STI indicator information improved*).
- Knowledge transfer and sustainable human and institutional capacity-building improved in order to develop a national culture of maintenance.

- Knowledge base and capacities for local, national and regional water management strengthened.
- Knowledge base and capacities in formulating national energy policies and conducting pilot projects strengthened.
- Initiatives in the fight against desertification encouraged and supported.
- Policy advice delivered to establish national and regional research systems, especially through support to identified centres of excellence.

Two **sectoral priorities** were established for Science during the Biennium:

- Promoting research and technical capacity-building for the sound management of natural resources and for disaster preparedness and mitigation
- Strengthening national and regional research and innovation systems, capacity-building, the use of technologies, and scientific networking, and encouraging the development and implementation of science, technology and innovation policies for sustainable development and poverty eradication.

Sectoral Priority 1 is further detailed for the following 5 themes:

- ***Water:*** strengthening scientific approaches for improved water management policies and governance, technical capacity-building and education at all levels, and providing avenues for adapting to the impacts of global changes on river basins and aquifers, and actively contributing to and strengthening global monitoring, reporting and assessment through the WWAP, with particular attention to sub-Saharan Africa;

- ***Ecosystems & earth sciences***: strengthening the activities and improving the performance and impact of the MAB and the WNBR, including the development of BRs as learning platforms for sustainable development by leveraging resources, improving coordination and promoting cross-cutting and intersectoral activities through a variety of partnerships; reinforce UNESCO's unique role in developing research and capacity-building in geosciences, including geobiochemistry through the IGCP; and supporting the Organization's role in earth observation systems and partnerships with space agencies for monitoring changes in land, water and oceans;

- ***Oceans:*** strengthening the activities of the UNESCO IOC, as the established intergovernmental body on oceans and coastal zones within the United Nations system, reinforcing its role in improving governance and fostering intergovernmental cooperation through ocean sciences and services, ecosystem functioning and biodiversity; continue to observe and monitor the open ocean and coastal seas, to prepare policy recommendations for discussion by Member States, and to foster the development of institutional capacity for coastal and marine management and for marine scientific research with a view to contributing to sustainable development, in particular in developing countries, LDCs and SIDS, and to achieving the MDGs; and increase efforts to allocate resources for the benefit of Africa and LDCs, particularly with regard to the consequences of climate change;

- ***Disaster Risk Reduction***: fostering a culture of disaster preparedness for natural and human-induced disasters, including those of a technological nature, at national and regional levels, with a focus on policy advice, mastering and disseminating knowledge, and education for disaster mitigation and response, as well as on the promotion of systems and networks concerned with the assessment and mitigation of hazards, including early warning systems;

- ***Early Warning***: providing sufficient resources to IOC in order to facilitate the implementation of a Global Tsunami Warning System within its efforts to contribute to the development of national and regional capacities for disaster prevention, preparedness and mitigation, with a special emphasis on women, through a multi-hazard approach, and to assist in the establishment and development of tsunami early warning systems in the Indian Ocean, the Pacific Ocean, the Atlantic Ocean, the Mediterranean and connected seas.

Sectoral Priority 2, which relates more to the gravity of SPO-4 and is considered in the evaluation where applicable, emphasises the role of capacity building and education with a particular focus on intersectoral linkages (science – education, science – culture) and multidisciplinary approaches (sustainable development perspective).

Under the biennial planning, the implementation of SPO 3 is planned, budgeted and carried out through three **Main Line of Actions (MLAs)** defined in 34 C/5 as:

- MLA-1: Fostering policies, technical capacity-building, research, networking, education and international cooperation in the fields of water, ecological and earth sciences for enhancing societal responses;
- MLA-2: Oceans and coastal zones: improving governance and fostering intergovernmental cooperation through ocean sciences and services.
- MLA-3: Promoting science, knowledge and education for disaster preparedness and mitigation, and enhancing national and regional coping capacities, including through support for the development of risk reduction networks and monitoring and assessment measures, such as tsunami early warning systems.

To measure the level of achievement, the sector agreed on **expected results** quantified by **indicators/benchmarks**. As the evaluation assessed achievements and challenges regarding these operational components, an example is given for MLA-1:

For MLA-1 seven expected results are planned. Expected Result 2 reads:

(ER1.2) Knowledge base relating to sustainable water governance improved, by means of policy-relevant cultural, social and scientific responses, with a special focus on urban water management.

The two performance indicators are:

PI1) The social and cultural dimensions of water management and the management of water resources across boundaries addressed through case studies, reports and communication links.

Indicator/benchmark:
2 case studies, a website, and a water-anthropology network established, 2 regional training courses and 4 reports developed, transboundary aquifers studies carried out with other United Nations agencies.

PI2) Assessment of integrated urban water management in various settings improved through the development of analytical tools and guidelines:

Indicator/benchmark:
at least 3 models or sets of guidelines developed for different cases covered.

For a complete documentation see Annex 6. The components (expected results, indicators/benchmarks) were used in the web-based questionnaire to assess the achievements made towards SPO 3.

SPO 3 Programme components according to 33 C/5

Even though strategic planning objectives were only introduced in 2007, the process of their evolvement predates 2007. The disciplinary areas covered by programme activities under SPO 3 in the 34 C/5 can be traced to programme activities in the 33 C/5. Evaluating SPO 3 with components specified under 34 C/5 to implement the strategic objectives of MTS 34 C/4, equally consider activities started under 33 C/5. To this end, reference is made to the Table in Annex 7:

Leveraging Scientific Knowledge for the Benefit of the Environment and the Management of Natural Resources - *Programme II.1* Sciences, environment and sustainable development (33 C/5)

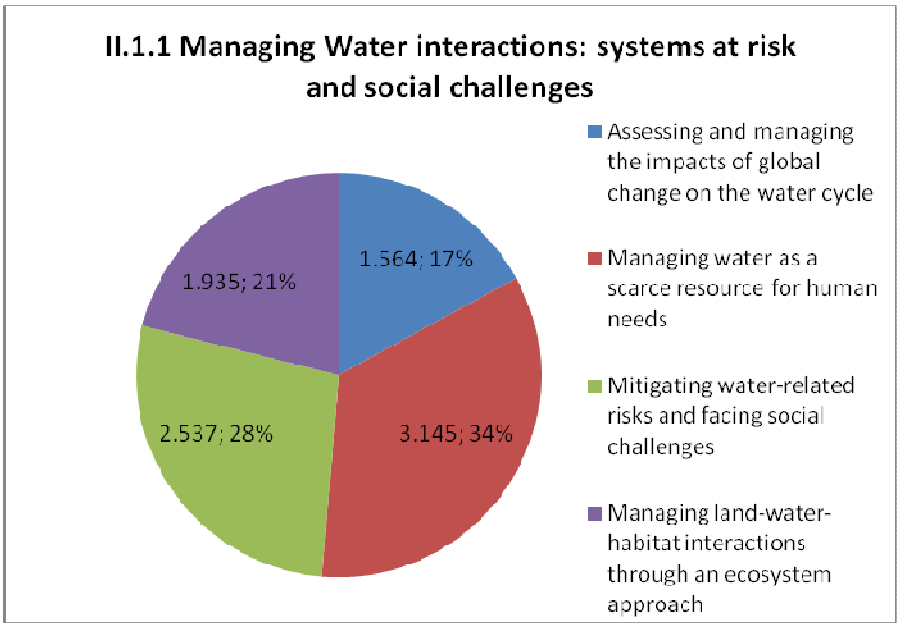
The wording of the objective illustrates the transition between biennial planning as well as mid-term periods.

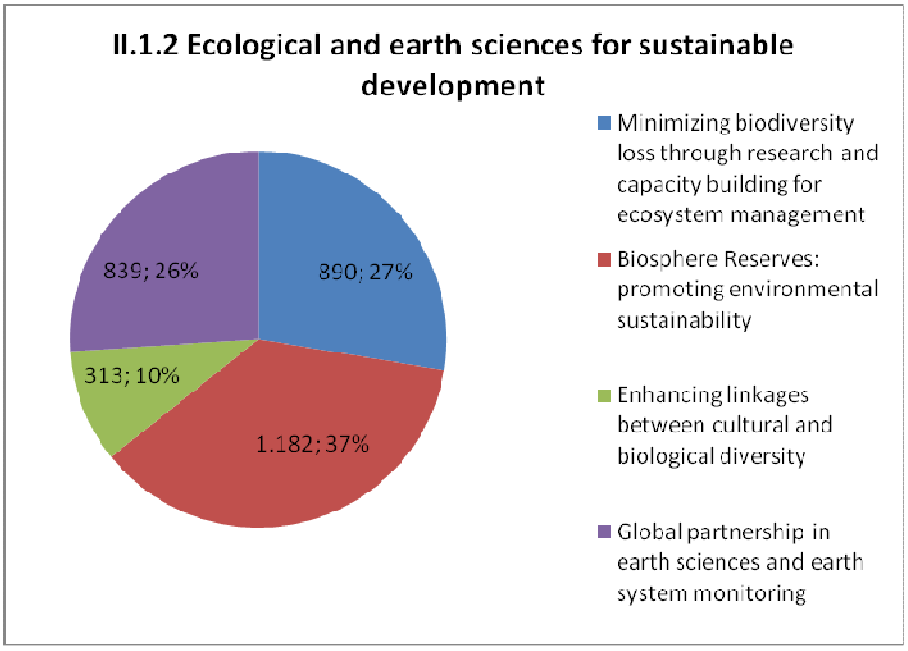
Budget for SPO 3 programme activities

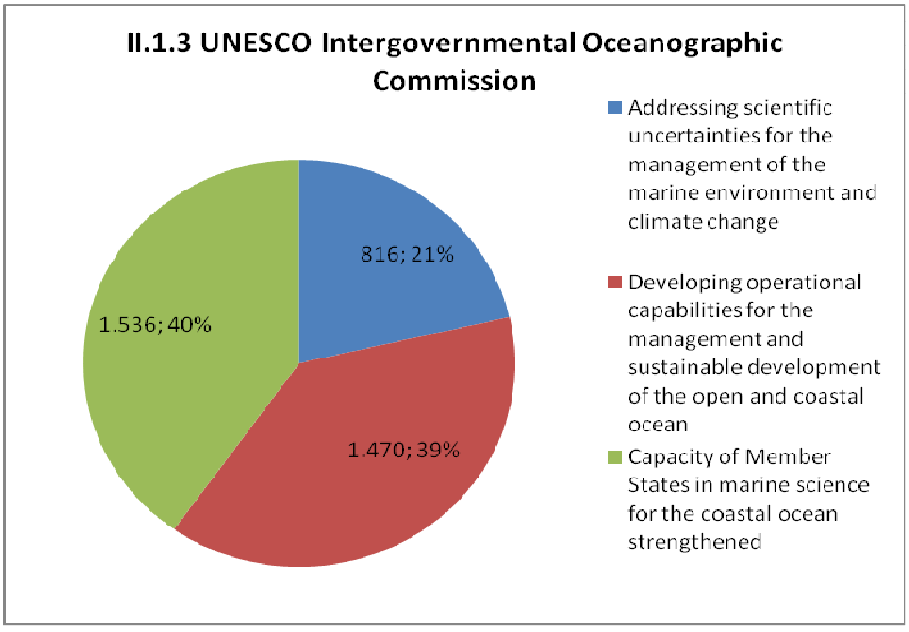
The evaluation exercise has examined those activities for which budgetary provisions were made for implementation to achieve the specific objectives in the Africa and the South East Asia Pacific regions in the area of ecology, water sciences, oceans and coastal zone management, and tsunami early warning.

The budget figures provided by UNESCO's Bureau of the Budget outline the funds allocated to activities under 33 C/5 (2006 - 2007), the amount spent, and the allocation (aggregated for MLA 1,2, 3) for 34 C/5 (2008-2009). The figures are given as million of US$.

The distribution for 33 C/5 (allocated) for the three sub-programmes:







An anomaly is the overspending of 29% in II.1.2 for the activities under 'Global partnership in earth sciences and earth system monitoring'. After receiving the budget figures at the time of the 2nd revision of the report, the evaluators had not received indication for the reasons for overspending. The allocations been approved for 34 C/5 are slightly increased for ecosystem/earth sciences (1%) and IOC (4%), however decreased by 23% for water sciences. Experts interviewed at both Regional Offices voiced their concern about the limitations of the operational budget which posed severe restrictions specifically in regard to personnel for carrying out the planned activities and for planning new projects (in Nairobi: programme specialists for water sciences, ecology, and oceans; in Jakarta: director of the office (in regard to tsunami early warning), programme specialist water sciences).

Extra-budgetary sources are unfortunately not contained in the figures provided by Bureau of the Budget, even though the regional offices – in particular in Jakarta – emphasized the importance of these external funds for the implementation of most of their projects (e.g. biosphere reserve Gunung Leuser (funded by Spain), artificial recharge Vietnam (funded by Italy), the Jakarta Tsunami Information Centre (funded by the GTZ). On a strategic level, the efficiency in achieving results may in future be compromised by the dependence on access to external resources and lead to a more project-based (versus programme-based) work approach. An example of this is the 'Promoting climate resilient Agriculture and natural resources management to improve Nutrition and income Generation from Water and other Natural Resources – PANGAN (NTT, Indonesia)' project by UNDP & UNESCO under UNDAF whereby considerable time had to be invested to ascertain a reasonable share of funds.

3. EVALUATION PURPOSE AND METHODOLOGY

Purpose of the Evaluation

In general evaluations of the SPOs were decided upon as a vehicle to respond to the Executive Board's decision: "*ensure provision for systematic evaluation of all programmes within the C/4 cycle*" (177EX/Decision 26). The evaluation of SPO3 (Evaluation Plan for 2008-2009) was programmed in the 34 C/5 Evaluation Plan covering all components of the evaluation universe, i.e. C/4 strategic programme objectives (SPOs), strategic evaluations, and decentralized bodies. The evaluation of each SPO is expected to comprise activities that were programmed to contribute to the particular SPO, including activities funded through the regular budget and a representative sample of extra-budgetary funded activities.

