Community Engagement in Environmental Ethics with Reference to Energy Technologies

First draft report for Internal circulation inside ECCAP, and call for further contributions

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Case Study: The Flowing People's Stories：A Study of the Migration due to the Construction of Shihmen Reservoir in Taoyuan County, Taiwan, China

Executive Summary

In this preliminary draft report there is an introduction to community engagement as well as an analysis of ethical aspects of sustainable development through the past several decades and its relation to efforts to promote alternative energy technologies.

In the 21st Century, the quest for sustainable development has been becoming the most important global development agenda. Governments and societies are being prompted to respond to the global challenge with different policy and local initiatives. To highlight sustainable development, this report has delineated ethical dimensions and perspectives of global environmentalism. There is consideration of risk discourses and their relevance to environmentalism. There is consideration of the consequences of the modernity project, namely, the de-coupling of the pre-modern integration and harmony between people, technology and nature, represented by the *Risk Society*. There is discussion of the emerging *problematique* of the risks – shaping the alternative development agenda. The case of ethical advocacies at local, regional and global domains, for alternative energy sourcing for ecological modernization, are discussed along with the socio-cultural embeddedness of alternative energy development, illustrated by cases in Bhutan and Malaysia.

There is also a case study on socio-historical aspects of a hydro-power development. The report will be further developed to examine ethical aspects and dynamics of community engagement, highlighting the importance of beliefs, ethics, norms and values of human society, with an aim to

- solicit and present scientific studies on experience of community engagement, or the lack of it, through evidence-based case studies and/or theory-concepts-informed discussions;
- learn from different experience of community engagement, or the lack of it, with reflections on sustainable quality of life and human rights;
- enhance the quality of community engagement for maximal and inclusive participation of people for sustainability
- envision sustainable human and energy development, with good practices for community engagement.

We are particularly interested in analyses and case studies from different socio-cultural and geo-spatial scales of community, demonstrating the salient features and role of the ethical and normative aspects and dynamics in shaping the processes of community engagement. There may also be case studies that show alienation of people in communities from policy and procedural decisions. How do people living in a community engage, or become engaged, into the whole life cycle of energy technology, from the sourcing of energy to the recycling of energy. More specifically, both successful (best practices) and failure (worst cases) of community could be examined.

1. Community Engagement and Development

1.1. The Scope of "Community"

When speaking of "community", we may be referring to a number of concepts such as the individual family, the village, the state, country, region, or global community. This report takes a broad and inclusive view of "community," including socio-geo-cultural and virtual communities, whereby people live and communicate and participate in a shared space. In the report we include examples of how the concept of community is understood by different groups in Asia and the Pacific, and how this affects community engagement.[1]

Some of the key questions explored in this report are:

• How can we engage communities in the decision-making process?
• Are communities being given a chance to articulate their environmental values?
• Do communities have adequate access to information on energy technologies and their risks and benefits?
• What is the role of education in assisting communities to make decisions about their future?
• Are women and young people being engaged?
• What are the appropriate stages of an energy project for community consultation?
• Is there a trade-off between adequate consultation time and expedient implementation of a project?
• How the 'not in my backyard' view shapes the development of large-scale energy infrastructure?
• How can community engagement reflect the emerging paradigm shift from principles of paternalism through those of informed consent to informed choice?

In this report the concept of community is generally taken to apply to the human community, although a second thread of ecocentrism is present. The objects and subjects of ethics can be viewed in terms of **ecocentric**, **biocentric** or **anthropocentric** concerns. Anthropocentric thinking is focused on the human individual or community as a whole.

Ecocentric concerns, that value the ecosystem as a whole, are used when expressing environmental concerns, but it is not so simple to engage non-humans in decisions regarding energy technologies. The reverence for all of life (Schweitzer, 1966) can apply to the whole ecosystem or to every member of it. In this case humans often speak on behalf of the ecosystem as a whole. There is a trend for more ecocentric views to be included in legislation, with protection of ecosystems for their own value.

People of all cultures have developed technologies as they live together with many species in the wider biological and social community. Some people are willing to sacrifice themselves for the environment. Examples such as the preservation of sacred groves in India for thousands of years, even during times of severe crisis and human death (Gupta and Guha, 2002), show that in some cultures almost all people are willing to die rather than damage that part of the environment they cherish. This behaviour is often linked to religious beliefs in the afterlife.

Biocentric thinking puts value on the individual organism, for example one tree or one animal. Particular endangered species are associated with some of the environmental movements or laws such as endangered species Acts that are discussed in this report. There have been concerns expressed in some cultures, e.g. New Zealand, over the need to value the native fauna and flora, which is considered by many in the Maori community to be something to protect from harm, and even not to modify (New Zealand Royal Commission, 2002).

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1 We invite further contributions to this report to provide further examples. A framework for the studies for ECCAP-WG5 is outlined on the WG5 webpage: http://www.unescobkk.org/rushsap/energyethics/eetwg5/).

Any risks to the agricultural systems of rural communities also require assessment, as animal diseases transmitted by vectors are important to farming families. In addition, there may also be risks to wild animals in surrounding areas, which in some ecocentric environmental views have more intrinsic rights to be left undisturbed than farm animals (Rolston 1994). This calls for broad ecological understanding of the impacts beyond public health.

There are theories of ethics based on community, which argue that individuality, autonomy or rights of a person are not suited to the community structure of society. Community advocates argue that societies need a commitment to general welfare and common purpose, and that this protects members against the abuses of individualism, which can be equated with selfish pursuit of liberty. MacIntyre (1984) argued that Aristotle considered local community practices and their corresponding virtues to have primacy over ethical theory in normative decision-making. These practices include parenting, teaching, governing, and healing.

1.2. Ethical foundations of community engagement

The ethical mandate for provision of energy and development is balanced through a series of ethical principles. The principle that we should love the life given to us (self-love) (Macer, 1998) implies that each person should be given autonomy (self-rule) to work out how to balance the ethical dilemmas and choices themselves. The Universal Declaration of Human Rights of 1948 specifically set as a baseline that all human beings possess equal rights, and should be given a chance to exercise their autonomy.

Justice simply means that if we want others to recognize our autonomy, we have to recognize theirs as well. We cannot just be concerned about the life of individuals but we also have to consider the rights and welfare of the community. There are at least three different meanings of the concept of justice: compensatory justice - meaning that the individual, group, or community, should receive recompense in return for contribution; procedural justice - meaning that the procedure by which decisions about compensation and distribution are made is impartial and includes the majority of stakeholders; and distributive justice - meaning an equitable allocation of, and access to, resources and goods (Macer, 2006).

There are ethical questions about how a society should represent procedural justice when there are major divisions within the society on particular issues. The process of consensus building and reaching common ground may be preferable for many cultures rather than confrontations based on a direct referendum, as is sometimes used in Switzerland.

At present there is great inequality between rich and poor nations in the direction and priorities of research, access to technologies, and in the distribution of and access to benefits that might come from use of technologies and new insights in research. There is wide diversity in the risks that members of each community face from environmental policies and realities. Not only is the distribution of risks different by location, but also due to: individual genetic variation in resistance to hazardous substances and stresses; a person's nutritional state and immediate environment; a family's economic situation; access to energy, nature and technology, for example. These variations can be regarded as a type of lottery. Working towards better global equity is a goal that attempts to even out the lottery that people are born into. This is ethically mandated by Rawlsian justice (Rawls, 1971), which argues that efforts should be made to minimize the variation in all social factors because no one knows before they are born into which situation they will be born, so everyone would wish for equal opportunity and equal exposure to risk. All should have a chance to be born and grow up in an environment free of infectious diseases, if that can be achieved.

The ethical principle of beneficence supports the development of science and technology, and its provision to those who need it. A universal ideal found throughout human

history is that it is better to love doing good things than bad things, and to love our neighbour as ourselves. Humans have used technology in efforts to make their lives easier and better for thousands of years, and the ethical principle of beneficence argues that we should continue to make life better.[2]

The ethical principle of non-maleficence, or do no harm**,** would make us reasonably cautious about premature use of a technology when the risks are not understood. Recently some have advocated a total precautionary principle for some forms of energy[3], which would mean that no technology with more than 0% risk should ever be attempted (Ho, 1998).

Because no human action has 0% risk, the principles of both benefit and risk are used to assess technology and are central to any public policy programme. The basic ethical principles of autonomy, justice, beneficence and non-maleficence can be applied to help decision-making in a range of bioethical dilemmas in environmental ethics.

1.3. From Ethics Committees to Community Engagement

There are many commentaries upon modernization. Commonly there is a concept that broader impact issues should be dealt with after a technology has been developed, or after the power plant is constructed. The extra social factors are sometimes called "externalities", however in the same way that direct risks need to be minimized by precautionary and preventive actions, so too should indirect risks. Resolving these issues needs long-term vision, which can be difficult if only a short time frame is taken for political or financial expediency. The ethics of calculating market costs versus ethical concerns about different options need to be considered part of the choice of technology.

It is clear that not all local communities will share the modern scientific world view that industrialization and development is better for them, so there needs to be flexibility in the approaches available to provide energy services. In the past, paternalistic interventions were taken on the behalf of citizens; however, civil rights movements have empowered people to take these decisions themselves. This general social background could be considered the underlying basis for community engagement, consistent with the ethical principle of beneficence.

In most countries an intervention upon another person requires the consent of persons. This model of informed consent is familiar in medical encounters, but also applied in environmental treaties including for transfer of hazardous waste and movements of living modified organisms. In most countries approvals to develop a factory, power plant, build a house, or a host of other actions that affects others, requires government authorization. Many of these decisions are based upon committee advice. If the committee is making a decision about an ethical choice, we for simplicities sake can call the committee an ethics committee. There are many models (UNESCO, 2005b).

In an increasing number of countries, such committees are established by law and are charged with certain legal responsibilities, typically about the conduct of research or a practice at a local or national level. An ethics committee is a group of persons from a range of disciplines who meet to discuss the ethical issues of particular submitted procedures and review the benefits, risks and scientific merit of the application.

In a medical case, the committee usually requires that each human subject in a medical trial gives informed consent to be involved in the project. Most guidelines however are not

2 Refer to ECCAP WG1 and WG4 reports for views on what is "better", as it varies between person, community and dependsupon the world views that they take.

3 Refer to ECCAP WG12 for a discussion of nuclear energy technologies, as an example.

sufficient for the broad questions of how to obtain informed consent for a large scale intervention involving thousands (or even millions) of persons. To consider the issue at a local level, as required for obtaining appropriate informed consent, it is essential that a local ethics committee open to participation from the affected communities involved is established.

The approaches developed for population genetics and HIV vaccine studies have provided some experience of community engagement that allows both the community and local authorities to be involved in the decision-making process. Prior informed consent requires information to be provided prior to the construction of a power plant. The community needs to consent to the environmental risks of a new energy production facility if these represent potential harm to them, or other members of what they consider to be their community. Globally people vary in the importance they ascribe to the environment, or parts of it. Especially in areas where more traditional world views are found, we may see greater value given to parts of the environment that are forgotten in the modern industrial mindset. We also see variations between persons in all cultures as to their images and understanding of nature and life (Macer, 1994).

In the case of small scale energy production facilities, it may be possible to seek the consent of all persons in direct contact. However, with large scale facilities a large production facility may be developed. For example, within close proximity may be an area with a local population of 100 000 persons or more. In such a case it is unrealistic and unlikely that informed consent can be given by all people in the area. There will always be some people who are against any proposition, no matter how much others value it, but the opponents may not be moved from their houses (or in the case of dam construction, people who object may still be evicted from their houses if water will flood the area in the construction of the reservoir. So a procedure that is neither paternalistic nor paralytic needs to be developed. How can we resolve the conflict between not being paternalistic (which means asking all citizens for their consent) and the impracticality of waiting for every single person in a community to agree?

After the process of consultation and dialogue to seek informed consent, there still needs to be a procedure to supply relevant information to all persons in the area so that the minority who disagree with the construction of an energy plant that poses significant risk have the option to leave. In developing countries, achieving a broad social consensus may not be realistic. The mechanisms for social consensus are not well understood even in affluent countries. Public opinion studies suggest that people may respond differently to theoretical and real situations. There is therefore a need for further research in parallel to the trials, to optimise the methods for engaging different communities.

Although long-term socio-economic impacts of development are not always predictable, the participants should receive benefits from being involved. The concept of benefit sharing is important and related to compensatory justice, as well as to recognition of the persons themselves.

The rejection of energy plants or industry by some members of a society, whether they are national regulatory authorities or isolated local community leaders, will create inequality of access to some in the community who wanted to use the services.

Any intervention may be subject to the philosophy “not in my backyard”. Socially powerful persons are generally more effective at preventing something that they perceive to be risky in their area, or, conversely, at attracting social resources towards themselves and away from weaker persons in the community. It is important that risks and benefits are shared equally, and one way to ensure this would be a commitment to the local community that, if the project/power plant is successful, they would have some benefit – e.g. cheaper electricity prices. In this way, any risks borne by a local population would subsequently be rewarded by that population being willing to host the complex.

In cases involving bilateral research collaboration, the most stringent ethical standards

of the two countries should be applied. This creates problems for non-literate populations, and for populations whose common sense social assumptions are different. It is desirable that internationally agreed standards are developed. The ultimate decision procedure should be decided by the local ethics committee, but international consistency and guidance is the goal.

It is important to take contingencies into consideration when analyzing a development plan. In this case, the added expense in terms of finance and risks to the environment and health needs to be covered by insurance.

Any professional or organization is expected to give independent, balanced and professional technical advice that is suitable for local conditions. There are still questions to be resolved, such as "When should a professional body or expert offer alternative options beyond a list of two initial choices that the country requested help to choose between, when the options are equally viable and may reflect more the overall ethical mandate of a community and/or the ethical culture of the member country?"

Corruption is rife in many parts of the region, and energy projects typically involve large sums of money. There are some interesting parallels to the principles established in community engagement with regard to human genetics sampling. The Human Genome Organization (HUGO) Ethics Committee (1996, 2000) has recommended that the actual or future benefits discussed should not serve as an inducement to participation. Nor should there be any financial gain from participation in genetics research. This does not exclude, however, the possibility of reimbursement for an individual's time, inconvenience and expenses (if any), even if there is a general distribution of benefits to the community. This is an issue that needs to be worked out before the trials begin. The same could be applied to energy technology projects.

1.4. Engaging the public – educate, inform, empower

The current energy system is largely based on the use of fossil fuels. This poses serious constraints on the actual capacity of the economic systems to comply with two related conditions of sustainability, in terms of pollution and scarcity of natural resources. There is now the need to reduce carbon dioxide emissions and avoid dangerous interference with the climate system by switching to alternative, carbon-free energy sources. Public opinion surveys in most countries support the need to search for alternatives, however actual practices see many people constrained by choice or familiarity with high energy consuming lifestyles. Community engagement would not only seek to find the opinions of persons, but also serve as an educational strategy to make people aware of practical alternatives, and link communities together to change as necessary.

While companies are investing heavily in so-called climate solutions the ordinary public must be engaged and clearly informed on how they can contribute to promote energy efficiency and cleaner energy. While scientific reports and media attention of the issues may to a certain extent raise public awareness, there is presently a conceptual vagueness leading to many misunderstandings and confusions leading to the larger public's inability to gauge the potential pitfalls of not setting concrete policy action and measures. Publicity campaigns need to be staged to bring about effective societal transition towards a different energy model that relies much more heavily on the use of renewable resources. Evidence of public apathy to change suggests that the road to transition is going to be difficult if the public is not systematically educated and empowered.

Empowerment would mean shifting the burden of responsibilities to the lay public so as to effectively involve them in efforts towards a sustainable future. Some elements of *social engineering is inevitably necessary* in order to achieve this. While the expression social engineering has negative connotations in current literature, many argue it is necessary because

systematic public reform which involves precise agendas to fully inform, educate and empower, would make sustainable goals achievable. This makes the issue of community engagement in climate change particularly challenging, because it counters the concepts of choice, and becomes more like a system of directed social consent. Discourses on policies and programmes to introduce communities to energy saving technologies is helpful in achieving this goal but the way towards more effective efforts is to invite the public to think about the 'problem' in the light of their fundamental value systems, be it religious or culturally determined. The pursuit of sustainable communities would only be successful if the people are made to realize that they are in themselves 'agents of change.'

As an example, the Malaysian Development Policy formulated almost two decades ago has reflected awareness on sustainable development issues when it expressed that:
"in the pursuit of economic development, adequate attention will be given to the protection of the environment and ecology so as to maintain the long term sustainability of the country's development [and that] Nature and natural resources conservation will be given priority through a responsible and well-balanced exploitation of natural resources which will safeguard the requirements of future generations" (Malaysia 1991).