Specifically, the evaluation of SPO 3: "Leveraging scientific knowledge for the benefit of the environment and the management of natural resources", assesses progress towards achieving the objectives of this SPO and how progress might be enhanced through improving programme policy, design and delivery. The expected outcomes for SPO3 are:

- UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises
- Global monitoring reports produced periodically for the state of freshwater and oceans
- Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.

Overall, the evaluation thus set out to assess the extent to which these expected outcomes are being achieved, and to recommend actions for improvements where applicable.

Evaluation scope (time/space)

This SPO 3 evaluation, as carried out, has both a summative and a formative character focusing on the programme activities that were planned and implemented in the 32 C/5 and 33 C/5 Programme and Budget 2004-2007, A series of evaluation reports was reviewed (see meta-evaluation) in order to obtain additional information on programme delivery and performance in the past biennia.

The geographic scope of the evaluation was worldwide, covering all the components of SPO 3 via a document review, and a web-based questionnaire survey to all science programme specialists delivering activities within the disciplinary areas of SPO 3. Site visits were made to additionally cover UNESCO's activities in the Africa region carried under the Regional Office in Nairobi, and those in the South East Asia-Pacific region under the Regional Office in Jakarta.

The complete TORs are attached in Annex 4.

Evaluation questions for the SPO 3 Programme.

The results/achievements towards the expected outcomes of SPO 3 have been assessed based on the following evaluation questions:

Relevance relating whether programme objectives have been addressing identified needs of the Member States; how the needs changed over the period of the programme; consistency of programme activities with the C/5 and C/4, and the International agreed Development Goals,

including the Millennium Development Goals; and gender-sensitiveness of programme activities.

Effectiveness in terms of progress made towards achievement of the expected outcomes; reasons for the achievement or non-achievement; beneficiaries' satisfaction with the results; cost-effectiveness of the programme; UNESCO's comparative advantage in designing and implementing the programmes; and existence of effective monitoring mechanisms for programmes.

Efficiency in terms of measures taken to ensure efficient use of resources; timely delivery of outputs; whether the activities and outputs could have been delivered with fewer resources without reducing their quality and quantity, or more activities and outputs have been delivered with the same resources; and whether UNESCO's organizational structure, managerial support and coordination mechanisms have effectively supported delivery.

Programme *impacts* in terms of intended/unintended, positive/negative, and long term effects; the identified changes brought about as result of the programme;

Sustainability in terms of the likelihood of programme benefits being maintained when external support ceases; local institutional support and ownership of the programme with integration into local economic and socio-cultural conditions.

Limitations of the study

Considering the intended scope of the evaluation, in temporal, thematic and geographic coverage, severe limitations were encountered by the evaluation team.

- With the intention to at least assess the global scope of SPO 3 within the limitations posed, a web-based questionnaire and follow-up surveys by e-mail to experts interviewed during field visits were introduced. However, the collection of a fair sample of responses took considerable time as the initial response was low.
- The evaluation of cost-effectiveness and efficiency cannot be carried out satisfactorily as the basic data with regards to the costs incurred in order to produce given outcomes is not available. The attempt to analyze operational and extra-budgetary funds disaggregated to activities and regions (which would allow assessing cost-effectiveness) failed.

Evaluation methodology

The evaluation employed a variety of methodologies, including document reviews, stakeholder meetings, questionnaire surveys, focus group interviews, visits to selected sites and validation/feed-back workshops. The approach also includes a meta-evaluation that reviews previous evaluations of programme activities within the disciplinary areas relating to SPO 3.

Evaluation design and plan

The evaluation includes three dimensions:

- assessment of relevance and impact of the UNESCO SPO 3 towards the Millennium Development Goals (MDGs);
- evaluation of the process concerning the implementation of SPO 3 in MLA (1-3) which comprises the activities carried out from UNESCO HQ and from the Regional Offices;

- assessing the implementation at country level: national policy (UNESCO's leadership) and UNESCO's role in the context of UN common country programming exercises.

By using the logical framework approach the criteria (relevance, impact, effectiveness, efficiency, and sustainability) can be evaluated with the help of the strategic planning components. Dimension 1 reflects how the SPOs contribute to the achievement of MDG's (high level objectives), dimension 2 how well the SPOs have been broken down into Lines of Action (operational planning), and dimension 3 what the impact is on country level (relevance). The Logical Framework Analysis offers a structured process to carry out this evaluation. According to the terms of reference, the main thrust of this evaluation is on dimension three.

The evaluation process spans the following activities:

- review of documents as provided by the IOS and additional documents elaborated within Africa and Asia, such as country reports
- interviews with staff members of UNESCO HQ and of Regional Offices in Nairobi and Jakarta
- interviews with stakeholders in Africa and Asia
- the evaluation of a worldwide web-based questionnaire survey
- conducting two Validation Workshops with the Reference Group at UNESCO HQ.

The following elements were used in the course of the evaluation:

Inception Report. This contains (a) a detailed road-map of the objectives, line of actions and performance indicators; (b) map of stakeholders and beneficiaries; (c) the description of the data collection instruments (e.g. interview guidelines, questionnaire); (d) workplan including interview schedule, travel plan and delivery dates.
The inception report also outlines the consensus reached with the evaluation team leader and other members of the team on methodology and responsibilities.

Field visits. The main objectives of the evaluation in the field is the assessment of the relevance of SPO/MLA for national policy formulation and implementation, the national and regional impact, the effectiveness/efficiency of UNESCO's resource provision (summative and formative), and the effectiveness/efficiency of UNESCO's role in the UNDAF and country programming process.

Providing feed-back. This is carried out in two phases: a) the draft report summaries the mayor findings (achievements and challenges) and concludes with recommendations and lessons-learnt; b) workshops at UNESCO HQ (with representatives of IOS, BSP and SC, the Reference Group) validates the completeness and the accuracy of the evaluation, and discusses possible management actions as a response to the findings and hence agreement on practical and actionable recommendations.

Final report. This compiles the feedback on the draft report, the outcomes of the workshops and the results of the meta-evaluation (WWAP, MAB, IHP, MOST, UNESCO-IHE, IOC).

Data and information gathering

3.1.1 Document review (including meta-evaluation)

The documents relevant to the programming of activities under SPO 3 were reviewed with the objective to trace the planning process, starting with the Medium Term Strategies (31 C/4

2002-2007 and 34 C/4 2008-2013), the approved programmes and budgets (32 C/5; 33 C/5; 34 C/5) as well as the progress reports to the Executive Board.
Additional documents were consulted on thematic, regional and national aspects such as the Indonesia-UNESCO Country Programming Document 2008-2011 and Diversity in One – Mapping the Environment in the UN (2007). At Regional Offices the evaluation team was supplied with numerous reports and publications providing evidence of achievements made by programmes and projects.
A dedicated task was to review previous evaluations carried out for programmes related to SPO 3 actions, namely the Management of Social Transformation (MOST) Programme (1994-2001), Man and the Biosphere (MAB) Programme (1996-2001), International Hydrological Programme (IHP) (1996-2001), UNESCO-IHE Institute for Water Education (2003-2007), UNESCO's Contribution to the World Water Assessment Programme (WWAP) (2002-2006), and the International Oceanographic Data & Information Exchange (IODE-IOC) (2002-2006).

3.1.2 Web-based questionnaire survey

The survey was designed to assess the achievements made under SPO 3 on a global scale. The web-based questionnaire was structured along the MLAs and the expected results. Presented with the respective indicators and benchmarks, the participants were asked to provide the following information for each of the expected results:

- what activities/actions/projects have been/are incorporated into the common country programme (name, regional scope, budget)?
- what has been achieved (success stories)? How do you rate the level of attainment (excellent-5.....none-0)?

The web-form of the survey amounted to 47 pages. It was launched at the beginning of December 2008. 36 entries had been completed by 31 January 2008. Data are stored in a single spread sheet and are processed to yield statistics on budgets and level of achievements as well as provide thematic information on successful programs and projects. (Annexes 3-0 to 3-3)

3.1.3 Interviews, follow-up survey and feed-back meetings

UNESCO Nairobi Regional Office Specialists and Implementing Agency Experts.

The evaluation team had an introductory/debriefing meeting on the objectives and expectations of the evaluation with the Director of the UNESCO Regional Office in Nairobi. This was followed by non-structured discussion/interviews with three Programme Specialists at the Regional Office centred around four main issues, namely: i) the activities being carried out; ii) major achievements/success realised in the implementation of the activities; iii) challenges; iv) way forward.

In Nairobi, evaluation discussions/interviews were conducted over a three-day period with experts/representatives of relevant Government Services, NGOs representatives, University and Training Institutions (this included a teleconference with one official in Mombasa) that are implementing Agencies, and whose activities are in the programme areas of Water Sciences, Ecological and Earth sciences, and Oceans/Coastal Zone Management.

Structured questionnaires were circulated by email to the Programme Specialists and Implementing Agency experts for more information on the issues discussed - their responses have been incorporated into this report and summarised in Annex 3-4 and 3-5.

UNESCO Regional Office Programme Specialists and Implementing Agencies, Indonesia

Non-structured discussion interviews were conducted with Programme Specialists and other experts at the Regional Office, and experts of Implementing Agencies including Civil Society Organization (CSO) and NGO representatives, whose responsibilities are in the programme areas of Water, Ecological and Earth Sciences, Oceans/Coastal Zone, Tsunami and Disaster/Risk Reduction management. The discussion interviews centred on the following main issues: i) activities; ii) major achievements/success stories; iii) challenges; iv) way forward. Following discussion interviews, structured questionnaires were distributed to obtain more information the responses have been incorporated into the main report, and a summary presented in Annex 3-5.

The evaluation team made working visits to the Gunung Leuser National Park and Tropical Rainforest Heritage of Sumatra (TRHS) which is also a Biosphere Reserve, a Disaster and Risk Reduction Project being carried out by an NGO in the outskirts of Jakarta, and to the CIFOR H/Qs in Bogor where discussions were undertaken with experts of the Forestry Research Centre. Debriefing meetings were held with the Regional Director and his collaborators at the beginning and the end of the mission in Jakarta.

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A debriefing meeting was held with the Reference Group at the UNESCO H/Q during which the consultants made a presentation on their preliminary findings from the field working visits to Kenya and Indonesia. Following the meeting, non-structured information-gathering discussion interviews for the SPO 3 evaluation were conducted with twenty individual expert staff at the H/Qs whose responsibilities are in the Natural Sciences, Water Sciences, Ecological and Earth Sciences, Ocean Sciences/Tsunami, Programme Planning and Capacity Building. The observations from participants at the debriefing meeting as well as from the discussion interviews have been incorporated into this report.

3.1.4 Validation workshops with Reference Group

A meeting was held with the Reference Group at the UNESCO HQ on the December 5 2008. Eight (8) members of the group participated. The evaluation team presented a progress report on the evaluation exercise, including preliminary findings from the document review and field visits to Kenya and Indonesia. Members of the reference group discussed the progress report and made valuable contributions for the continuation and finalization of the evaluation. A final validation workshop to discuss the Working Draft Report took place at UNESCO HQ when the final draft version of the report had been circulated.

4. MAJOR FINDINGS AND DISCUSSION

The implementation of SPO 3 through country/regional programmes over the evaluation period provided the opportunity for UNESCO to exercise and improve on its leadership position within the UN System, carry out global assessments, build capacity and networks, promote the science-policy interface and engage in cross-cutting and multi-sectoral activities with respect to the expected outcomes for SPO 3 as given in MTS 2008–2013 (34 C/4).

Regarding the dimensions of the evaluation, it is noted that SPO 3 indeed contributes predominately to the achievement of MDG 7 and – as observed in the regions visited – helps to prepare the ground (awareness, capacity building, and advocacy) for the activities to address e.g. MDG 1 and 8. The MLAs are suited for this purpose, and the formulation of planned results, outcomes and benchmarks is a formidable challenge (dimension 2). The particular challenge is to capture the multi-disciplinarity of the issues (e.g. ecosystem, livelihoods, and their vulnerability in regard to global and climate change) in a workable strategic planning framework. Here the question arises if UNESCO (by its unique nature) can provide evidence (by monitoring and evaluation of its SPOs), how the achievement of the MDGs is endangered by global change (e.g. the recent economic crisis) and climate change? For dimension 3 (impact on country level) the evaluators collected a number of success stories which demonstrate the relevance of the activities carried out under SPO 3.

UNESCO's leadership

UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises.

The review of the evaluations in the light of SPO 3 reveals that UNESCO is widely regarded as builder, maintainer and focal point of networks. UNESCO representing a global network by itself has clearly acted as a standard-setter for interdisciplinary frameworks in support of e.g. biodiversity conservation, water resource management and supply. The achievements made are mirrored in statements such as the following:

> "*It should be stressed that biosphere reserves are so far the only areas with: complex zonation including protected core areas, buffer zones and transition areas, built-in mediation structures, full participation of local communities and inclusion into a world cooperation network*". (MAB Evaluation, 2002)

Similar notions relate to IHP, IOC and could be observed for MOST in the near future. To build on these achievements and to improve the impact the following challenges should be addressed.

Several major achievements found by the evaluation were indeed of a multi-disciplinary nature, even though there was a science emphasis in the programmes and activities under SPO3.