Policy reforms towards notions of sustainability was subsequently evident in Malaysia in the National Policy on Biodiversity (1998), National Policy on the Environment (2002) and the Third National Agricultural Policy as well as the National Spatial Policy which incidentally demarcated environmentally sensitive areas. It is observed that particular states in the peninsula have begun championing sustainable development strategies since 2000.(Hezri and Hasan, 2004) Of course, most recently the Fuel Diversification Policy which promotes the use of renewable energy, biomass, biofuels, solar and hydro-aided energy systems and the use of cleaner production in manufacturing industries are clear indicators of government commitment (Malaysia 2003). Additionally, the adoption of the ISO14000 series by many companies throughout the nation also indicated non-governmental reforms in accordance with the sustainable development agenda (Lee, 2005) However, some writers have been rather sceptical and pointed out that national efforts to institutionalise concepts of sustainability has not been successful and has proven to be an uphill task for Malaysia. (Jomo *et al.* 2004, Nor, 1991)

It is worth noting that researchers in various universities in Malaysia are recently hopping on to the bandwagon that promotes research in the area of what is newly-termed as "sustainability science'. Sustainability Science is recognised as 'a rapidly developing trans-disciplinary, cross-faculty framework for studying multi-dimensional issues that interact with science and non-science elements including biodiversity, environment, socio-economic and technological concerns, with a time perspective beyond the present generation.' Research groups gather scientists and humanities experts to consolidate efforts to bring about sustainable development in form of the creation and invention of cleaner technologies, the utilization of energy technologies, developing energy from bio-products and waste, designing environmentally friendly built environments and working towards the concept of sustainable communities.

1.5. Community Engagement and Islam: the *MAQASID AL-SHARIAH and* the *FIQH*

How then can we move societies to radically transform into larger groups of conscientious actors each taking care that their personal consumption habits become more sustainable? To quote the Koran: *"Truly, God does not change the condition of a people unless they change what is in themselves"* [Quran 13: 11]

The kind of societal changes to move to adopt alternative lifestyles would need

concerted efforts towards realistic transition. The difficult central question to address is how best to reconcile economic and social progress while safeguarding global life support systems. We can ask how to achieve *bioethical maturity,* meaning the ability to balance benefits and risks of applications of biological and medical technologies (Macer, 1994). The same idea may be extended in community engagement and ethics of energy technologies. This is consistent with intrinsic values found in many traditions, and here there is an analysis of Islam.

To date Islamic philosophical debates that can be extracted to *inform, educate and empower* the people in regards to the ethics of energy technologies have not been forwarded with sufficient austerity. The *Fiqh* and the *Maqasid Al-Shariah* provide an ethical framework from which fruitful defense of energy technologies can be developed. The only way to make our values beneficial and relevant is to have a voice within pluralistic democratic society. Policy makers will find such Islamic value systems useful. Dialogue with community partners may be imparted about how to maximise their participation, delineate responsibilities and jointly determine strategies to achieve a sustainable future.

Any community must be encouraged to participate in environmental projects that seek to do good but they must be firstly be equipped with basic knowledge on environmentally friendly technologies so as to empower themselves as capable agents of change. Benjamin S. Shen had distinguished among "practical," "civic," and "cultural" forms of Scientific Literacy (Shen, 1975). He emphasized the importance of civic scientific literacy: 'there is a need to create an informed citizenry that is ready to participate intelligently in the political and social debates over controversial new technologies.' School projects on renewable energy systems and efficient energy use would directly educate and move the younger generation to contribute significantly towards sustainable goals. Getting students to be engaged directly will substantially instil the necessary values to conserve energy. However, it is again stressed here that such actions should not be dissociated from Islamic values. Muslims are reminded that collective responsibility in the care of the environment and the belief that the earth is merely 'on loan' would propel people to safeguard the enviroment to sustain future generations. The role of individuals as *khalifahs* or stewards that are entrusted to manage the earth responsibly must be impressed on communities.[4] Effects of global warming and climate change is imminent if people do nothing to combat green house emmissions.

The Maqasid al-Shariah

The *Maqasid al-Shariah* (purpose of Islamic law) seeks to protect among five values[5], *human life* and *property* which includes the environment. Therefore, the Islamic teaching on the concept of *istihsan*, 'to avoid evil, harm or sufferance and to seek benefits' is of relevance here. Muslims ought to pursue energy technologies which have clear proven benefits for humankind.

An action of highest moral value in Islam is to give *"consideration of the benefit to others before considering one's end."* This is further illustrated in the rule *Sadd al-dhara'i* which basically contemplates preventing an evil before its occurrence. The Quranic statement related to this rule is *"God intends you comfort and ease and He does not want to burden you with difficulties"* [Quran 1: 185]. Furthermore, the Prophet (pbuh) was reported to have said, *'It is forbidden for anyone to cause hurt to himself or to any other human being.'*

4 Naseef, Abdullah Omar. *Muslim Declaration on Nature, Asisi Declarations*. Cited from Francis, D. (1997). For the Muslim, humankind's role on earth is that of a Khalifah - vicegerent or trustee of Allah. Humans are Allah's stewards and agents on Earth and not masters or owners. It belongs to God and He has entrusted us with its safekeeping. Our function as vicegerents, Khalifahs, is only to oversee the trust. The khalifah is answerable for his/her actions, for the way in which he/she uses or abuses the trust of Allah.

5 Other values are protection of the intellect, family lineage and religion.

The methodology of the Fiqh

The *Fiqh* may be applied to offer practical contemplation of the Ethics of Energy Technologies. The assessment of risks and benefits associated with energy technologies may then be properly attended to. The principle of *Jalbu al masalih* is literally translated as 'the protection of public interest'. Communities must accept that climate change through greenhouse emissions and the problem of depleting fossil fuels are real problems. Gro Harlem Brundtland has remarked that 'climate change victimized everyone' and 'it [is] irresponsible, reckless and deeply amoral to [even] question the seriousness of the situation'. Public interest therefore overrides the self or individual interest. The individual cannot claim that it is the duty of the governments alone to solve environmental problems – it has now become the responsibility of every individual to protect public interest and common property when climatic change becomes a phenomenal threat.

The principle of *al-darurat tubihul al-mahzurat* means 'necessity takes precedence over that which has been prohibited.' There is the popular argument that it is unethical to direct food sources and food-producing lands to become sources of alternative energy (Tenenbaum, 2008). However if one understands clearly that climate change is harmful for a community, even the whole of humankind, it is now urgent to look for greener energy sources. Whole communities can become committed to accept that alternative energy systems are not only preferable but a moral imperative.

The principle of *dafu al-darar wa jalbu al-manfaat* or 'prevention of hardships and allowing the realization of benefits', is self-explanatory. Communities should allow change in human energy consumption habits to secure a sustainable future. The method of Islam of the *Fiqh* and the *magasid al shariah wold* argue that dialogue is essential to promote community involvement towards environmental justice.

Experts have shown that alteration in climate conditions is closely related to the fact that human populations have grown from mere millions in pre-historic times to six billion today. Muslims make up one-fifth of the world population. If this community can be motivated to think that sustainability issues and the solution offered by energy technologies is closely related to the Islamic concept of the good and moral life, wondrous and practical results can be achieved in our battle to cope with problems of climate change. The duty to protect lives and safeguard property (the environment) from disastrous harm and adopting responsibilities by assuming the role of guardians of the earth's resources and qualified agents of change are in consonance with the ethical framework as defined in the *maqasid al shariah* and the *fiqh.* According to Imam Ali, '*justice* is the essence of people's welfare and the adherence to the Divine Shariah.' The Prophet (pbuh) has said that:

the deeds of justice performed by a leader for one day for his people is better than the deeds of a man who performs fifty or a hundred years with his family members in worship of Allah.

2. From Hyper-Modernization to Eco-Modernity

In the last few decades, global development and concepts of community have been characterized by hyper-modernization in East Asia, the opening up Central and Eastern Europe since 1989 –even more so with the dynamism of the enlarging European Union (since May 2004), but there has been a stagnation in Africa and Latin Americas. In spite of the differential growth, the globalizing forces are more than evident in every parts of the world – which have been argued to reinforce global ecological problems. Hence,

economic globalization is juxtaposed with ecological challenges at all levels of governance.

For sustainable development, the very fundamentals for development - scientific knowledge (in objectivity and rationality terms) - have been challenged not just by various socio-political mobilizations (ecological and anti-globalization movements, Lai 2004, 2008a/b/c), but also within the scientific communities (Lai 2003). This section will examine the contradictions of the so-called (scientific) sustainable development, by a focus on the specificities of hyper-industrialization and global environmental issues in the modernization process.

2.1. From *Gemeinshaft – Gesellschaft* to Risk Society

Industrialization is historico-structurally coupled with urbanization, which in turn shapes the changes in social life: transforming the communal life form (*Gemeinschaft* - Community) to a functionally organized modern society (*Geschellschaft* - Society). The genesis of environmental problems can materialize at different stages of this transformation. There are contradictions between industrialization, urbanization, production, consumption, and environment.

Environmental problems and catastrophes can be people-made, e.g., hazardous industries, nuclear energy, production of CFC, noise and air pollution associated with traffic, as well as the wastes at the end of the products' life-cycle. Yet, social science theories have often neglected the intertwining of society and nature. The role of *Nature* in affecting people's world-view is becoming important, particularly now, given *Nature* has undergone an undeniable unprecedented rate of change which threatens the Earth's life support systems (Beck 1986, Lai 2003).

Since the early 1980s, more social scientists have been attempting to understand the relationships between society, people, ecological issues, and global sustainability. For instance, Ulrich Beck (1986)'s *Risikogesellschaft - auf dem Weg in eine andere Moderne* (now translated as *Risk Society - Towards a New Modernity,* 1992a) has not just brought the ecological debate back in social scientific mapping of global sustainability, but he has also challenged a very problematic aspect of our modernity itself. This new and emerging academic concern is the embeddedness of the scientific-technological global market system and the health of nature (Lai 2003).

In response to the irreversible development of macro issues such as global warming and ozone layer depletion, as well as to meso issues such as cross-border pollution, the dying of forests, and micro level issues, such as the increase of toxicity in the food chain and water cycle, there is a critical quest for environment protection and global sustainability in our historical time (Beck 1986, 1992a/b, 2006). The prelude of most recent explorations on the history of modernity has taken the form of critique on the *Enlightenment* or, the doubts upon the reflexivity of the modernity project; and more importantly, they have pointed to the de-coupling process between *People* (transformation from community to society: in Ferdinand Tönnie's

terminology: *Gemeinschaft* to *Gesellschaft*), *Technology*, and *Nature* in the last century. In particular, environmental issues are so crucial for a new, post-cold war, world order. Francis Fukuyama (1992: 7) rightly pointed out that "The fantastic economic growth made possible by modern science had a dark side, for it has led to severe environmental damage to many parts of the planet, and raised the possibility of an eventual global ecological catastrophe".

Environmental degradation and the associated risks at global scale - the unintended consequences of the modernity project- are quite detrimental to both socialist and capitalist states. For the specificity of this set of *Weltanschauung*, Durkheim, Weber and Marx had, respectively, highlighted the different yet inter-related spheres of dominance in their writings when the *De-Coupling* took place. At this historical conjuncture, there is a general consensus as represented in recent explorations. In socio-political philosophy, the *Problematique* is being thematized as: the moral justification for environmentalism (Katz 1983), environmental ethics and justice (Cooper & Palmer 1992; Nash 1989), the rationality and *Realpolitik* of the Greens' socio-political strategies for not just environmental protection but also beyond that (Atkinson 1991, Goodin 1992), the search for alternative forms of society, say, Eco-Socialism (Pepper 1993), and the reflexive modernization in the *Risk Society* (cf. Beck 1986, 1992a/b).

Yet, this orchestrated academic attempt is countered by the natural sciences' breakthrough in reproducing the very conditions of *Naturality*, namely, the bio-genetic and material science engineering through which objects, animals and people could be, in theory and in some praxis instances, *re-created:* the new form of socio-political articulation (Dalton & Kuelcher, eds.1990, Kitschelt 1989), the development direction for *Ecological Modernization*. In praxis, attempts are made for the socio-ecological sound development of the city.

2.2. Articulating the Eco-Risk Paradigms

Environmental concerns have been articulated by those involved in the advancement of natural sciences, as most of them tend to agree that there is a limit to growth. Following the limit-to-growth thesis of the *Club of Rome*, it is argued that the rate and extent of environmental degradation are unacceptable in any of the accepted scientific, economic and societal standards (Meadows, et.al. 1972, 1992; WCED 1987). The critical concern of people is the actual and projected *scarcity* of resources linked to current global market systems. The thesis was also reinforced by the global *Oil Crisis* in 1973, and later contextualized in the urban fiscal crisis. Seemingly, the consequence of the Oil Crisis is the emergence of a *New Ecological [Environmental] Paradigm*, coined by Catton and Dunlap (1978, 1980; cf. Milbrath 1989), in developed countries.

On the other hand, the crisis of the Western sociology in the early 1970s fostered the new social science's conceptualization on the relationship between society and nature in the 1970s, which marked a major theoretical breakthrough, with sociological discourses from the *old* and *traditional* socio-polity to the *new* one (cf. Bell 1973, Inglehart 1990), from the class to non-class based society (Gershuny 1978), from traditional class politics between capital and labour in the production to the new politics *of* production (cf. Conrad 1987, Dalton & Kuechler, eds.1990). The new politics, supported by the New Social Movements (NSMs), questioned both production and consumption processes in our modern world. Whilst, in the Eastern Bloc, the development of *Green Movements* within a socialist polity has provided certain utopian orientations and outlook for the experimentation of Red (socialist) plus Green (environmental) approach in eco-social compatible community development projects (Lai 2003).

Risks, in most cases, are embedded in the modern technologies that are structurally shaped by (yet also shaping) the societal linkages and community dynamics. The new configuration of risks, in contrast to natural disasters in the pre-modern time, is the involvement

of people (as agency) and new technologies. In pre-modern time, natural disasters and the related human casualties were interpreted as a result of spiritual agency, say, by a God or Goddess. Obviously, *normal accidents* in the modern era are rarely explained in spiritual terms. The different conceptions and communication about risk are very much embedded in the time and location-specific cultural and community context (cf. Douglas & Wildavsky 1982) and in the modern world, the state agency's definition of risk acceptability (Clarke 1989). In short, risks and people-made disasters are the inevitability of the modern production and consumption system.

Risks manifested in the worst form as *Normal Accidents* (insightfully coined by Charles Perrow 1984) in technology disasters can only be explained by, and are managed within, a set of rational and scientific models in this phase of modernity. Yet, the related assumptions in managing environmental disasters, on the one hand, and the technological risks, on the other, are still within a paradigm full of *a priori* assumptions and reasoning. At this historical conjuncture, it is appropriate to describe our present form of civilization (i.e. modernity) as *Technology-cum-Risk society*. The contours of New Environment-cum-Risk Paradigm are in fact characterized by the *Technology-Risk-Environment (TRE) Syndrome* which is the invisibility, penetration power and global nature of risks, plus the multiplication of the techno-risks at geometrical rate and exponential scale (Beck 1986). For instance, in Chernobyl, people were deprived of most foods and water supplies in their daily lives for de-toxification purposes.

Societal responses to environmental risks are quite diverse: location specific appeals for Not-In-My-Back Yard (NIMBY, cf. Mowrey & Redmond 1993), Not-In-Other's Back Yard (NIOBY, cf. Heiman 1990) and Best-Appropriate Back Yard (BABY). For the international agencies' initiatives, programs under the framework of the United Nations and European Union are becoming important (cf. McCromick 1989). The greening of the market may contribute to the individuals' commitment to *Save the World* under the motto of *Think Globally and Act Locally*, for their individual health and quality of life, or for their maximization of (consumer's) utility and profits (for producers). Under a new global green fashion, the quest for environmentalism and sustainable development has shaped the market conditions significantly (cf. Lai 2004, 2008a/b; Pepper 1993).

2.3. The Differential-Risks-driven Ending of Nature?

Over the years, there are various major conceptualizations on environmentalism, in accordance with their epistemology, whether they are: (1) Eco-centric, (2) Anthropo-centric or (3) Techno-centric.6 Their distinctive epistemological foundation is much aligned with not just the differentiated scientific tradition, but also the world view of respective discourses (cf. Bramwell 1989; Drengson 1988; Martell 1994; Milton, ed. 1993; Naess 1989; Pepper 1993).

The Eco-centric perspective in the reasoning and conceptualization of *Synergy* refers to the intrinsic importance and vitality of *Nature:* environmental ethics (cf. Attfield 1991; Katz 1983; Pepper 1993), held by eco-fundamentalists or the eco-anarchists (cf. Bookchin 1990). As shown in new social movements, it is not unusual that eco-centric conceptualizations and interpretations have provided cognitive ammunition to different socio-political groups (e.g., anti- establishment, communist, anarchist, fascist, avant-garde, and feminist) for their differential "revolutionary" projects against the dominant pro-growth hegemony.

According to the degree and strength of the Eco-centredness, the Eco-centric perspective can be further classified in terms of the *Shallow*, *Deep*, and *Deepest Ecology* (cf.

6 For a detailed and alternative analysis see ECCAP WG1 report.

Miller 1991: Ch.1, Naess 1989). Shallow ecology, with its limited concern on incrementalism, focuses on how to deal with environmental pollution and resource depletion within the status quo; this perspective is usually associated with the dominant mode of environmental governance of the state and quasi-state organization with supports from natural scientists. In contrast, the thesis of *Deep Ecology* articulates the intrinsic values of nature (say, animal or rock rights) with the notion of anti-domination, anti-hierarchy, and against the dualistic conception of people and nature. It also argues that the intrinsic value of nature is superior to mere human concerns. In many senses, the latter approach resembles a revolutionary mode of environmentalism, for individuals as well as for the socio-political system at large.