Box 1: IHP and other programmes. Since 2002 - in the 31 C/5 – collaboration with the MAB programme has intensified (both Division of Water Sciences (SC/HYD) and Division of Ecological Sciences (SC/ECO) are listed as responsible Divisions for II.2.1 Water interactions: systems at risk and social challenges). This link was successful to the extent that joint MLAs were created and "Water and Associated Ecosystems" was clearly stated in the 32 C/5 as the principal priority for Major Programme II.
With SHS, links include joint research activities on the role of the civil society in the resolution of water conflicts and a long-standing strong co-operation between IHP and COMEST (World Commission on the Ethics of Scientific Knowledge and Technology) on water and ethics.
The 'correlation between the different programmes' has been substantially strengthened since the 34 C/5 with the creation of intersectoral platforms, on which IHP is an active member (and sometimes a lead partner). The results of IHP remote sensing capacity building projects in TIGER were compiled, reviewed and edited for publication, serving as a showcase of how satellite information can help in water management in Africa.

How well UNESCO performed as a 'facilitator' for moving on new and overarching issues is demonstrated by two statements made by evaluators for MAB (2002):
The World Network of Biosphere Reserves constitutes the "backbone" of MAB. It offers sites for conservation, sustainable development, interdisciplinary research, monitoring, education and training.
UNESCO is well suited for the development of links between fields that sometimes have a tendency not to communicate.

The impact can be considerable, as UNESCO - the global network - with firm links to national governments through the MAB and IHP National Committees, for example, has excellent means to disseminate knowledge and facilitate the change of perceptions.
The Biosphere Reserves concept has changed the face of conservation, specifically in developing countries, by combining human development concerns with biodiversity conservation. (MAB 2002)

Once a strategic objective, as MAB has demonstrated for biodiversity conservation, the organization can make excellent achievements - particularly so for building '*links between fields that sometimes have a tendency not to communicate'*. The expectation is (such as for WWAP) that cooperation is stimulated by building awareness about issues and linkages:
The international context of WWAP and the information provided in the WWDR raise global awareness of the water crisis and strengthen regional cooperation. The reports present remarkably comprehensive overviews of water and policy issues, and do not exclude issues considered controversial in some regions. WWDR3 will take this step further ahead by introducing policy briefs for politicians and decision makers

One major challenge for UNESCO is the need to more fully address crosscutting/multi-disciplinary characteristics of real world issues. It is expected that this will increasingly be done on the basis of UNESCO's unique comparative advantage in its mandate for Education, Natural Sciences, Social and Human Sciences, Culture, and Communication and Information.

The potential for cooperation with other organizations – in the UN family and outside – is partly untapped. The interaction with non-UN organizations relates mainly to project implementation in-situ, on national and regional levels with NGOs (such as IUCN), foundations and organizations such as the European Union (DG Research, DG Environment, DG Development). The same notion applies to the cooperation with development related programmes (examples are development banks and the OECD). The collaboration within the UN family has now to be seen under the objectives of the UNDaO process. What was previously regarded as a voluntary option comes now as an

organizational (UN) strategy. Among the agencies mentioned during past evaluations are UNU, UN-Water, FAO and United Nations related conventions. As an example: *IODE should explore interactions with other UN agencies which are also hosting similar programmes related to data and information management to benefit from their experience and to share lessons learned* (IODE-IOC 2007).

Within the organization, the correlation between the different programmes needs to be strengthened. What applies to the WWAP and IHP (*Share in the activities of the IHP to a greater extent and encourage links between programmes*) also relates to other programmes. Some observations made during past evaluations point to the fact that the organization sometimes failed to fully exploit its capacities (e.g. MAB and earthobservation).

Relevance

UNESCO's activities in regard to freshwater management and supply as well as to ocean environments make a noticeable contribution to MDG 7 (ensure environmental sustainability) and support the achievement of MDG 1 (eradicate extreme poverty and hunger). SPO 3 programmes and activities raise awareness, build capacities and support networks to initiate and facilitate actions contributing to the MDGs. The country programming carried out in Indonesia demonstrates how priorities of the Member States are being considered.

Effectiveness

A number of success stories demonstrate the unique leadership of UNESCO in regard to freshwater and marine resource management. The River Basin approach has been further strengthened with the emphasis to raise awareness about climate change impacts. The knowledge base on groundwater as a crucial resource for freshwater is growing. Building on long-established programs such as IHP and IOC, existing and newly established networks of experts, actors and policy makers, prepare the ground for change and advance on issues such as artificial recharge, transboundary water management, and groundwater for emergency situations. The leading role UNESCO performs originates from the interdisciplinary environment of the organization. Without the experience and science base of IGCP and MAB – as often mentioned examples – the coordination and facilitation would be less effective.

Box 2: UNESCO-IHP was ranked the most influential of all intergovernmental and nongovernmental organizations concerned with freshwater issues by a recent comprehensive independent survey of nearly 40 water-related institutions carried out by the Udall Centre for Studies in Public Policy at the University of Arizona, and entitled "Global Water Initiatives: What Do the Experts Think? Report on a Survey of Leading Figures in the World of Water" (refer 180 EX/4, para.18). The survey was originally presented at the Conference on Impacts of Megaconferences on Global Water Development and Management (Bangkok, Thailand on January 29-30, 2005), sponsored by the Third World Centre for Water Management (Mexico) with support from the Sasakawa Peace Foundation (SPF-USA and Japan). The complete text of the survey features in "Impacts of Megaconferences on the Water Sector", the first pioneering study to assess the impacts of the megaconferences on water policies, programmes and projects at global, regional and national levels, co-published by Springer, the Third World Centre for Water Management and SPF-USA in 2009.

Significant success has been realized in the implementation of Integrated Water Resources Management (IWRM) at the river basin level through scientific research in the application of IWRM approaches and sharing best practices among HELP basins. Moreover, the ecosystem management approaches and use of appropriate tools such as GIS have been effectively introduced and adopted by the partners. Research within African FRIEND projects, namely Southern Africa, West and Central Africa, and Nile FRIEND, was

enhanced when the 4th International FRIEND conference was organized in Cape Town, South Africa in March 2002 – many African hydrologists submitted extended abstracts of papers for presentation at the conference, and since then training courses have taken place, regional database established, research activities are going on, and student Research Degree projects are sponsored. In addition, a global FRIEND report has been published summarizing the major findings and achievements over the past years.

The Global Ocean Observation System (GOOS) is sustained and expanded. New networks are initiated to tackle specific problems such as the Harmful Algae Networks in North Africa and Vietnam as well as the Know-why- Network on land-based pollution sources in the Caribbean. The issue of the impact of mining activities on marine ecosystems (such as coastal erosion) is addressed.

Other programmes contribute biodiversity aspects related to sustainable water resources management (MAB) and coastal zone ecosystems (IOC). The Learning Laboratory Concept yields encouraging responses in Asia, Latin America and Africa and strengthens a more systemic approach to conservation. The adoption of the Madrid Action Plan was a major and successful milestone in this respect. In the Caribbean the sustainable management of the Large Marine Ecosystem is now supported by improved governance. And new networks on cross-cutting topics have been established, e.g. Global Mountain Biosphere Network.

The success also raises expectations. Not only within UNESCO, but also in the UN family UNESCO is increasingly called for coordination and guidance. Taking on the coordination for GEF investments for resources in marine sciences in Africa that are made available through various initiatives such as the Agulhas Somali Current LME project (UNDP), South West Indian Ocean Fisheries Project (World Bank), WIOLab (UNEP), Guinea Current LME project (UNIDO), Benguela Current LME project, is one example of such a request. Communicating climate change impacts and exploring mitigation options (e.g. in river basins) represent another field where UNESCO's leadership is called for.

In the context of UNDAF and country programming, UNESCO needs to make its presence felt by building on its strength as a global network linking science with education, culture, communication and information.

Box 3: UNESCO's activities in Rwanda. In most cases being a non-resident agency makes UNESCO's full involvement in UNDAF and UNDaO a challenge at country level. In Rwanda the implementation of UNESCO activities have increased by benefiting of the One-UN Budget and by working closely with government bodies and the Rwanda National commission for UNESCO. The MAB network of practitioners has been used to build capacity by exchange of experiences.

From the 11 roll-out countries of UNDAF in 2007, UNESCO has activities in three (Benin, Cote d'Ivoire, Kenya) and an additional five (India, Nepal, Pakistan, Iran, Azerbaijan, Uruguay) were mentioned during the questionnaire survey with activities planned for the 2008-2011 cycle. From eight countries of the UNDaO pilots, Pakistan, Uruguay, Rwanda and Vietnam reported achievements under SPO 3.

Efficiency

In recent interviews with staff in regional offices it was stressed that under UNDaO effective interagency communication is crucial and efficient cooperation requires a clear communication of own strengths and objectives. In the competition about access to extra-budgetary funds the organization has to walk a fine line between the function as a facilitator (of networks) and acting as an implementing agency (network member). As already indicated (p.9) the efficient use of resources for achieving planned future results may be

compromised by dependence on external funds, and on project-based (versus programme-based) approaches with likely long-term consequence of a situation where operational budgets are insufficient to carry out programme activities in the scope required. As an example: Provision of extra-budgetary funding will be crucial for implementation of the second phase of SUMAMAD Project and ASPNet focal points will need to actively promote new teaching resource kit for dry-land countries. By the time of finalizing the evaluation report, the extra-budgetary funding had been secured.

Impact

Human activities and climate change impact on the availability of freshwater, increase flood risk, and lead to greater human vulnerability in the short, medium and long term. The multi-disciplinarity of UNESCO represents a promising environment for the assessment of drivers and the exploration of mitigation and adaptation options. In particular, the collaboration between natural sciences actions, culture and human sciences holds great potential.
The regional offices (as part of the global network) create impact by facilitating the formulation of national policies in collaboration with relevant National Committees of the Intergovenmental programmes.

Sustainability

In freshwater management and supply the change of perception on global, regional and local levels initiated by SPO 3 activities is quite noticeable as indicated by several success stories. Local actors are increasingly implementing integrated management approaches.

Box 4: Community-based Flood Resilience project, the Sub-District of Bidara Cina, East Jakarta. The Sub-District, located along the Ciliwung River which is one of the major drainage systems in Jakarta, has major problems that include waste disposal, water supply, health and hygiene, in addition to almost yearly devastating floods. The project, through local organizations such as the self-reliant community institution "Layung Fajar", is using non-structured flood mitigation and preparedness measures to improve the community's understanding and awareness of the natural and social components of floods thereby increasing the people's capability to deal with flood events. The use of local community organizations is one measure to assure project ownership and sustainability.

In order to ascertain sustainability, UNESCO should consider facilitating long-term provisions e.g. by playing a lead role in coordinating GEF investments.

Global monitoring

Global monitoring reports produced periodically for the state of freshwater and oceans.

The review of the evaluations in the light of SPO 3 reveals that UNESCO is expected to be the caretaker of crosscutting and multi-disciplinary topics. The World Water Development Reports 1 and 2 have been successfully compiled. The international context of WWAP and the information provided in the WWDR raise global awareness of the water crisis and strengthen regional cooperation. The reports present remarkably comprehensive overviews of water and policy issues, and do not exclude issues considered controversial in some regions.

Taking the five sectors of UNESCO into account, the organization has a unique advantage over other UN agencies to address cross-cutting issues such as biodiversity conservation, disaster risk reduction or climate change.

One recommendation made for the Evaluation of WWAP (2007) was to revise the focus of the WWDR to include global climate change evidence more visibly. This may require development of new indicators. Yet, regular reporting on global climate change and its linkage to different segments of society is increasing in importance.

This recommendation has been taken into account. **WWDR3**, among other issues, presents updated information on the potential effects of climate change on water resources - indeed the third report is entitled "Water in a Changing World".

Relevance

In the context of UNESCO the assessment of water resources and marine environments is not an aim by itself, but by linking with education, culture and cross-cutting issues the information provided becomes relevant to sustainable development (MDG 7). The assessment of groundwater resources is still at the initial stages and present global assessments need to be refined to include enough detail on regional level to be relevant for the development of national water master plans. Judging by the map products Groundwater Resources of the World (2004) and the update in 2006 containing transboundary aquifers, the process runs in the right direction, but efforts need to be stepped up to deliver crucial information on freshwater resources in time (support to the achievement of MDGs). The professional dissemination of climate change predictions by IPCC is well recognized; however the implications of these predictions for different livelihoods and ecosystems in different regions have still to be assessed and communicated so that different sectors of the society can act accordingly. Global climate change predictions (IPCC reports) have to be 'translated' into local level scenarios to enable actors to develop appropriate adaptation and mitigation measures for communities to cope with impacts such as drought, flood and sea-level rise.

Effectiveness

WWDR 3 was published in March 2009 with a focus on global changes addressing the recommendations from previous evaluations and responding to the need to raise the awareness of governments.

The worldwide ISARM (Internationally Shared Aquifer Resources Management) Initiative is an IHP and IAH led multi-agency effort aimed at improving the understanding of scientific, socio-economic, legal, institutional and environmental issues related to the management of transboundary aquifers. Contributions were made to set up a West Africa Sub-regional network of ISARM to promote studies on transboundary aquifers in West Africa, the Americas and the Balkans. The research network of hydro-geologists of volcanic areas in three countries in East Africa was strengthened. An "Assessment of the Pollution Status and Vulnerability of water Supply Aquifers of African Cities" was successfully carried out within the Urban Pollution of Surface and Groundwater Aquifers programme in Africa.

The observational activities of IOC and the research stimulated and coordinated under its global network are outstanding in performance. Ocean-related cross-cutting issues are further pursued by initiating networks such as the HANA Network (Harmful algae in North Africa) with the aim to strengthen knowledge sharing and capacity for research and management of the effects of harmful algae on living resources and public health. These endeavors are accompanied with capacity building measures (Training in Monitoring and management of Harmful Algae in SE Asia, Gulf Region, South America, and North Africa) and dissemination such as through the African Ocean Portal (africanOceans.net), the Ocean Data and Information Network for Africa (ODINAFRICA) and the very popular and widely distributed newsletters WINDOW and COSMARNews.