As *Deep Ecology* is concerned with the totality of nature and the related equality among different species, it attracts certain sympathy from the socialist community. With a collective (if not a full fledged communitarian) orientation, Eco-Socialism attempts to complete the unfinished project of modernity - a utopian promise for rational, equitable and equal distribution to all concerned spices (*Homo Sapiens* as one of them), as well as coping with the ever emerging environmental crisis and the depletion of the conditions for (re)production. The Eco-Centric perspective on the nature and origins of, as well as their respective strategic agenda for, environmental problems has been significantly shaping the new configuration of social thoughts and ethics - socialism, anarchism and feminism in particular. For instance, one of the Eco-Centric conceptualizations being put into practice is the advocacy for *Bio-regionalism* (which is in fact difficult to define in the present mode of scientific know how, in spite of its emphasis on the role of the community) in which the community strives for its own survival: to have basic food and water supplies yet handling all the waste in recycling mode within the community (like the recent movement for Local Exchange Trading System). As a form of ecological commune, the bio-regionalist's utopia is the sustainable development of the community, without much inter-community exchange and spatially functionally specific exchange (such as global trade) which we used to have.

The bio-regionalists' alternative formula is quite simple if not primitive: only when people solve the resource and waste problems in their own community (i.e. no *exit* option available) will they care about their environment. In other words, the real socio-spatial unit for a *bio-regionalist* is the very existence and survival of the community (*Gemeinschaft*) and hence, advocacy is for a back-to-community movement (cf. Sale 1985, Pepper 1993: 176-194). To a large extent, the movement of *Bio-regionalism* resembles the advocacies of the anarcho-communism and libertarian environmentalism. Yet, the apolitical and over-romanticized nature of some variations of the *Deep Ecology* have limited their real power in actual socio-political articulation and mobilization.

Alternatively, the so-called anthropo-centric conceptualization of *Synergy* is referred to a set of theses which focus mainly, if not solely, on the concern of people's survival and the gratification of their needs rather than taking the relationship between people and nature holistically. In actuality, this orientation of scientific discourse is in line with those of the modernity project and is the best appropriation of nature by different forms of socio-technological set ups. For instance, anthropo-centric reasoning is also applicable for most so-called "liberal" ecological discourses. Collective social action might also be considered part of the so-called environmental movements (Lee and So, 1999).

For almost two centuries, aided by natural scientific hegemony, the most sophisticated developed perspective in environmental discourse is techno-centrism (cf. Thayer 1994). Techno-centrism involves a vulgarized technical analysis (in mathematical or computer-modeling terms) as if the manifestation of environmental problems are nothing more than technical faults. Gifted by the technology revolution, this techno-centric orientation is shared among natural scientists in general and environmental engineering professionals in

particular (cf. Dietz & Rycroft 1987). The dominance of the Techno-centric offerings in environmental protection, particularly its engineering approach in protecting the environment with the *Technology Fix* solution, is problematic. Obviously, the logic behind the techno-centric reasoning and solutions in environmental discourse is in fact derived from or an extension of full-fledged development of technologies in most aspects of human social life. Yet, the techno- solutions offered were criticized as a further reinforcement of the trajectory towards (Bill McKibben's (1990) notion of) *The End of Nature.*

2.4. Ethics of Development

Modernization has been enabling a secularization process, regarding symbiosis 7 between human beings and their natural milieu bringing on the emergence of the post-religious regime of comprehension of the universe without being post-spiritual. Spirituality of nature (animals, plants and their micro-biological living is being re-discovered and re-articulated in the public sphere more than ever. This is self-evident in the greening of public policies and global governances championed by mostly inter-governmental organizations (IGOs: like the UN, the World Bank, the EU and APEC), and international non-governmental organizations (iNGOs), like Greenpeace and People for the Ethical Treatment of Animals (PeTA) (Lai 2004, 2008b).

Since early-to-mid last century, the dominant developmental model in Asia has been that of the Japanese model following their successful modernization resulting in the "Asian Miracle" with the newly industrialized economies (NIEs, like South Korea, Taiwan, Hong Kong and Singapore), ASEAN-4 (Indonesia, Malaysia, Thailand and the Philippines) and the Greater China. More specifically, in the early 1990s, most of the nation states had to champion its project for economic liberalization, for embracing the global free market capitalism. They adopted the international financial institutes (the World Bank and IMF) recipe for reform in macro economic policies, in order to make their economies more competitive. Their strategies were the deregulation of international capital flows and trades, and the re-making of the once protected or socially guaranteed labor market into a deregulated, less rigid, more dynamic and more flexible one (Navarro et al. 2004).

Like other industrialized economies, the success of Japanese modernization is path-dependent upon economic and technological structure and dynamics. Endowed with good technology, energy use is highly efficient in Japan, yet energy-wise it is one of the world's largest importers of energy in the world, and still very much dependent upon the global sourcing of energy, and the existing fossil fuels regime -- and one of the few culprits for global warming, as well as nuclear power.

Far from the misconception about the limited energy resources in Asia-Pacific, Australia, Brunei and Indonesia have been major exporters of energy in and beyond the region. For instance, Australia is also a major supplier of energy resources in the region, liquefied natural gas and uranium. And turning northward, despite its energy deficits, the Chinese economy is still one of the major fossil fuel (coal and oil) producers in the world. Even in the developing economies like the ASEAN-4, the potential for alternative renewable energy (biomass, geothermal, solar, water and wind) are still under-exploited (Lidula, et.al. 2007).

Like other developed economies in history, the majority of the economies in Asia-Pacific have been dependent upon global supplies of energy: with an IGO policy narrative that they are mutually inter-dependent, but there is no sustainability (for eco-systems as a whole) nor self-sufficiency (for individual nation state and community). For this, below we consider a special, if not exceptional, energy user-actor, namely, the Kingdom of Bhutan.

7 Mutually-dependent relationships.

2.5. Bioethics for Self-Sufficiency: Bhutan in its Historical Place

Bhutan has not taken the hegemonic approach for development even though IGOs have encouraged such an agenda and the following of the modernization trajectory of Japan, Asia Miracle and ASEAN-4. Bhutan's alternative development approach attempted to mediate human wishes for the moral-religious pursuit of happiness, spiritual eternity and the preservation of natural environment. Traditionally Bhutan would be described as being under-developed in terms of pro-economic growth and export criteria and development of its abundant natural resources which includes hydropower and forest-based assets, but due to the cultural Buddhist presence, Bhutan has opted to pursue the "Middle Path" development strategy or the so-called Gross National Happiness (GNH). This alternative developmental regime which emphasizes the betterment and wellbeing of the people, poverty alleviation and sustainable development has yielded positive results (Uddin et al. 2007; Zurick 2006).

The developmental ethics within the realm of Gross National Happiness are articulated in terms of shared needs, and the wellbeing of *Homo sapiens*, which includes socio-economic factors as well as the emotion-spirituality of individuals, within a wider ecological milieu. This in turn, translates into policy for socio-ecologically sound development towards sustainability and self-sufficiency. The distinct ethic-normative aspects of this example are described well by Uddin, (et al., 2007):

"In the context of Bhutan, there are a number of conditions conducive to the development of GNH. These include: geographic setting as discussed earlier, size of the economy, the influence of Buddhism on the national culture, and support from the King and the Government. While Buddhism as a path of self transformation has to be taken on consciously by each individual concerned, historically it has played a significant role in developing conditions that have had a very positive impact on local culture and society.

GNH is rooted in the Buddhist philosophy and religion, which interprets nature as a living system rather than just a resource base to be exploited for material gain. In fact, the expression of GNH in Bhutan is essentially a summarization of the basic tenets of Vajrayana Buddhism, which encourages a culture of harmony and compassion. GNH also bridges the gap between values and development. Therefore, the ideals of GNH place Bhutan on a footing, where it can exercise options and obtain judicious benefits from the process of liberalization and globalization taking environmental, social and cultural impacts into account. It is seen as the overarching philosophical underpinning and the ultimate guideline for the nation's future." (Uddin, et al. 2007: 2088).

To examine the Bhutan case in specific terms, three major eco-human development ethics stand out as alternative paradigms for sustainability (self-sufficiency within the bio-regionalism):

(1) Geo-territorial specificity for self-sufficiency [8]: Bhutan is a landlocked country, geo-politically enclosed by regional nuclear giants China and India. Its bio-diversity is much protected, if not isolated, by its unique geo-historic-political position.

(2) The practice of spiritual teachings of folklore and/or religion(s) in the Bhutan case results in the integration of Buddhism into daily socio-culturally-driven praxis. The Bhutanese integrate folklore, quasi-religious-informed daily practices with specific geo-cultural objects, like river and forest-wood assets, in a unique way which synergizes into enhanced survival skills which

8 That is fundamental for bio-regionalism, in a geo-territorially closed system, following metaphoric life-cycle-analysis.

promote happiness and ecologically-sound energy use.
(3) The interfacing between social praxis and the modern form of policy governance: people's specific socio-cultural attachments to nature and its assets in exploiting natural resources in daily praxis on the one hand; the (derivatives of) policy learning, like the Clean Development Mechanism (CDM) from IGOs and donors in shaping national policy for natural resources exploitation and preservation.

Despite its emerging celebrity status in the global search for alternative development paradigms, Bhutan's experimentation is far from conclusive and in some instances, is highly questionable, not just about its transferability beyond the Himalayan localities, but also the very specificity of Bhutan, in that it is not a homogeneous society. Hence the singular Buddhist and socio-cultural appeals have the limits to convincing the non-or-less materialistic, pro-happiness approach for development; this is particularly the case when Bhutanese society has confronted globalization challenges, eco-and cultural tourism for instance (Zurick 2006: 663).

Ethical sourcing of alternative renewable energy has a geo-local dimension, for example, within the energy distribution networks, in this sense, the search for local energy self-sufficiency is a necessary condition for a sustainable strategy. The locality-fix, or sense of localness, and geo-spatial attachment are intertwined in liveable and sustainable socio-ecological systems.

The Bhutan experience highlights forgotten dimensions of feasibly coping and adapting to a system with different energy sources, with particular reference to the micro social level of individual household choices for energy.

There are three different yet inter-related domains of synergy, for enhancing individuals' experiential preference for certain renewable sources. Firstly, humans cannot separate themselves from experiencing their environment physically and necessarily, they, in their social praxis, become accustomed and comfortable to experiencing certain natural phenomena. Phenomena and elements of nature such as water, wind, and the sun evoke a sense of familiarity, security, and inter-dependency, which condition a sense of belonging. Preference for the development of these natural renewable energy resources results from the perception that they are fundamentally safer as they are familiar components of our physical environment and are inextricably integrated into our social environment and, therefore, are more readily understood in terms of energy. Conceptually, it is easy to conceive that these natural entities could be used as energy for we are familiar with the products produced under such energy. For example, wave action destroying a pier, wind blowing down a tree, and the understanding that sunshine is needed to grow crops are of the most basic kinds of events that demonstrate energy.

Secondly, related to the above it is the socio-cultural-religious and/or the pre-modern folklore 'framing' of the form and essence of renewal energies. Unlike fossil fuel (coal and petroleum) and nuclear (risk-ridden), for most of the renewable energies (like geothermal, water, wind, sun and biomass) users will be in direct contact with them in their daily life experience; and in some cases, their familiarity with renewable sources of energy is also spiritually reinforced by legends, mythology and folklore. God and Goddess- like figurative symbols are present for most natural resources (sun, wind and thunder alike).

Last but not least, it is the rejuvenated interest in the search of alternative energy, juxtaposing the new public policy (learning aided by new media of IGOs and iNGOs), narratives on global climate change energy crises, in global risk society of this modernity. By the re-orientation of energy sources from fossil (eco-unsound) fuels to the new fuels, the greening of cultural standpoints on exploiting natural resources, like rivers and forests in a sustainable way becomes the norm. Here, the representations of healthiness of the nature and its reattachment with human beings are once again intertwined with other cultural-spiritual

positions on natural phenomena, like sun (solar energy), wind (monsoonal typhoon) and wave, and thunder. In short, eco-ethics is structurally and historically embedded with indigenous cultures; yet they are also derivatives from modern international policy learning discourses, therefore in order to articulate eco-ethics for a sustainable future, insight into history and culture is necessary.

3. Community and Government Participation in Alternative Energies

3.1. Re-Discovering the Ethics of Ecological Modernization through Alternative Energies

The United Nations Climate Change Conference on 3-14 December 2007 in Bali, a gathering of the "global community"[9], called clearly for alternative development initiatives to be main-streamed. Although the so-called failure of this UN Bali Conference on Climate Change[10] to agree on reductions on greenhouse gas emissions is indeed problematic for the sustainability of the Earth, there was a clear call for alternative clean energy in particular. This section examines the potential and prospects of ecological energy sourcing in the next phase of modernization.

At global level, major sources of greenhouse gases (GHGs) are from, in terms of contributory ranking, power plants in developed economies (24%), slash-and-burn land clearance and deforestation mostly in the developing economies (24%), industrial production (14%), transport (14%), and agriculture (14%), and domestic households (8%). This pattern of green house gas emissions reflects that global warming is much shaped by modernizing or westernization of lifestyles in developing economies. Recently, the international climate panel has confirmed global warming (IPCC 2007).

According to the estimates by International Energy Agency (IEA), the major CO_2 emitting countries are, in millions of tons, USA, China, Russia, Japan, India, Germany, Canada, U.K., Italy, and South Korea; but the CO_2 emission order changes, when measured in terms of per capita terms: USA, Canada, Russia, Germany, Japan, South Korea, U.K., Italy, China, and India (see Table 1 and Figure 1).

Although the Climate Change Congress in Bali did not make quantitative quotas for controlling GHG emissions, the European Commission will adopt tougher measures to tackle carbon emissions. Transport-related CO_2 emissions in the European Union grew by one-third between 1990 and 2005 and, in 2007, constituted 27% of the EU total. Cars and vans are responsible for about half of this amount (the Economist, 19 December 2007, Figure 2). The reduction of CO_2 has been slow in the last decade: about 1.5% a year rather than the 3% needed to meet the voluntary target of 140g/km by 2008 that the industry agreed to at the beginning of this millennium. In 2007, Europe's cars still emitted an average of about 160 grams of CO_2 per kilometre (g/km). The European Commission is therefore insisting that by 2012, the fleet average emissions from new cars sold in the EU must not exceed 130g/km, with another 10g/km reduction coming from other sources, such as low rolling-resistance tyres, more efficient air-conditioning and greater use of biofuels.

Table 1: Major CO_2 Emitting Countries

Country	Million tones per year	Annual tones per capita
USA	5,729	**19.7**
China	3,719	**2.9**
Russia	1,527	**10.6**
Japan	1,201	**9.4**
India	1,050	**1.0**
Germany	854	**10.4**

9 The issue of the representation of the communities around the world is discussed in another section.
10 http://unfccc.int/2860.php

Canada	553	**17.5**
United Kingdom	540	**9.1**
Italy	453	**7.8**
South Korea	448	**9.4**

(Source: IEA)

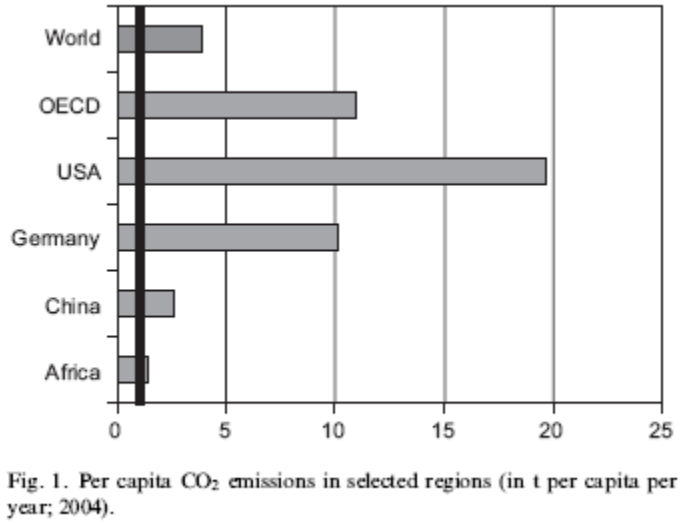

Fig. 1. Per capita CO_2 emissions in selected regions (in t per capita per year; 2004).

Figure 1: Per Capita CO_2 Emission in selected Regions (t/per capita)
(Source: Krewitt, et.al. 2007, p.4970.)

The increase in energy demand due to population and economic growth is particularly important in East Asia, led by its Economic Miracle and Chinese hyper-development in the last few decades. The recent dramatic increase of energy prices, juxtaposing the depletion of natural resources, with ever-increasing demands from the newly industrializing economies (NIEs), highlights the pertinence of the issue in Asia. The limits of existing and potential energy sources, as well as their environmental impacts have been articulated as drivers for the paradigm shift towards alternative, eco-friendly, energy sources. A shift towards alternative and renewable energy sources has been more than obvious at global and local levels as political leadership in the last decade has put more and more emphasis and budget resources into such issues.