The main challenge however is to move from assessment to monitoring. Only if changes can be tracked in time, hot spots are identified and early action may prevent the development of major crisis. Effective monitoring requires the establishment of appropriate indicators and the access to observational tools and data to observe changes.

Efficiency

Information gathered during the evaluation indicates concern on the state of wear and tear of ocean observations equipments such as tide gauges and buoys. Some institutions are able to incorporate costs of maintenance/repairs in their budgets, but many do not have such provisions.

Cooperation with development agencies and stimulating co-financing by donor organizations have paved the way for the successful creation of new knowledge, as in the example in Box 5 below. In this case, the project outcomes triggered a substantial regional development initiative supported by other agencies.

Box 5: Artificial groundwater Recharge in Vietnam. An experimental pilot project on artificial groundwater recharge was established in the sand dune area of Binh Thuan Province to serve as an example in South East Asia. Success has been achieved in the assessment of methodologies and effectiveness of groundwater management through groundwater recharge technologies, and the knowledge and experience of augmenting groundwater resources by artificial recharge is being transferred to scientists, NGOs, governments and donor agencies. Communities in the project area that before were periodically affected by longstanding droughts are now having good quality water for household needs, animals and irrigation. The project has established the UNESCO's leadership for United Nations system activities in the areas of aquifer recharge at the national level. The project has also incorporated into One UN-Plan in Vietnam emphasizing activities to improve capacities and technologies of aquifer recharge in area prone to desertification. Monitoring reports are being produced periodically for the state of aquifer parameters, piezometric heads and gradients, recharge and sustainable yields in Binh Thuan Province, Viet Nam.

Impact

The professional dissemination of climate change predictions by IPCC is well recognized; however the implications of these predictions for different livelihoods and ecosystems in different regions have still to be assessed and communicated so that different sectors of the society can act accordingly.

Box 6: Impact of Case Studies. The existence of a WWAP Case Study in Uganda led to a more effective monitoring strategy, resulted in the development of more realistic indicators, and provided an opportunity to develop the water infrastructure. The WWDR results provided benchmarking relative to other case studies. Financial aid sources demanded efficient use of the aid funds and created more pressure than WWAP. Some pressure developed from the desire to not be singled-out as a nonresponsive country. In Africa, it is most unfortunate if your country is not involved in a case study. Nevertheless, many African countries are organizing themselves to collect water-related data independently from WWAP efforts. There are parallel studies; however, although substantial participation is occurring at all levels, even broader participation is needed. (findings of the External Evaluation of WWD conducted in 2007, Page 33 – Dr. Engin Koncagul)

Sustainability

Whereby ocean observation under IOC builds on a global network of monitoring stations e.g. operated by port authorities, the continuous contribution to the assessment of water resources still needs to ascertain the support of local organizations. The case study approach

and the provision of policy briefs (WWDR-3) are expected to stimulate increased participation (in kind and funds) of governments.

Principles and guidelines

Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.

The review of the evaluations in the light of SPO 3 reveals that UNESCO is recognized as point of contact for capacity building, awareness raising and facilitator for the science - policy interface. As a centre of ideas, UNESCO is well suited to build capacity and to raise awareness about controversial and complex issues. The functions identified for UNESCO can be described as:

- Advocacy for issues which are controversial, crucial for human development and require the concerted action of different sectors of the society (*Maintain the level of advocacy for the IHP*)
- Facilitation of sharing of knowledge, expertise and skills. *Nevertheless MAB is more than the WNBR. It is also a research, education and training programme that is now based on this network of selected sites*. And UNESCO has the means to ensure that dissemination and outreach not remains restricted to the individual network/programme.
- Building on capacity and ascertaining adherence to quality and standards. *They should promote/support capacity building in the developing regions, and could profitably be accompanied by the progressive establishment of regional training centres, of excellence, based upon existing institutions* (MAB 2002)

In addition, the institutes of UNESCO, such as UNESCO-IHE, go even further by delivering tertiary education to enlarge the expert-base for science-based sustainable management world-wide. The UNESCO -MAB launched a postgraduate training in tropical forest management in 1999 at the University of Kinshasa in the Democratic Republic of Congo. Named ERAIFT (École régionale post-universitaire d'aménagement et de gestion intégrés des forêts tropicales), the school trains specialists from francophone and lusophones countries in Africa each year, and has courses at Master (DESS) and PhD (doctorate) levels. The school is training a new generation of African specialists and decision-makers to apply the ecosystem approach in situ to forest management in Africa. ERAIFT now comprise 83 Masters and 3 PhD graduates.

The challenge faced is *how to influence political decision-makers* – based on scientific evidence - *and accomplish greater capacity-building efforts worldwide* (WWAP 2007), *taking cultural and ethical aspects into consideration* (MAB 2002). While achievements are widely recognized by the evaluators, they recommend several actions which can improve the impact:

- *UNESCO should help to develop methodologies and guidelines for policy makers and planners in relation to the MAB Program. The political importance of MAB may well increase, together with the interest and involvement of governments.* The adoption of the Madrid Action Plan for Biosphere Reserves in February 2008 is an important achievement in this direction.
- *A substantial increase in regional workshops, preceded by adequate regional publicity of these events, will likely yield multi-dimensional benefits – the topics could be arranged so as to appeal on a given day to decision-makers and politicians (e.g., governance, human rights to safe water supplies and sanitation),*

and to regional water professionals and scientists on another (e.g., indicators, climate change, use of models, databases) (WWAP 2007).

In respect to the science-policy interface, a key role is assigned to MOST. As one of the youngest programmes its impact has still to evolve. The expectation is that *MOST could add substantially to the success of the Science programmes by helping building bridges between natural scientists and society in general. Indeed, a dimension of MOST which deserves to be further developed is its acting as a tool for generating well researched and documented analyse and policy proposals to be disseminated by UNESCO, in international fora* (MOST 2002).

Relevance

Through SPO 3 UNESCO contributes to a foundation for countries to work towards the achievement of the MDGs. The consensus on sustainable management practices and the implementation in national policies bring about the stability of livelihoods required for the attainment of the MDGs. The global assessments are crucial elements; e.g. increasingly the WWDR is established as the main dissemination platform to initiate policy response.

Box 7: The importance of scientific cooperation for peaceful dialogue has been demonstrated through a South and North Korean joint-project to create a marine peace park along the Korean peninsula, as a UNESCO **Transboundary Biosphere Reserve** (refer 179 EX/4 – Draft 34 C/3). In this regard, the Korea Environmental Policy Bulletin (Issue 1, Volume V) reported in 2007 that "Designating this area as a Peace Park will serve to change the symbol of the region from the tension between North and South Korea to cooperation between the two Koreas. In this regard the creation of the park will be promoted as a South and North Korean joint-project. Relevant institutes and academia will direct data and information collection which will be available for both Koreas."

Guided by the consensus built by the country programming, the national and regional offices (as part of the global UNESCO network) facilitate the formulation of national policies in collaboration with relevant National Committees of the Intergovernmental programmes.

Effectiveness

Advocacy for governments to act is well developed. UNESCO, through IHP, effectively contributed to the establishment of the African Ministers Conference on Water (AMCOW) and the Africa Groundwater Commission - now an important arm of NEPAD/AU. For biodiversity conservation, the AfriMAB network was revitalised, an action plan established, and the African Biosphere Reserves Network Charter drafted. The effective support for governments largely depends on active and operational networks as well as the dissemination of best practice cases.

In regard to ecosystems management, the concept of treating biosphere reserves (BRs) as learning centres for sustainable development is implemented at the Gunung Leusser National Park, Sumatra, where a participatory sustainable development approach including eco-tourism and conservation involving local communities is successfully being realised along with conflict management within the BR concerning internally displaced people.

The inter-disciplinary nature of Tsunami Early Warning System has been recognised in Kenya to the extent that there is increased collaboration between the Ministry of Defence, the Disaster Management Department at the Presidency, the Administration, and hoteliers to facilitate information flow and action in the case of emergency.

The effective scientific support provided by UNESCO immediately following the Tsunami disaster in Southeast Asia can serve as a measure of attainment: field assessments were carried out delivering a crucial and unique representation of wave heights (hazard mapping, link to IGCP), the prompt installation of seismic stations to monitor aftershock activities, and the facilitation of the launch of the Tsunami Early Warning System (TEWS) within three years after the disaster (supporting the Indonesian Geophysical Institute BMG in the development and strengthening of seismic stations, and the coordination provided for the Jakarta Tsunami Information Centre JTIC; link to IOC). Along the same line, damaged infrastructure and facilities in National Parks have been successfully rehabilitated and necessary equipment been provided after the devastating impacts of the Tsunami (link to MAB).

Through JTIC several culturally adapted tsunami educational materials were produced and widely disseminated – linking science, culture and education. Now, Tsunami early warning efforts are maintained by improving infrastructure, providing capacity building, and spreading awareness. At regional and national level, the Disaster Risk Reduction is supported by awareness measures, education, and capacity building. The challenge is for UNESCO to move from role of coordinator of the activities of the JTIC to that of facilitation and support in terms of resources provision on a sustainable basis.

For capacity building and outreach UNESCO continues to be the prime point-of-contact (e.g. disaster risk reduction) and efforts to enhance capacity for sustainable water management are kept at a high level. Building on the existing capacity of experts and institutions is a process which requires partnership. To collaborate on equal levels, efforts have to be made to improve the quality of education and outreach at partner institutions. The PoWER platform is a step in the right direction. Training of trainers (and institutional development) will ultimately provide quality educational facilities in the regions, supporting local actors to improve their skills. Institutions such as UNESCO-IHE should aim to be one among equals for the benefit of sustainable water resources. Along the same line of thought, IOC should expand measures such as the "Leadership Training Workshop" and the "Proposals Writing Seminar" to reach out to other levels of management, to more institutions and countries. In Rwanda, UNESCO supported the country for the creation of a regional center of excellence on Biodiversity and management of natural resources.

Efficiency

One of the challenges in promoting a "Culture of Maintenance" is that asset management and the management of maintenance is not regarded as a priority by governments around the world, although this situation appears to be changing in response to the economic crisis. UNESCO needs to respond to this issue, for example, by expanding the "Leadership Training Workshop" and the "Proposals Writing Seminar" to benefit other levels of management personnel, more institutions and countries.

IHP participated in the successful "Community Water Pilot Project - Rabuor Sinaga Area Development Project" in Kenya which had three components, namely rural electrification, clean water supply, and village banks. What started as coastal zone management project in the Jakarta Bay in Indonesia, led to a successful community waste management scheme in downtown Jakarta. The cases demonstrate how efficiently UNESCO is able to link issues, disciplines and sectors which seldom collaborate under the roof of one project or program.

Impact

The concept of BRs as Learning Centres for Sustainable Development has been realized. This is demonstrated by the example of the Gunung Leusser National Park, where

stakeholder participatory sustainable development including eco-tourism and conservation involving local communities is successfully being realised, and success has been achieved in building networks, collaboration and building consensus among stakeholders, all of which have contributed positively to conflict management within the BRs. In Africa, the transboundary, extra-budgetary project around the Amboseli - Kilimanjaro ecosystem is promoting the same concept and building capacity of stakeholders on climate change issues.

Box 8: New topics for research (IOC). 174 EX/4 – Draft 34 C/3 reported that "New research challenges posed by the international symposium on "The Ocean in a High CO2 World" (10-12 May 2004) attracted major media attention (The New York Times, CNN, BBC, Financial Times of London, etc.) and resulted in a special issue of the Journal of Geophysical Research". In a recent article dated 3 July 2008, the prestigious science journal Nature retrospectively highlighted this meeting, calling it "a turning point in expanding awareness among scientists about acidification". The article, entitled "Getting it across: Scientists need a carefully crafted strategy to catch the attention of policy-makers", uses the IOC symposium as an example to illustrate how the issue of ocean acidification was first brought to the attention of the international scientific community and catalyzed other reviews of the subject that reached both the general public and decision-makers. The US Government is now in the final stages of passing a bill to develop a multi-million dollar research programme to address acidification, and the EU has just approved a 5-year 20 million dollar research programme concerned with the same issue. The IOC is a partner in the EU project, ensuring that the EU and non-EU research activities are coordinated. Additionally, this event represents a good illustration of UNESCO work in line with the recommendations of the Review of MPs II and III, especially recommendation 2 on addressing new scientific paradigms: incorporating "cutting-edge" research.

To advance on international disaster risk reduction (DRR) efforts, IPRED (International Platform for Reducing Earthquake Disaster) was established in July 2008, BCTG (Building Code Taskforce Group) was reinforced in August 2008, and the CIB TG75 (Engineering Studies on Traditional Constructions) was created in December 2008.

UNESCO's achievements in the field of DRR are publicized among other UN agencies and the active participation in UNDAF theme group meetings gave UNESCO a good visibility as a specialized agency working on DRR. During the IDRC Davos in August 2008, a special session on Disaster Education and Communication was organized. The first educational kit on Disaster preparedness and mitigation will be developed in cooperation with the Regional ISDR Office in Arab Sates to be disseminated through out the region.

Sustainability

In Indonesia water is now been recognized as a public good. Advocated by the national IHP committee, the water law was changed from having an emphasis on "water", to an emphasis on "water resources" and therefore taking into consideration the social, economic and environmental aspects/implications of water resources.

Through the work of MAB, BRs getting legal status in national laws, such as is the case with Cote d'Ivoire, and biodiversity conservation in becoming more widespread (Indonesia).

There is a tendency for some institutions and governments not assuming "full ownership responsibility for projects/programmes" implemented in their territory, e.g., disaster risk reduction, prevails, particularly when the program is handled by the UN or other international/bilateral organizations. Local ownership of programs/projects is crucial for success, as some institutions (including governments) tend to think of these as belonging to the respective international agencies – as in the case of data management sponsored by UNESCO/IOC and the maintenance of ocean observations equipments such as tide gauges

and buoys. Building on the expertise of local experts and encouraging them to take on an active role in the implementation and management will ensure the sustainability of interventions such as TEWS.