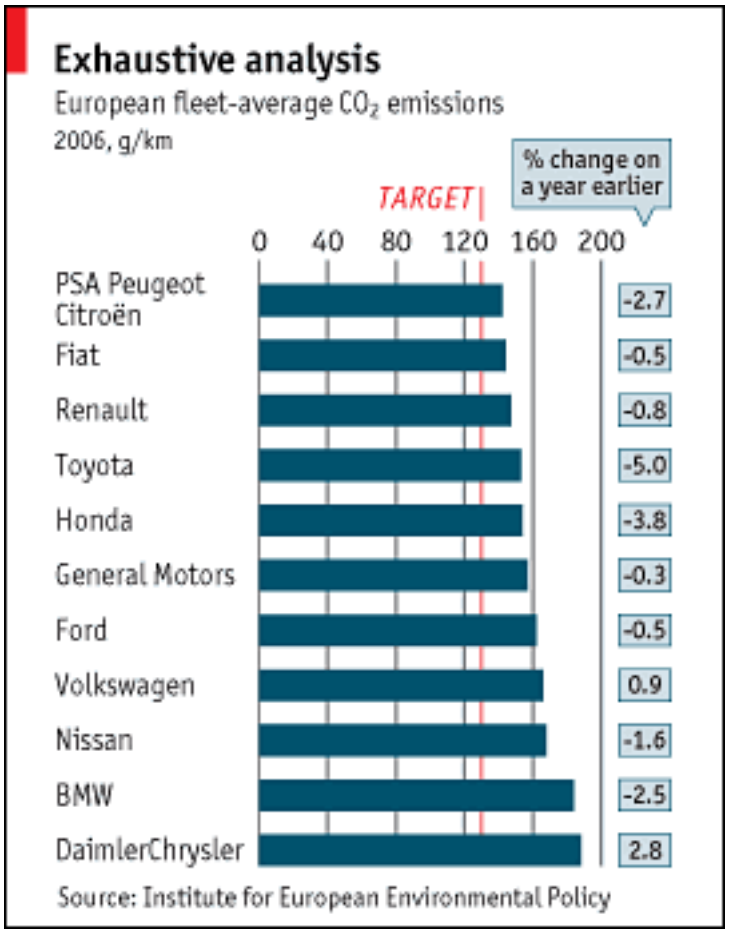

Figure 3: Automobile Emissions in EU 2006
(Source: The Economist, 19.December 2007)

Here, international policy research and cross-border initiatives for sustainable futures are important for transnational mobilizations for socio-ecological justice advocacies (Lai 2008a). More importantly, as Saskia Sassen has rightly pointed out, in a globalization era, there is inter-play between local social agencies and national and (sub-)regional institutions, in shaping the regional-global policy agenda:
"The second example relates to a number of less noticed settings where this fresh combination of elements is also apparent. In some ways the European Union in its latest decade can be seen as a complex and well-achieved third space - neither fully national, nor fully transnational, with a multiplication of specialised trans-local orders that crisscross the old borders" (Sassen 2008).

Facing global environment challenges, like the global climate change and warming, human societies are moving towards an ecologically reflexive orientation, towards sustainable development (Beck 1992, 2006). Hence, the developmental trend is from pro-growth to post-material, communicative, sustainability, which respects not just human rights but also animal rights and bio-diversity (Lai 2008a/b).

It is important to note that, alternative-clean energy (biomass/fuels, geothermal, solar, wave, wind and alike) has made astounding progress in the last decade, giving hope for a

sustainable future for *Homo sapiens* and eco-systems. In particular, alternative clean energy contributes to various kinds of eco-efficiency and efficacy which can be defined, depending on the resources that are input and the product/energy that is output not only in terms of efficiency in traditional energy measures, but in addition, in terms of the positive contributions to the reduction of carbon emissions and the reduction of risk to global-local eco-systems.

Renewable energy sources are diversified but are associated to different socio-technological interfaces which makes the shift towards a sustainable future difficult. Yet, an alternative energy regime is becoming more than obvious, as alternative and renewable energy resources, like wind, solar and others, have been harnessed with minimal/reduced environmental consequences. These green ideologies which promote alternative energy sourcing are very different from the dominant materialistic ones and indicate a new way to conceptualize "development".

Alternative energy use comes with different objective and subjective conditions, particularly the embeddedness of alternative clean energy/technology development, echoing socio-ethical and normative-cultural construction(s) on the arguable, ambiguous concepts of sustainability and self-sufficiency.[11] It is important to examine the development-in-context of community goals, as described in chapter 1.

3.2. From Ethics-embedded Green Praxis to Bio-Regional Geo-Politics

Prior to 2006, most of the super-regional states or regional alliances, like the EU, ASEAN and APEC, were increasingly energy dependent on imported or global sources, and had not many policy initiatives at the regional level. Since Autumn 2006, and the European energy crisis in regional-global sourcing of energy, Europe finds itself in a troublesome position, in addition to new geo-political dynamics and rivalries such as Russia's Gazprom. Such dependency has been manifest in Ukraine's dispute with Russia in January 2006 and Belarus in January 2007. In each case, with both gas and oil, Russia cut off suppliers, albeit briefly, and in both cases the "price" of agreement included ceding control of pipelines. Geo-politically, Russia's foreign policy towards its former allies around the oil- and gas-resourceful Caspian Sea has become more confrontational, with Georgia's energy independence attempt being the flash point (Helm 2007).

Here, the ethical interfaces, as well as the interfacing process, between the eco-praxis and its bio-regional local-spatiality, in searching for energy independence, highlight the role of policy learning within the web of geo-politics at transnational (inter-state, IGOs system) and corporate business levels and between local wisdom and foreign knowledge.

Undoubtedly, the Bhutan case discussed previously, has some success. Renewable energy resources have played a substitution role for the fossil fuel sources with improved environmental consequences. In Bhutan, there has been a beneficial effect of rural electrification for the environment as villages under the hydro-electrification schemes tend to use less fuel wood and kerosene; this is particularly the case for the so-called mini/micro hydropower (<1MW) and the run-of-the-river hydro-projects, which are of low environmental and social impact in comparison with large ones. For the environment, the reduction of fuel wood consumption has been by 25-25% in rural areas under the electrification scheme (Uddin, et.al. 2007). The partially successful experiences of Bhutan provide greater understanding for the rejuvenation of renewable energy development trends in Asia-Pacific and demonstrate some

[11]11 For the problematique, refer to the UNESCO Bangkok Ethics of Energy Technologies Launch Conference (Engwerda-Smith and Macer 2007) report, which addressed the scope and complexity of ethical issues of renewable, sustainable energy sourcing andtechnologies; see ECCAP Web site: http://www.unescobkk.org/rushsap/energyethics/

of the possible implications and ramifications resulting from different paradigm choices.

The challenge of energy supply security, in the context of climate change mitigation strategies (like CDM, and the apocalyptic narratives of IPCC), is not just a local or national issue, but also a global issue, which redefines and reshapes alternative energy sourcing in Asia-Pacific. Rejuvenation of exploration for renewable energy is the norm in the region for recent policies. The present state of renewable resources in the region is far from minimally utilized as its abundance of natural resources has made renewable energy development an attractive option. There continues to be high potential to enlarge the renewable energy market (Lidula, et.al.2007; Figure 4).

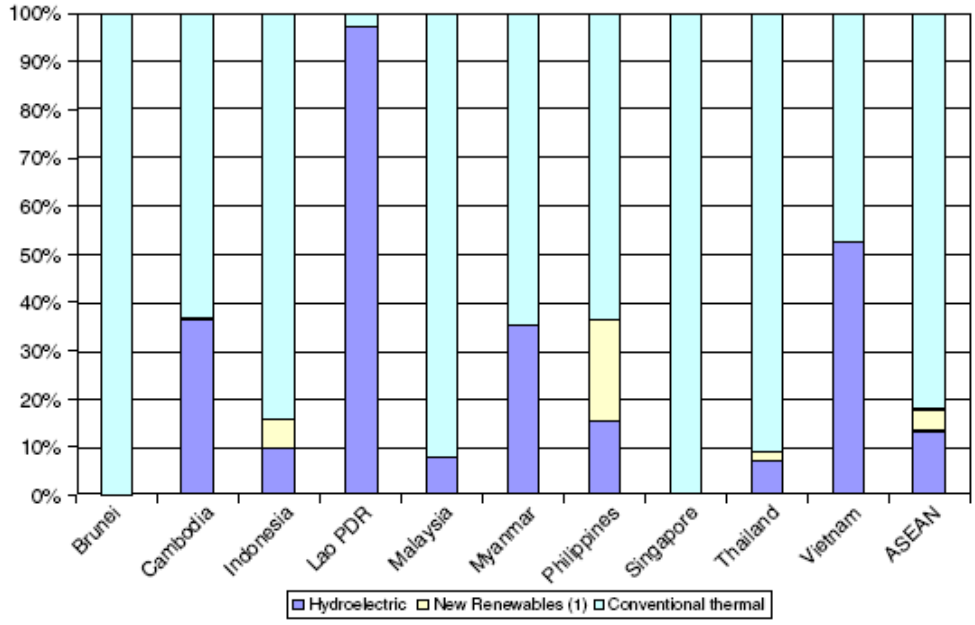

Figure 4: Energy Utilization in ASEAN Countries 2005 (Source: Lidula et.al. 2007, p.1443).