Priority on Africa and Gender Equality

Relevance

Within Nile FRIEND, a UNESCO co-sponsored Transboundary River Research and Capacity Building Project with participation of Flemish FRIEND Belgium and support of the Nile Basin Initiative made significant achievements as follows: i) generated data which is being shared publicly; ii) hydrologic information system being developed and soon to be completed; iii) organization of meetings that bring together experts to discuss and share data/information; organization of training workshops and seminars; iv) sponsorship of MSc and Ph.D. student research projects. A significant challenge that was indicated is the presence of many players in the Nile Basin Initiative, without adequate coordination.

UNESCO made significant contributions towards the establishment of the African Ministers Conference on Water (AMCOW) and the Africa Groundwater Commission - now an important arm of NEPAD/AU.

Within the maritime realm, stakeholder collaboration in Africa is facilitated by IOC through increased networking, data exchange in Marine Science, increased collaboration between Maritime Agencies and Oil & Gas Exploration Companies in the use of seismic measurements, improvement in the sea level observation network and increased use of hydro-dynamic modelling in marine and oceanographic science.

An extra-budgetary project proposal was worked out to include African experts in second phase of "Sustainable Management of Marginal Drylands (SUMAMAD)" Project to be implemented from 2009. The project will link African experts with other drylands experts from Asia, Arab States and Latin America. English and French versions of new UNESCO Teaching Resource Kits were diffused to African dryland countries through UNESCO's ASPNet.

UNESCO is sponsoring female underprivileged students for the "Appropriate Water Technology" certificate course at the Kenya Water Institute (KWI) through a scholarship programme. The project started in 2006 and by 2008, a total of 15 female students had benefited from the sponsorship. Graduates from the KWI, especially the female graduates, are highly solicited in the Kenya job market. The challenge is to increase the number of scholarships in view of the large number of students needing aid, and also to extend the sponsorship to benefit other UNESCO member countries in Africa.

Activities Implemented within the Hydrology Programme in Africa during 2004-2005, 2006-2007, and 2008-2009 included: i) the assessment of pollution status and vulnerability of water supply aquifers of African cities; ii) the identification of hot spots and major threats to aquifers in African urban areas ; iii) actions for safeguarding groundwater aquifers in urban areas; iv) the assessment of groundwater vulnerability; v) hydro-geological conceptualization of groundwater vulnerability in African Urban areas, which involved the development of methodologies for cost-effective and practical monitoring of water quality, the testing and adaptation of existing hydro-geological models, and the assessment of the status of aquifer exploitation and mapping of groundwater vulnerability; vi) capacity building through training workshops and seminars; and, vii) the establishment of an Africa Groundwater Commission. The challenge here will lie in the utilisations of the results of these assessments for capacity building and how to adapt the results into practical tools for use in project implementation.

The focus and results of the projects outlined above are well aligned to WEHAB, NEPAD and AMCOW objectives, and the results and methodology should be extremely useful to the achievement of the stated objectives. NEPAD has indicated an initiative to establish regional networks and centres of excellence to promote cooperation and strengthen African expertise for water-related issues.

The MAWARI (Management of Water in the Rift Valley) project, a multi-disciplinary and multi-institutional project that was initiated by the French organization "International Centre for Training and Exchanges in Geosciences" (CIFEG) in 2006 and with the participation of UNESCO has been funding research and training on the management of water resources in the East Africa Rift Valley region involving Kenya, Ethiopia and Djibouti. The achievements of the project include: i) training where local experts are sponsored for research activities (MSc. and Ph.D. students); ii) the research area has been well understood; iii) reports are being published. The challenge is to strengthen and widen the scope of research and capacity building activities to benefit more institutions and countries

Effectiveness

The results of remote sensing capacity building projects in TIGER (European Space Agency ESA TIGER Initiative Looking after Water in Africa) were compiled, reviewed and edited for publication, serving as a showcase of how satellite information can help in water management in Africa.

The research network on the hydro-geology of volcanic areas in three countries in East Africa was strengthened.

Between the years 2004 and 2008, ODINAFRICA and IOC/CD in collaboration with bilateral and national organizations organized three leadership workshops for Heads of Marine institutions in Africa. Several training courses/workshops on topics/subjects ranging from the application of Satellite Altimetry to Oceanography, Marine Biodiversity Data Management, Marine Information Management, the development and improvement of websites, Sea level measurement and data interpretation, and on the installation and maintenance of the equipment provided to local technicians during the installation of the tide gauges were also organized. Participants at these training workshops/seminars were drawn from countries in Central, Eastern, Southern and Western Africa. A major challenge here is the follow-up of ex-trainees to assess the extent to which the capacity activities impact on their work, their institutions and countries.

During the years 2004 – 2007, IOC successfully implemented the following activities: i) installation of 8 new tide gauges in the coastal locations in various African countries; ii) development of draft hydrodynamic models at a number of sites in the Western Indian Ocean Region with participation of Institutes through the Capacity Development Programmes and having plans to use the models to leverage full projects with identified stakeholders; iii) development of the African Marine Atlas as a source of geo-referenced data covering base maps, geosphere, atmosphere, hydrosphere, biosphere and the human environment; and iv) development of the electronic repository of marine related publications from and about Africa.

Efficiency

Information was not available for the evaluation of the efficiency of the projects undertaken in Africa.

Impact

Box 9: Capacity Building Success Story. The knowledge and skills acquired from capacity building activities, such as the "Leadership Training Workshop" and the "Proposals Writing Seminar" by IOC can be effectively applied, e.g. the Permanent Secretary in the Ministry Fisheries is using the team building aspects within his Ministry and is applying the knowledge on the on-going formulating a Fisheries Policy for Kenya, and the Director of KenMet has used newly acquired knowledge to raise funds. UNESCO should promote, disseminate and facilitate the emulation of such initiative by other ex-trainees.

Sustainability

For the hydrological projects, the raised awareness among local communities, institutions and authorities, together with the associated capacity that has been generated and is being used in each of the participating countries to provide a basis for continuing investment in the projects. The degree of country ownership is variable, but indications are that the project has impacted on national policy in countries such as Benin and Cote d' Ivoire where the process is established to use the approaches and results for local and national strategies. Also, in many of the countries, the local authorities assisted in identifying the area to be researched and were involved in the implementation, for example in Ethiopia, the Addis Ababa Water Supply Authority was a key participant as was the local EPA, while in Zambia officers from the Department of Water Affairs were part of the project, and the National Director has indicated that the results and expertise are being utilized in some areas of the country.

Funds have their limitations; more efforts to join forces with other initiatives will add value to the efforts undertaken. To respond to the enormous needs for enhancing local capacities in Africa to manage, use and maintain observation systems will require the mobilization of additional resource and funding opportunities.

5. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The evaluation findings indicate that UNESCO has made significant achievements in terms of the expected outcomes for SPO 3 as given in the Medium Term Strategy (34 C/4) with respect to i) establishing leadership for United nations system activities in the areas of freshwater and the oceans at the global and national levels; ii) the periodic production of Global Monitoring Reports for the state of freshwater and the oceans; iii) facilitating the agreement and implementation of principles and guidelines for science-based sustainable management of natural resources in all regions through national policies.

While significant achievements have been recorded in the implementation of SPO 3 activities, there are still a number of challenges that will require further examination and to be effectively addressed – these have been indicated in the last chapter of this report.

Three key issues emanate from the analysis of the evaluators, the discussions with experts and the returns from the global questionnaire survey:

- Considering UNESCO's leadership as a network facilitator (MAB, IHP, IGCP, IOC), its strength in global assessment (e.g. WWAP) and its strong performance in bridging science, culture, and policy (capacity building, outreach, MOST), the social and cultural aspects of likely climate change (losses/gains) should be investigated in follow-up to IPCC predictions and the evaluation of relevant policy interventions be supported.

- The main challenge for global assessment programmes is to move from assessment to monitoring. Only if changes can be tracked in time, hot spots are identified and early action may prevent the development of major crisis. Effective monitoring requires the establishment of appropriate indicators and the access to observational tools and data to observe changes. UNESCO through its scientific framework should take a leading role in the process to define appropriate and globally applicable key indicators for the monitoring of natural resources and ecosystems (here specifically together with UNWater members for freshwater resources and ICSU for the ocean environment).

- For capacity building and outreach UNESCO continues to be the prime point-of-contact (e.g. disaster risk reduction). The regional offices (as part of the global network) create impact by facilitating the formulation of national policies in collaboration with relevant National Committees of the Intergovernmental programmes. Building on existing capacity of experts and institutions is a process which requires partnership. To collaborate on equal levels efforts have to be made to improve the quality of education and outreach at partner institutions.

Considering the sectoral priority for Science in 2008-2009 (promoting research and technical capacity-building for the sound management of natural resources and for disaster preparedness and mitigation) achievements were observed for the fields of water resources management, the role of earth observation for monitoring natural resources and ecosystems, the allocation of resources to address the consequences of climate change on oceans and coastal zones, disaster risk reduction efforts and the development of components of a global tsunami early warning mechanism. In all these areas special attention has been paid to the African continent.

Recommendations

This section contains the list of evaluation recommendations which pertain to the three expected outcomes for SPO 3 as given in the Medium Term Strategy (34 C/4):

UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises.

1. UNESCO should strengthen the correlation between the different programmes by coordinating links and taking adequate measures towards the integration of activities (projects) beyond the individual sector and between H/Qs and regional offices down to the Country Offices, for example, between MAB, Earth-Observation, SHS, and other sectors, in order to make room for synergies within UNESCO. Programme integration activities can be more effectively achieved through an active participatory concerted strategic planning effort within UNESCO, which will foster a 'UNESCO acting/Delivering as One'.

2. It is noted during the evaluation that the ICSU Global Change community (MAB 2002) and the WDCs (IODE-IOC 2007) have recently been incorporated into the new ICSU World Data System (WDS). For Science related programs in particular, the link to global networks such as ICSU should be further explored and encouraged.

3. UNESCO should utilize its unique comparative advantage over other UN agencies through its various sectors as network facilitator (MAB, IGCP, IOC), its strength in global assessment, (WWAP), its strong performance in bridging science, culture, and policy (capacity building, outreach, MOST), to address cross-cutting issues such as biodiversity conservation, disaster risk reduction, etc. through a more focussed approach, and to more directly participate in initiating and promoting identified and on-going activities on: a) climate research, assessments, impacts and follow-up to IPCC predictions; b) adaptation actions such as outlined in the communication of the inter-sectoral platform on climate change; c) facilitating action to disseminate knowledge and the exchange of information, taking into consideration the socioeconomic, cultural and gender aspects for policy formulation and intervention. This will assist local communities to develop mechanisms that enable them to more effectively cope with impacts such as drought, flood and sea-level rise.

Global Monitoring Reports produced periodically for the state of freshwater and oceans.

4. The present global assessments of groundwater resources, including transboundary aquifers that are still at the initial stages need to be refined to include enough detail at regional level to be relevant for the development of national water management plans and their implementation. Efforts to deliver crucial information on freshwater resources management in a timely manner should be stepped-up as one measure to support/promote the achievement of MDGs.

5. UNESCO should proactively participate, in collaboration with relevant UN and International Organizations, in the scientific assessment of the vulnerability of water resources and ecosystems to climate change and anthropogenic threats through the IHP and MAB programmes and disseminate the technical information to member countries, especially in Africa, to support adaptation, mitigation and preparedness (early warning) measures.

Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.

6. UNESCO should continue supporting the transformation of the Jakarta Tsunami Information Centre to put in place mechanisms for the sustainability of the centre's activities. For the Tsunami Early Warning System in Indonesia, UNESCO's role should move from that of acting as coordinator to that of facilitating and supporting the coordination of local experts and regional/national institutions to regularly monitor the situation of tsunami, earthquake hazards and floods, strengthen advocacy to mobilise resources for the maintenance/replacement of ocean monitoring equipments where needs arise, and foster the capacity to effect warnings along the 'last mile'.

7. UNESCO should promote the "Culture of Maintenance" among member States, (for example, the ocean monitoring equipments in the Indian Ocean). One way for UNESCO to respond to this issue is by expanding the "Leadership Training Workshop" and the "Proposals Writing Seminar" to include training on the culture of maintenance and involving all levels of management personnel, more institutions and countries.

Priority on Africa

8. UNESCO should assist African member countries to implement the AfriMAB Charter for effective compliance with the Madrid Action Plan in the region, especially as concerns making BRs sustainable development centres, the introduction of the MAB/BR concept in the management of National Parks, natural resources and human development through the ecosystem approach and landscape level planning. Information should also be disseminated on the synergies and complementarities between BRs, National Parks, World Heritage Sites, Ramsar Sites, and other forms of internationally and nationally designated areas such as Geoparks.

9. UNESCO should encourage and assist member countries to enact laws and regulations that give the BRs legal status, and for BRs to be publicized and promoted at national/international levels. Legal recognition of biosphere reserves could facilitate the resolution of conflicts affecting BRs, e.g. land wrangling, illegal logging, resettlement of displaced people as well as the prevailing expansion of agricultural/livestock activities and other encroachments that threaten protected areas.

10. It is recommended that some BR Managers, Government Officials and Civil Society Organization representatives that are involved in Park management from Africa, together with Programme Specialists from the Africa Regional Bureau undertake study visits to approporiate BR sites / institutes to learn from various good practices that experience in order to take back some lessons-learnt for implementation within the AfriMAB/BRs networks.

11. UNESCO should continue its strong support and leadership role for the water sector in Africa, in particular regarding AMCOW and the establishment of an Africa Groundwater Commission. This can be flanked by the initiating and sponsoring studies/research, to be carried out by African scientists, on the groundwater linkages between the Lakes of the East African Rift Valley in terms of possible water seepages/leakages within the Rift Valley lakes system. As these lakes play very important roles in the hydrological, socioeconomic, eco-system of the sub-region it is

important that necessary studies be conducted in order to identify and address the issues related to their functioning and the findings disseminated. The European Union Commission will open a call for proposals under the 7 Framework Programme for Research in July 2009 with a specific focus on water resource management in Africa. UNESCO should make an effort to be involved.

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Annex 1: Timeline of the Evaluation

S/No.	DESCRIPTION	Months - 2008			Months - 2009					
		Oct	Nov	Dec	Jan	Feb	Mar	April	May	June
1	Preparatory Phase for the Evaluation									
2	Work online/Teleconferences with Team Members to produce design and plan for conducting the evaluation.									
3	Work online/teleconferences with Team Members to produce Inception Report including Draft Report Outline, Finalised methodology/Evaluation Questions.									
4	Desk Review of relevant documentation from UNESCO									
5	Drafting questionnaires and checklists for field interviews, discussions and surveys.									
6	Field Visit to Nairobi, Kenya (26/10 – 01/11/08)									
7	Document review/compilation of data/information from Nairobi									
8	Field visits Indonesia (19 – 28/11/08).									
9	Document review/compilation of data/information from Indonesia									
11	Data/information Analysis and production Working Draft Report									
12	First Workshop with Reference Group Experts in Paris and Consultations with UNESCO H/Qs Experts									
13	Incorporation of observations from Reference Group into Working Draft Report									
14	Exchange of Working Draft Reference Group for feedback									
15	Second Workshop with Reference Group UNESCO H/Qs Paris(Feb 4 - 6)									
16	Incorporation of observations from Reference Group and production Draft Report									
17	Validation Workshop with Reference Group UNESCO H/Qs (March 2 - 3)									
18	Incorporation of observations from Reference Group into Draft Report									
19	Exchange of Draft Reference Group for feedback									
20	Finalisation of Report									

Annex 2: List of Persons Interviewed

UNESCO HEADQUARTERS, PARIS: 2-4 December 2008		
s/n	Names	Functions
1	Mr. Patricio A. Bernal	Assistant Director-General, executive Secretary of the IOC
2	Mr. Walter R. Erdelen	Assistant Director-General for Natural Sciences
3	Prof. A. Szollosi-Nagy	Deputy Assistant Director-General for Natural Sciences; Secretary of the IHP, Director of the Division of Water Sciences
4	Prof. Dr. Shahbahz Khan	Chief, Sustainable Water Resources Development and management Section, Division of Water Sciences
5	Prof. Dr. Siegfried Demuth	Chief, Hydrological Processes and Climate Section, Division of Water Sciences
6	Mr. Jose Alberto Tejada-Guibert	Deputy Secretary of the IHP, Division of Water Sciences.
7	Mr. Engin Koncagul	Programme Officer, UN Water Assessment Programme, Global Water Assessment Unit, Division of Water Sciences.
8	Ms L. Anathea Brooks	Liaison Officer,Coordination and Evaluation – Executive Office, Natural Science Sector
9	Mr. Robert Missotten	Chief, Global Earth Observation Section, Secretary IGP, Division of Ecological and Earth Sciences
10	Dr. Thomas Schaaf	Chief, ecological Sciences and Biodiversity Division
11	Mr. Sammy Mankoto Ma Mbaelele	Chairman of RAPAC, Senior Programme Specialist, Division of Ecological and Earth Sciences
12	Ms. Ana Persic	Assistant Programme Specialist, Division of Ecological and Earth Sciences, Natural Science Sector
13	Mr. Keith Alverson	Head of Section, Secretariat of UNESCO IOC
14	Mr. Julian Barbiere	Programme Specialist, Secretariat of UNESCO IOC
15	Dr. Ulrich Wolf	Programme Specialist, Tsunami Unit
16	Mr. Adrien Vannier	Ocean Observation and Services Section
17	Mr. Jean-Yves Le Saux	Director, Division of Programme Planning, Bureau of Strategic Planning
18	Mr. Cheikh N'Diaye	Senior programme Planning Officer, Division of Programme Planning, Monitoring and Reporting, Bureau of Strategic Planning
19	Dr. Joannes Berque	Consultant, capacity Building Section
20	Mr. Miguel Doria	Assistant Programme specialist, SC/Hydrology
NAIROBI, KENYA: 27 – 31 October 2008		
1	Prof. Joseph Massaquoi	Director, UNESCO/ROA
2	Mr. Emmanuel NAAH	Regional Hydrologist
3	Ms. Noeline RAONDRY RAKOTOARISOA	Programme Specialist, Ecologist
4	Mr. Mika Odido	Programme Specialist, Ocean and Marine Sciences
5	Prof. Micheni Japhet Ntiba	Permanent Secretary, Ministry of Fisheries Development
6	Dr. Joseph R. Mukabana	Director, Kenya Met
7	Ms. Stella Aura	Deputy Director/Principal
8	Mr. Nocholas Wambua Maingi	Assistant Director
9	Prof. Justus O. Barongo	Head, Seismology and Applied geophysics
10	Eng. Mwalimu K. Musau	Executive Director
11	Mr. Fred K. Mwango	Director, Water Resources Management
12	Prof. Mutua	Nile FRIEND
13	Ms. Evelyn I. Oroni	Deputy Park Warden
14	Mr. Harison Ong'anda (by Teleconference)	Head, Kenya National Oceanographic Data and Information Centre
15	Mr. James Kamula	Environmental Officer

INDONESIA: 21 – 29 November 2008

s/n	Names	Functions
1	Prof. Dr. Hubert Gijzen	Director and Representative
2	Mr. Koen Meyers	Technical Adviser, Environmental Sciences
3	Mr. Suer Suryadi	Technical Adviser, Environmental Sciences
4	Ms. Arantzazu Acha De la Presa	Assistant Programme Specialist, Environmental Sciences
5	Dr. Nurhadi Utomo	Director
6	Hendra Wijaya	Head of Section V
7	Hendrat Moko	Head of Section Protection Area
8	Subhan	Head of Section VI
9	Mr. GiuseppeArduino	Programme Specialist, Hydrology and Geological Sciences
10	Ms. Eva Mia Siska	Junior Project Assistant for Hydrology
11	Mr. Klaus Michael Rottmann	Special Coordinator for TEWS
12	Mr. Ardito M. Kodijat	Programme Officer
13	Ms. Dina Maswar	Administrative Assistant
14	Prof. Dr. Endang SUKARA	Deputy Chairman for Life Sciences
15	Peter E. Hehanussa	Director
16	Dr. Hery Harjono	Deputy Chairman for Earth Sciences
17	Dr. Siti Roosita Ariati	
18		Coordinator
19		Board Member
20	Mr. Surono	Chairperson
21	Mr. Tong	Deputy Chairperson
22	Mrs. Upik & Mrs. Marni	Common Kitchen
23	Dr. Noviar Andayani (Mrs.)	Country Director
24	Dr. Efransjah (Mr.)	Senior Advisor External Relations
25	Ir. Noor Hidayat	Director Area Conservation

Annex 3: Terms of Reference

Background

Science and technology are critical drivers for achieving sustainable development, poverty eradication, and ultimately peace and security. The importance of science and technology for attaining the internationally agreed development goals, including the MDGs, has been emphasized in several major summits and United Nations conferences in recent years. In particular this is explicitly addressed in the 2005 World Summit Outcome document, thereby providing an essential framework for UNESCO's actions in science and technology.

Strategic Programme Objectives (SPOs) were first adopted in the Medium Term Strategy for 2008 – 2013 (34 C/4), and programmed for implementation in this biennium (2008 – 2009).

SPO 3 objectives and activities

SPO3 reads: "Leveraging scientific knowledge for the benefit of the environment and the management of natural resources".

It is one of two Strategic Programme Objectives (SPOs) in UNESCO's Medium-Term Strategy 2008–2013 (34 C/4) under Major Programme II: Natural Sciences. The expected outcomes for SPO3 as given in the 34 C/4 are:

- UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises
- Global monitoring reports produced periodically for the state of freshwater and oceans
- Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies

Actions for these three expected outcomes are programmed under three broad Main Lines of Action (MLAs) in the Programme and Budget for 2008 – 2009 (the 34 C/5 approved) as:

- MLA-1: Fostering policies, technical capacity-building, research, networking, education and international cooperation in the fields of water, ecological and earth sciences for enhancing societal responses;
- MLA-2: Oceans and coastal zones: improving governance and fostering intergovernmental cooperation through ocean sciences and services.
- MLA-3: Promoting science, knowledge and education for disaster preparedness and mitigation, and enhancing national and regional coping capacities, including through support for the development of risk reduction networks and monitoring and assessment measures, such as tsunami early warning systems

Purpose of the evaluation

In general evaluations of the SPOs were decided upon as a vehicle to respond to the Executive Board's decision: "*ensure provision for systematic evaluation of all programmes within the C/4*

cycle" (177EX/Decision 26). The evaluation of SPO3 was programmed in the 34 C/5 Evaluation Plan. The purpose is to assess progress towards achieving the objectives of SPO 3 (listed in the previous section) and to examine how progress might be enhanced through improving programme policy, design and delivery. The evaluation will be both summative and formative in nature, and as such key users of the findings will include: (i) The Natural Sciences Sector; (ii) the Bureau of Strategic Planning, and (iii) the Executive Board.

Evaluation scope

Timeframe and geographical coverage

As noted earlier, the SPOs were first programmed for implementation in the current biennium (2008 – 2009). However, given the timing of this evaluation, which is to occur in the second half of 2008, part of the evaluation will focus on programme activities planned in the 32 C/5 and 33 C/5 Programme and Budget (2004-2007), but which fall under the disciplinary areas covered by SPO3. The evaluation will thus cover the period 2004-2008, with the assessment of programme activities already implemented in the previous biennia and those still ongoing in 2008. The evaluation will therefore have both a summative and a formative character.

Geographically, the evaluation will cover developing countries, with field visits planned to up to three African countries and one Asian country. The field visits would include UNESCO's Regional Offices for Science in Nairobi and Jakarta.

Evaluation questions

Major questions to be answered by the evaluation are listed below. The list given is indicative, and not exhaustive. The Science Sector may propose additional evaluation questions where they are deemed necessary.

4.1 Effectiveness:

- What has been the progress made towards achievement of the expected outcomes and expected results?
- What are the reasons for the achievement or non-achievement of results?
- To what extent have beneficiaries been satisfied with the results?
- Is the programme cost-effective, i.e. could the outcomes and expected results have been achieved at lower cost through adopting a different approach and/or using alternative delivery mechanisms?
- Does UNESCO have a comparative advantage in designing and implementing this programme?
- Does the programme have effective monitoring mechanisms in place?

4.2 Efficiency:

- What measures have been taken during planning and implementation to ensure that resources are efficiently used?
- Have the outputs been delivered in a timely manner?
- Could the activities and outputs been delivered with fewer resources without reducing their quality and quantity?
- Could more activities and outputs have been delivered with the same resources?

- Have UNESCO's organizational structure, managerial support and coordination mechanisms effectively supported their delivery?

4.3 Relevance:

- Are the programme objectives addressing identified needs of the Member States?
- How have the needs changed over the period of the programme?
- Are the programme activities consistent with the C/5 and C/4, and the International agreed Development Goals, including the Millennium Development Goals?
- To what extent are the programme activities gender-sensitive?

4.4 Impact:

- What are the intended and unintended, positive and negative, long term effects of the programme?
- To what extent can the changes that have occurred as a result of the programme be identified and measured?
- To what extent can the identified changes be attributed to the programme?

4.5 Sustainability:

- What is the likelihood that the benefits from the programme will be maintained for a reasonably long period of time if the programme were to cease?
- Is the programme supported by local institutions and well integrated with local social and cultural conditions?
- Are requirements of local ownership satisfied?

Methodology

The evaluation will employ a variety of methodologies, including document reviews, stakeholder meetings, questionnaire surveys, focus group interviews, and visits to selected sites. The methodology will also include a meta-evaluation to review previous evaluations of programme activities within the disciplinary areas under this SPO. The evaluators selected for this assignment will be expected to propose a comprehensive design and plan (including a detailed methodology) for conducting the evaluation.

Deliverables

The evaluation team will be required to deliver five key deliverables in English. Parts relating to Francophone countries may be written in French.

#1 Inception report: containing the evaluation framework, detailed evaluation methodology, work plans and logistics.

#2 Draft evaluation report

#3 Half-day workshop on findings and recommendations

#4 Final evaluation report of between 30 and 40 pages (excluding annexes) to include, but not necessarily be limited to, the following elements:

- Executive Summary (3–4 pages)
- Description of the objectives and activities of SPO 3
- Evaluation purpose
- Evaluation methodology
- Major findings (given in terms of achievements and challenges)
- Conclusions and lessons learnt
- Recommendations
- Annexes (including interview list, data collection instruments, key documents consulted, Terms of Reference).

#5 Synthesis report from the Meta Evaluation as an annex to the main report

Further, the recommendations should be practical in nature and easily aligned or traced to the respective achievements or challenges they are suppose to address.

Schedule

The evaluation team will provide the deliverables according to the following timetable:

Deliverable	Date
Inception report	15 October 2008
Draft evaluation report	01 December 2008
Workshop	05 December 2008
Final evaluation report	15 December 2008

Logistics

The evaluation team will commonly be responsible for their own logistics: office space, administrative and secretarial support, telecommunications, printing of documentation, etc. Suitable office space will be provided for the consultants when they are working from UNESCO offices (in HQ or in the field). The evaluation team will also be responsible for dissemination of all methodological tools such as surveys, but IOS will facilitate this process to the extent possible by providing contact information such as email addresses. With regards to field visits, the relevant Field Office and IOS will assist the evaluation team in providing programmatic documentation, setting up meetings and providing security clearance documents, etc.

Evaluation Team

The core evaluation team will be comprised of two international consultants. Depending on the evaluation methodology developed by this core team, other national consultants, advisers and/or agencies may be hired to contribute to the evaluation process.

The team will include two staff members of the Internal Oversight Service who will provide methodological guidance, and manage the evaluation process.

The evaluation team should have the following qualifications:

(a) advanced university degree in the natural/social sciences, humanities, public policy, or related field;
(b) a strong record in leading and/or conducting evaluations;
(c) programmatic experience in Natural Sciences or related areas
(d) excellent writing and oral skills in English.
(e) experience in Africa and/or Asia highly desirable

Preliminary listing of relevant documents

The following is a preliminary listing of relevant documents. The Science Sector and IOS may add documents to this list when necessary, as the evaluation progressed.

1. 34 C/4 UNESCO Medium Term Strategy 2008-2013
2. 32 C/5 UNESCO Approved Programme and Budget, 2004-2005
3. 33 C/5 UNESCO Approved Programme and Budget, 2006-2007
4. 34 C/5 UNESCO Approved Programme and Budget, 2008-2009
5. 34 C/5 UNESCO Evaluation Plan 2008-2009
6. 34 C/3 Detailed Report on the Activities of the Organization in 2006-2007: Major Programme II Natural - Sciences
7. 179 EX/4 Report by the Director-General on the Implementation of the Programme and Budget (33 C/5) and on Results Achieved in the previous biennium (2006-2007) Major Programme II – Natural Sciences
8. 177 EX/4 Report by the Director-General on the Execution of the Programme Adopted by the General Conference Major Programme II – Natural Sciences
9. Results achieved for the individual Main Lines of Action (MLA) of the Natural Sciences Sector, May 2006
10. Evaluation of UNESCO's Contribution to the World Water Assessment Programme (WWAP), October 2007
11. Evaluation of the Man and the Biosphere (MAB) Programme, May 2002
12. Evaluation Report for the Fifth Phase of the International Hydrological Programme, Regional Report for Southeast Asia and the Pacific, May 2004
13. UNESCO's Management of Social Transformation (MOST) Programme, 1994-2001: Evaluation Report, July 2002
14. Evaluation of UNESCO-IHE Institute for Water Education, September 2007

Annex 4: Meta-Evaluation

The review of the evaluations in the light of the Science SPO-3 reveals four main issues related to UNESCO's unique strength (achievements):

- Builder, maintainer and focal point of networks
- Expected caretaker of crosscutting and multi-disciplinary topics
- Point of contact for capacity building - awareness raising
- Facilitator for the science - policy interface.

While providing ample opportunities for UNESCO, a major challenge is revealed by the evaluations reviewed, and the present evaluation of SPO3. This is the challenge for UNESCO to more fully address crosscutting/multi-disciplinary characteristics of real world issues. It is expected that this will increasingly be done on the basis of UNESCO's unique comparative advantage in its mandate for Education, Natural Sciences, Social and Human Sciences, Culture, and Communication and Information. Several major achievements found by the evaluation were indeed of a multi-disciplinary nature, even though there was a science bias in the programmes and activities under SPO3.

In the Medium-term strategies 33 C/4 (2002-2007) and 34 C/4 (2008-2013), UNESCO's functions are described as (a) a laboratory of ideas, (b) a standard-setter, (c) a clearing house, (d) a capacity-builder in Member States in UNESCO's fields of competence, and (e) a catalyst for international cooperation. The documents note that 'these core functions and the ways in which they are pursued can and will evolve to respond to changing circumstances'. Successfully addressing the challenge of multi-disciplinary issues will certainly improve the performance of these functions.

On networks:

UNESCO representing a global network by itself has clearly acted as a standard-setter for interdisciplinary frameworks in support of e.g. biodiversity conservation, water resource management and supply. The achievements made are mirrored in statements such as: *It should be stressed that biosphere reserves are so far the only areas with: complex zonation including protected core areas, buffer zones and transition areas, built-in mediation structures, full participation of local communities and inclusion into a world cooperation network* (MAB Evaluation, 2002). Similar notions relate to IHP, IOC and could be observed for MOST in the near future. To build on these achievements and to improve the impact the following challenges should be addressed.

Within the organization, the correlation between the different programmes needs to be strengthened. What applies to the WWAP and IHP (*Share in the activities of the IHP to a greater extent and encourage links between programmes*) also relates to other programmes: integration of program activities by actively participating in a concerted strategic planning effort beyond the individual unit and between HQ and regional offices will bring out more of the synergies embedded in UNESCO. Some observations made during past evaluations point to the fact that the organization sometimes failed to fully exploit its capacities (e.g. MAB and earthobservation). Planning should also be recognized as a communication process by which participants inform each other about their interests and objectives. Tighter correlation between individual program activities at different institutional and regional levels will foster a 'UNESCO acting/delivering as One'.

Closer cooperation is needed with other organizations – in the UN family and outside. The collaboration with non-UN organizations relates mainly to project implementation in-situ, on national and regional levels with NGOs (such as IUCN), foundations and organizations such as the European Union (DG Research, DG Environment, DG Development). Particular for Science related programs the link to global networks such as ICSU should be further explored. Evaluators noted the ICSU Global Change community (MAB 2002) and the WDCs (IODE-IOC 2007), which are recently incorporated into the new ICSU World Data System (WDS). The cooperation with development related programmes should be increased. Examples are development banks and the OECD. UNESCO capacity building – understood as a process of sharing knowledge and expertise - should continue to put emphasis on the development of joint MSc programs (e.g. IHE 2007) with capable partner institutions in the developing world and strengthens the ties with alumni by a systematic and regular monitoring of their professional careers.

The collaboration within the UN family has now to be seen under the UNDaO process. What was previously regarded as a voluntary option comes now as an organizational (UN) strategy. Among the agencies mentioned during past evaluations are UNU, UN-Water, FAO and United Nations related conventions. As an example: *IODE should explore interactions with other UN agencies which are also hosting similar programmes related to data and information management to benefit from their experience and to share lessons learned* (IODE-IOC 2007). In recent interviews with staff in regional offices it was stressed that under UNDaO effective interagency communication is crucial and efficient cooperation requires a clear communication of own strengths and objectives. In the competition about access to extra-budgetary funds the organization has to walk a fine line between the function as a facilitator (of networks) and acting as an implementing agency (network member).

On cross-cutting issues:

How well UNESCO performed as a 'facilitator' for moving on new and overarching issues is demonstrated by two statements made by evaluators for MAB (2002): *The World Network of Biosphere Reserves constitutes the "backbone" of MAB. It offers sites for conservation, sustainable development, interdisciplinary research, monitoring, education and training. UNESCO is well suited for the development of links between fields that sometimes have a tendency not to communicate.*

Taking the five sectors of UNESCO into account – Science, Education, Natural Sciences, Social and Human Sciences, Culture, and Communication and Information – the organization has a unique advantage over other UN agencies to address cross-cutting issues such as biodiversity conservation, disaster risk reduction or climate change. One recommendation made for the WWAP (2007) states: *Revise the focus of the WWDR to include global climate change evidence more visibly. This may require development of new indicators. Yet, regular reporting on global climate change and its linkage to different segments of society is increasing in importance.*
The impact can be considerable, as UNESCO - the global network - with firm links to national governments through the MAB and IHP National Committees, for example, has excellent means to disseminate knowledge and facilitate the change of perceptions. *The Biosphere Reserves concept has changed the face of conservation, specifically in developing countries, by combining human development concerns with biodiversity conservation.* (MAB 2002)

Once a strategic objective, as MAB has demonstrated for biodiversity conservation, the organization can make excellent achievements - particularly so for building '*links between fields that sometimes have a tendency not to communicate'*. Firmly anchored in an organizational planning and development process, cross-cutting issues and their '*linkage to different segments of*

society' can be effectively communicated through the excellent outreach capacity of UNESCO. The professional dissemination of climate change predictions by IPCC is well recognized; however the implications of these predictions for different livelihoods and ecosystems in different regions have still to be assessed and communicated so that different sectors of the society can act. The expectation is (such as for WWAP) that cooperation is stimulated by building awareness about issues and linkages:

The international context of WWAP and the information provided in the WWDR raise global awareness of the water crisis and strengthen regional cooperation. The reports present remarkably comprehensive overviews of water and policy issues, and do not exclude issues considered controversial in some regions.

On capacity-building:

As a laboratory of ideas UNESCO is well suited to facilitate the building of capacity and to raise awareness about controversial and complex issues. With the exception of the institutes of UNESCO, such as IHE which delivers tertiary education, the functions of the organization can be described as:

- Advocacy for issues which are controversial, crucial for human development and require the concerted action of different sectors of the society (*Maintain the level of advocacy for the IHP*)
- Facilitation of sharing of knowledge, expertise and skills. *Nevertheless MAB is more than the WNBR. It is also a research, education and training programme that is now based on this network of selected sites.* And UNESCO has the means to ensure that dissemination and outreach not remains restricted to the individual network/programme.
- Building on capacity and ascertaining adherence to quality and standards. *They should promote/support capacity building in the developing regions, and could profitably be accompanied by the progressive establishment of regional training centres, of excellence, based upon existing institutions* (MAB 2002)

On science-policy interface:

The challenge faced is *how to influence political decision-makers* – based on scientific evidence - *and accomplish greater capacity-building efforts worldwide* (WWAP 2007), taking cultural and *ethical aspects into consideration* (MAB 2002). While achievements are widely recognized by the evaluators, they recommend several actions which can improve the impact: *UNESCO should help to develop methodologies and guidelines for policy makers and planners in relation to the MAB Program. The political importance of MAB may well increase, together with the interest and involvement of governments. A substantial increase in regional workshops, preceded by adequate regional publicity of these events, will likely yield multi-dimensional benefits – the topics could be arranged so as to appeal on a given day to decision-makers and politicians (e.g., governance, human rights to safe water supplies and sanitation), and to regional water professionals and scientists on another (e.g., indicators, climate change, use of models, databases)* (WWAP 2007).

In respect to the science-policy interface, a key role is assigned to MOST. As one of the youngest programmes its impact has still to evolve. The expectation is that *MOST could add substantially to the success of the Science programmes by helping building bridges between natural scientists and society in general. Indeed, a dimension of MOST which deserves to be further developed is its acting as a tool for generating well researched and documented analysis and policy proposals to be disseminated by UNESCO, in international fora* (MOST 2002).

Annex 5: Components of SPO-3 (34 C/5 approved)

	Strategy	Expected Outcomes	Indicators/Benchmarks	Activities/Actions/Projects			Level of attainment	
				2004 - 2008	Regional scope	budget	achievements	Score (1...10)
Overall Objectives	**Overarching Objective 2:** Mobilizing science knowledge and policy for sustainable development	⇒ Science components integrated into United Nations country programming exercises (e.g. UNDAF, PRS) during 2008-2013. ⇒ Scientific knowledge translated into national science policies supporting sustainable development in all regions. ⇒ Lead roles exercised in United Nations inter-agency efforts pertaining to scientific dimensions of sustainable development.						
Purpose	**STRATEGIC PROGRAMME OBJECTIVE 3 (SPO-3):** Leveraging scientific knowledge for the benefit of the environment and the management of natural resources	⇒ UNESCO's leadership for United Nations system activities in the areas of freshwater and the oceans at the global and national levels firmly established, including in United Nations system country programming exercises. ⇒ Global monitoring reports produced periodically for the state of freshwater and the oceans. ⇒ Principles and guidelines for science-based sustainable management of natural resources agreed upon and implemented in all regions through national policies.						
	Biennial sectoral priority 1: Promoting research and technical capacity-building for the sound management of natural resources and for disaster preparedness and mitigation		**Biennial sectoral priority 2:** Strengthening national and regional research and innovation systems, capacity-building, the use of technologies, and scientific networking, and encouraging the development and implementation of science, technology and innovation policies for sustainable development and poverty eradication					
	Main Line of Actions (MLA) - 1 Fostering policies, technical capacity-building, research, networking, education and international cooperation in the fields of water, ecological and earth sciences for enhancing societal responses;							
Results	⇒ Knowledge base relating to the impacts of global change (including climate change) on river basins and aquifer systems improved – particularly in arid and semi-arid regions – via development of adaptation strategies and sharing of strategies with national authorities and other decision-makers.	Scientific and policy hydrological research in river basins undertaken, especially in Africa:	at least 8 new basins incorporated into the HELP programme; one new sub regional basin incorporated into the FRIEND network; sediment transport database enlarged through the International Sediment Initiative;					
		Guidelines for the scientifically sound management of groundwater resources in all regions developed and capacities in water resources management in arid and semi-arid zones strengthened:	at least 4 regional workshops in cooperation with category 2 centres; guidelines for improved assessment prepared.					
	⇒ Knowledge base relating to sustainable water governance improved, by means of policy-relevant cultural, social and scientific responses, with a special focus on urban water management.	The social and cultural dimensions of water management and the management of water resources across boundaries addressed through case studies, reports and communication links;	2 case studies, a website, and a water-anthropology network established, 2 regional training courses and 4 reports developed, transboundary aquifers studies carried out with other United Nations agencies.					
		Assessment of integrated urban water management in various settings improved through the development of analytical tools and guidelines:	at least 3 models or sets of guidelines developed for different cases covered.					
	⇒ Freshwater education programme developed within the framework of the United Nations Decade of Education for Sustainable Development.	Intersectoral freshwater education programme, jointly designed with ED and UNESCO-IHE, launched.						

	⇒ State of the world's freshwater resources monitored, assessed and reported for improved water management policies and governance.	Monitoring and assessment of the state of the world's freshwater resources reported	issuance of the third edition of the World Water Development Report.					
	⇒ Institutional capacities in ecosystem management and applied geosciences strengthened to foster policies, research and learning for reducing biodiversity loss, for mitigating and adapting to global change, and for enhancing earth system understanding and monitoring, including the fight against desertification.	MAB Young Scientists Research Grants, with a focus on gender equality, Africa, least developed countries and SIDS:	20 grants awarded;					
		ERAIFT capacity-building experience for integrated land and ecosystem management adapted in Africa and other regions, in particular in post-conflict countries, and linkages established with UNESCO Chairs:	experiences adapted in 2 African subregions and 1 other region; South-South cooperation schemes for Latin America-Africa-Asia cooperation initiated;					
		Awareness by policy-makers of issues related to the governance and implementation of environmental treaties raised (CBD and UNCCD):	Educational and public awareness material related to these treaties developed and disseminated.					
		IGCP governance mechanism reformed emphasizing interdisciplinary cooperation, in particular with other ISPs such as IHP, IOC and MAB;						
		Specialized education in environmental protection, mineral and groundwater management and geohazard mitigation strengthened:	35 IGCP projects undertaken;					
		Public understanding of evolution of the earth system enhanced, including geoparks networking:	4 maps produced – 1 geological theme map, 2 hydro-geological and geological risk maps and 1 geo-environmental map of the polar regions; 10 new geoparks, of which 5 in developing countries, included in the global geoparks network;					
		Public awareness of the need for environmentally sound development of planet Earth raised during the Year of Planet Earth (2008):	1 event held each year exploring the United Nations Year theme from interdisciplinary and intersectoral perspectives.					
		UNESCO-Space Agencies Open Framework Agreement on use of satellite and remote sensing technologies in the monitoring of UNESCO-designated sites expanded:	over 20 space partners work with UNESCO in the site monitoring process;					
		Partnerships developed with satellite-based and ground-based initiatives, i.e. Geological Applications of Remote Sensing Programme (GARS), Integrated Global Observing Strategy Partnership (IGOS), Global Earth Observation System of Systems (GEOSS), and North-South, South-South and triangular partnerships:	5 new countries commenced environmental monitoring through GEOSS-IGOS partnership;					
		Support to space-related studies at primary and secondary levels through the Space Education Programme and public outreach events during the International Year of Astronomy (2009):	at least 150 people trained annually through workshops.					
	⇒ Sustainable development promoted via establishment of interdisciplinary learning laboratories using sites of the World Network of Biosphere Reserves for research on biodiversity and sustainability.	Regional, subregional and thematic networks established:	2 networks test the idea of learning laboratories;					
		Recommendations by MAB International Coordinating Council and Advisory Committee for Biosphere Reserves on biosphere reserves as learning laboratories for sustainable development:	Madrid Action Plan and global compendium on biosphere reserves published					

		Links with relevant networks of UNESCO, the United Nations and other partner organizations strengthened:	3 linkages with networks and partner organizations established.					
	⇒ Ecological, biodiversity and biological resources management knowledge improved, and capacities enhanced for socio-ecological research including eco-hydrology, to attain the MDGs and other internationally agreed development goals.	Socially sensitive ecohydrology concepts integrated into engineering approaches:	at least 2 models developed, 5 new thematic task forces operational and links reinforced with at least 1 regional ecohydrological centre;					
		Sustainable development based on sound scientific knowledge promoted through the participation of UNESCO National Commissions, MAB and IGCP National Committees, biosphere reserve coordinators and other experts pertaining to the "UNESCO constituency" in United Nations common country programme exercises:	Involvement in "One United Nations" pilot countries and 2008/2009 UNDAF roll-out countries.					
		Research projects on global climate change in mountain ecosystems developed:	At least 10 mountain biosphere reserves participating in global climate change research network as study and monitoring sites;					
		Long-term programmes developed for arid lands and humid tropics ecosystems:	research networks launched and publications released;					
		Scientific basis for management of great ape habitats and populations strengthened:	conservation status of 2 great ape populations stabilized or improved;					
		Urban ecosystems managed in line with the biosphere reserve concept:	2 new urban biosphere reserves in place;					
		Knowledge for improved management of and adaptation strategies for coastal and marine areas synthesized:	3 analytical studies and sets of guidelines published;					
		Knowledge of past extinctions synthesized to inform policy-makers addressing the CBD-2010 target:	expert group convened and publication released.					
	Main Line of Actions (MLA) - 2 Oceans and coastal zones: improving governance and fostering intergovernmental cooperation through ocean sciences and services.							
	⇒ Management of ocean resources and coastal areas improved via development of policy-relevant information on impacts of climate change and variability on marine ecosystems and coastal zones.	Degree of complete implementation of the open ocean module of the Global Ocean Observing System (GOOS):	62% of system (composed of a network of buoys, moorings, floats, tide gauges, and repeat ship of opportunity hydrographic lines) set up – baseline: 58%;					
		1 policy brief on sea level established and disseminated;						
		Number of new cases where results from IOC globally coordinated or sponsored ocean-related climate research and forecasts have been applied to address national priorities in climate assessment, adaptation, or mitigation:	10 countries.					
	⇒ Healthier ocean ecosystems and sustainable coastal and ocean environments achieved by means of development and dissemination of scientific research, better information and procedures on which policies can be based.	Progress achieved in global monitoring of the oceans:	assessment of assessments phase of the regular process for global reporting and assessment on the state of the marine environment completed and transmitted to the United Nations General Assembly;					

	Number of countries with strengthened scientific capabilities to understand, forecast and manage marine and coastal environmental problems::	3 new local and regional initiatives utilizing IOC management guidelines and results from IOC coastal research activities;					
	30 countries in 4 regions supported in the management of coastal and marine resources through capacity-building and increased access to available ocean data and information products:	15 workshops for strengthening marine sciences institutes; 2 networks of UNESCO/ IOC Chairs partnering in implementing regional projects; 10 new countries joining regional ocean data and information networks;					
	Number of countries applying integrated approaches to the management of coastal and marine resources:	guidelines for ecosystem-based marine spatial planning tested in one biosphere reserve; development of: (i) indicator-based state of the coast reports and (ii) decision support tools for integrated coastal area management supported in 5 countries; 4 countries assisted to formulate integrated management approaches for coastal groundwater within the local integrated coastal area management framework.					
⇒ IOC Biennial Strategy 2008-2009 implemented and results achieved reported to UNESCO governing bodies.							
Main Line of Actions (MLA) – 3 Promoting science, knowledge and education for disaster preparedness and mitigation, and enhancing national and regional coping capacities, including through support for the development of risk reduction networks and monitoring and assessment measures, such as tsunami early warning systems							
⇒ Risks from tsunami and other ocean-related hazards reduced through early warning systems and preparedness and mitigation measures.	Number of regional early warning systems for tsunamis and other ocean-related hazards operational:	4 regional tsunami systems operational (Mediterranean and Caribbean seas) or strengthened (Pacific and Indian Ocean) as part of the global multi-hazard warning system;					
	Number of preparedness materials produced or communities at risk educated with respect to natural hazards impact prevention, preparedness and mitigation measures:	6 culturally adapted and gender-responsive tsunami preparedness educational materials produced in different languages; 1 community per regional warning system (4) educated in disaster prevention, mitigation and preparedness.					
⇒ Risks from hydrological extremes (floods, drought, etc.), earthquakes, landslides, volcanoes as well as risks from human-induced disasters mitigated through integrated approaches focusing on policy advice, strengthened networks and capacities for monitoring and assessment, knowledge dissemination and education.	Networks established and operational or reinforced:	5 networks;					
	Countries, in particular developing ones, and institutions benefiting from capacity-building activities:	at least 10 countries and 20 institutions;					
	Input to United Nations country-level programming on disaster risk reduction:	3 to 5 Member States supported;					
	Improved flood management guidelines:	1 set of guidelines;					

		Global geo-reference database of groundwater bodies resistant to natural and man-made disasters established and tested for use in emergency situations:	2 sets of guidelines for database development;					
		Methodologies developed for improved water resources management for mitigating the effects of drought:	1 pilot drought forecasting system developed with partners;					
		Number of countries pursuing approaches for integrating disaster preparedness and mitigation into educational curricula and community development:	20 Member States;					
		Public awareness increased and enhanced:	5 awareness kits produced and events supported.					

Annex 6: SPO-3 Overview for 33-34 C/5 components

SPO 3: Leveraging Scientific Knowledge for the Benefit of the Environment and the Management of Natural Resources

Programme II.1 **Sciences, environment and sustainable development (33 C/5)**

34 C/5	33 C/5	Actions / Activities	Regional Scope	Regular Budget ($)	Previously Evaluated
MLA 1: **Fostering policies, technical capacity-building, research, networking, education and international cooperation in the fields of water, ecological and earth sciences for enhancing societal responses.**	**Subprgramme II.1.1: Managing Water Interactions: Systems at Risk and Social Challenges**			**8,926,400**	
	MLA 1 Assessing and managing the impacts of global change on the water cycle	Global Changes and Water Resources		625,287	
		HELP Programme	SE Asia, LAC, N. America, Europe	333,000	
		FRIEND		315,794	
		WWAP		185,069	Oct 2007
				1,562,491	
	MLA 2 Managing water as a scarce resource for human needs	Ground Water Management		790,086	
		Water mngt in Arid and Semi-Arid regions		597,180	
		Institutional Capacity Building		479,236	
		Urban Water Management		444,988	
		River Basin Management		391,094	
		Inter-Agency Partnership		213, 600	
				3,023,270	
	MLA 3 Mitigating water-related risks and facing social challenges	Capacity building	Africa, Central America	749,000	
		International Flood Initiative			
		FIRM Cooperative Research Programme			
		Water Education / Training	Africa, Bankok Cluster	646,596	
		Water Friendly Schools Project			
		Extreme Event Management		558,120	
		World Water Forum			
		Water Conflicts Resolution		413,356	
		ISARM project	Africa, LAC, SE Europe		
				2,490,995	
	MLA 4 Managing land-water-habitat interactions through an ecosystem approach (Joint IHP/MAB MLA)	Ecohydrology	Pacific, Iraq, Senegal, Arab Region, Angola, Namibia	641,188	
		Managing Ecosystems with abundant or scarce water resources	Southern Africa, Mekong region	430,414	
		Mountain Resources	Asia and Pacific	188,700	
		International Sedimentation Initiative	SE Asia	280,300	
		Managing Freshwater ecosystems in urban areas	Africa, Poland, Ukraine, Belarus	186,504	
				1,951,200	

34 C/5	33 C/5	Actions / Activities	Regional Scope	Regular Budget ($)	Previously Evaluated
MLA 2: **Oceans and coastal zones: improving governance and fostering intergovernmental cooperation through ocean sciences and services**	**Subprogramme II.1.3**	**UNESCO Intergovernmental Oceanographic Commission**		**3,876,400**	
	MLA 1 Addressing scientific uncertainties for the management of the marine environment and climate change	Ocean-Climate interaction and Climate Change		351,808	
		International Carbon Coordination Project			
		OOPC			
		WCRP			
		ICAM	Africa, South America	232,107	
				827,960	
	MLA 2 Developing operational capabilities for the management and sustainable development of the open and coastal ocean	GOOS		748,873	
		IODE		286,715	**2007**
		JCOOM		159,022	
		Tsunami Warning & Mitigation System		101,460	
				1,479,670	
	MLA 3 Capacity of Member States in marine science for the	Promoting UNCLOS		162,540	

	coastal ocean strengthened			**1,594,490**	
34 C/5	**33 C/5**	**Actions / Activities**	**Regional Scope**	**Total Budget ($)**	**Previously Evaluated**
6 UNESCO Intergovernmental and international scientific programmes (ISPs)		IBSP			
		IGCP			Jan 2004
		IHP			Dec 2003
		IOC		8,849,800	
		MAB			May 2002
		MOST			July 2002
Institutes		IHE		62,880,000	Sept 2007
		ICTP		1,015,000	
34 C/5	**33 C/5**	**Actions / Activities**	**Regional Scope**	**Regular Budget ($)**	**Previously Evaluated**
MLA 3: **Promoting science, knowledge and education for disaster preparedness and mitigation, and enhancing national and regional coping capacity, including through support for the development of risk reduction networks and monitoring and assessment measures, such as Tsunami early warning systems.**	**Subprogramme II.1.2**	**Ecological and Earth Sciences for Sustainable Development**		**3,012,200**	
	MLA 1 Minimizing biodiversity loss through research and capacity-building for ecosystem management	Biodiversity loss and global assessments	Palestinian territories, West Africa, Arab Region	288,538	
		Ecosystem mngt of drylands and mountains	Eastern Africa	286,400	
		Urban systems, carbon economies	Oman, Israel, Arab Region	115,000	
		International Year of Deserts	Tunisia		
		BRIM Initiative	Global		
		Future of Drylands Conference			
		MAB Drylands Workshop	India		
		Ecosystem mngt in coastal areas and humid tropics and south-south cooperation for capacity building	Brazil	88,000	
				829,093	
	MLA 2 Biosphere reserves: promoting environmental sustainability	Establishment of new biosphere reserves	Arab region, SE Europe, Asia and Pacific, Cambodia, Lesotho, S. Africa, Iraq	336,540	
		Regional / thematic MAB networks		232,780	May 2002
		Use of biosphere reserves for platform prevention	UK, Kenya, Arab Region	229,188	
		Strengthening knowledge base	Africa, Central America, SE Asia	118,500	
		MAB young scientist award scheme		145,100	
				1,181,999	
	MLA 3 Enhancing linkages between cultural and biological diversity				
				352,180	
	MLA 4 Global partnerships in earth sciences and earth system monitoring	IGCP	Africa, Central America		Jan 2004
				832,040	