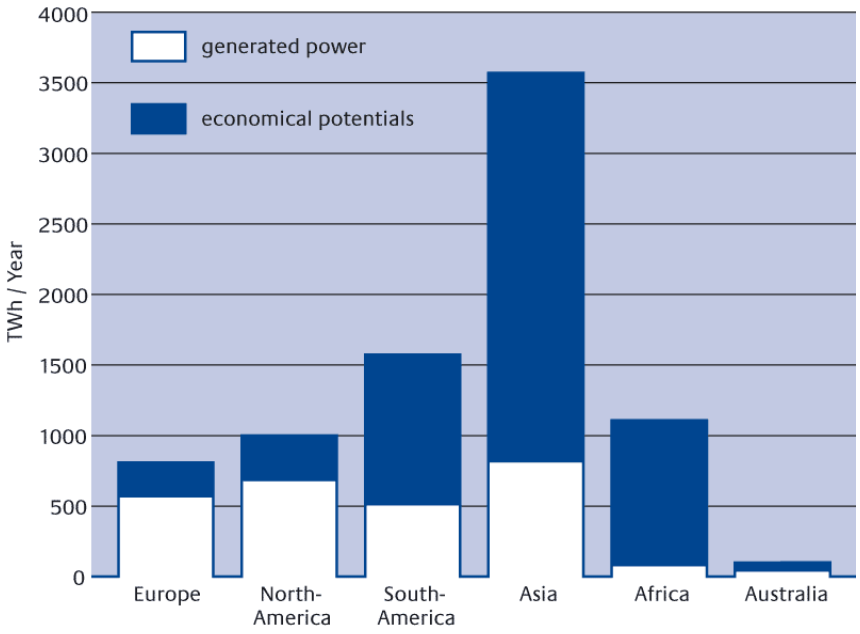

Figure 5: Global Hydro-Power Analysis (Source: DENA 2007)

In actuality, there has been some progress in the adoption of renewable energy in the region, even for developing countries like India which has the second largest population in the world. India's solar energy generation capacity ranks 4th in the world following Japan, Germany, and the United States. With more fiscal incentives, enhanced regulatory policy guidance and technological transfers, the Indian government aims to increase the renewable energy share in the total energy supply from 7% (in 2007) to 10% by 2012. But the critical ethical question is whether fiscal incentives, which reflect certain externalized values, per se, should be the policy mechanism to redirect human orientation towards a sustainable one.

Globally speaking, Asia-Pacific has the highest potential for hydropower (DENA 2007), which is particularly significant due to the high efficiency rate and longevity that hydroelectric plants are now able to achieve. Technology has improved such that hydroelectric plants convert over 90% of the water energy into electricity and their long service life is of between 60 and 90 years (DENA 2007; Figure 5).

Regarding the under-utilization[12] of renewable energy, some countries in the region (following their counterparts in Europe), such as Sri Lanka, Thailand, Indonesia and South Korea, have introduced price incentives for electricity from renewable sources whilst Asian urban sectors, such as Bangkok, are experimenting with the municipal solid waste (MSW)-to-energy regime for renewable energy sourcing (Chaya and ,Gheewala 2007). It is interesting and crucial to consider whether these programs and market mechanisms are facilitating the paradigm shift towards eco-modernity.

Though China has experienced a two-decades long economic expansion, the rural sector in China which includes most China's 1.3 billion people, is still much under-developed, particularly in terms of electricity supply. The government is now promoting multiple sourcing of renewable energy driven electrification for remote villages with the goal that by 2010, everyone in China will have access to electricity in their homes. It is certain that this policy initiative will be welcomed by most people, particularly by those who will benefit from the policy. The ethical dilemma lies in the fact that China should be able to provide for a higher standard of living and well-being for its many poor residents, yet when the impact to the environment under-development coupled with mass consumerism acts to decrease the standard of living by destroying the very environment on which we all depend, it becomes difficult to reach a consensus to what should be done. Different stakeholders maintain different points of view resulting in different solutions, none of which providing an unbiased position. Some middle ground should be met.

But at regional and global level, the prospects of Asia-Pacific's renewable energy regime[13] will be led by the political economy of and the struggle for global energy, within and beyond the historical rivalry between/among developing and developed economies in different geo-political regions. The geo-political connections are complex and include bodies and relationships such as the Chinese energy diplomacy, Australian natural resource-based engagements, the energy-empowered Russian supremacy in Europe and Asia, USA-Japan-Western economies differential engagements in the Middle East development, as well as the rise of African resource-export economies.

Within Asia-Pacific, the emergence of an "Islamic' economic alliance led by Indonesia and Malaysia is significant as both countries have recently begun to foster the great potential of palm oil production for bio-fuels, and the former is also endowed with the world's largest potential in geothermal power. Religious-cultural ties will be relevant to the structure of

12 Mostly less than 10% of the energy sourcing.

13 Refer to ECCAP WG 9 report on State of the Art review of Energy Technologies

economic alliances for energy development.

This is also the mirror imaging of (or in contrast to) the belated calling from, or the under-development of human (economic, social and cultural) rights and democracy regimes in the region…. Hence, the calling and mobilization for securing alternative renewable energy is geo-spatially local; the sense of indigenous energy resources (the essence of local ethics) is very crucial in shaping the developmental trajectory of renewal energy consumption in communal life.

3.3. The New *Enlightenment*: Eco-Modernity in a Globalized World?

Building an energy vision is crucial for a sustainable future, particularly in realizing the potential of energy innovations to overcome energy poverty, with a mix of wind, solar, small hydro, biomass power, or technology such as LED lighting. More specifically,

"These can empower the poor to develop productive small and medium enterprises, to gain autonomy and independence in the generation of energy. Off-grid projects are increasingly seen in areas where publicly regulated electricity grids have found it unviable to reach. These initiatives can deliver real change on the ground, enabling citizens to access refrigerated medicines, light schoolrooms, power water pumps and use mobile telecommunications - but only if they are tailored to local needs and delivered in sustainable ways." (Litovsky 2007).

In the coming decades, following the exponential increase of energy consumption in Northeast Asia, Southeast Asia should experience another explosion of energy demand, as seen in Indonesia and Thailand. Indonesia, despite of its strong energy resource base, still relies on fossils fuels such as coal, gas and oil, and has renewed interest in nuclear energy, which in the long run is questioned by some to be able to contribute to sustainable self-sufficiency (Nazif 2007). Whilst for Thailand, the projects for energy sourcing diversification appear to be progressing well, at least in terms of experimentation of different renewable energies (Charojrochkul 2007, Jai-in 2007), but the pro-development economic strategies and mass consumerism have substantially increased the demands for all forms of energy. Hence, according from Dr Kurujit Nakornthap (2007), Deputy Permanent Secretary of the Ministry of Energy, Thailand has to look for sourcing from neighbouring countries, in all possible forms of energy including non-renewable as well as renewable, and nuclear power. Nuclear energy is currently the subject being discussed by the infrastructure planning committee whose intention is to have operating reactors by 2020. These examples demonstrate the challenge of developing a project for clean, renewable, sustainable, self-sufficient energy sourcing in the region.

In these searching for energy sources, the market is expected by many to be able to absorb such demands at the inter-regional and global geo-scales, but with increasing sensitivity for ecological business practice, in terms corporate social (and ecological) responsibility (Epstein 2008).

To end this section, we want to remark on the rocky road for the emerging alternative-clean energy regime, towards eco-modernity.

In 2007, the EU for the first time of it history set its energy policy goal for the reduction of greenhouse gas emissions to at least 20% less than the 1990 level by 2020, to increase energy efficiency by 20%, and to promote renewable energies to 20% of the total usage. Whilst in Asia, Lidula et al. (2006) rightly articulate that the utilization of renewable energy resources in the region is far from anywhere near the potential, therefore it is feasibly possible to follow the EU case and reduce carbon emissions with alternative clean energy sourcing.

The regional initiatives towards sustainable development have been few, though recently the first climate declaration in APEC's 19-year history, the Declaration on Climate Change (9 September 2007) passed, however, it included only unbinding targets, or the

following "aspirational goals":

- Increase efficiency to reduce energy intensity by at least 25% by 2030 (base year: 2005);
- Increase forest coverage in the APEC region by at least 20 million ha by 2020;
- Foster low emissions technology and innovations;
- Enhance alternative and low carbon energy uses.

Responding to these, many critics challenged the "aspirational goals" of APEC (representing 21 economies, housing 41% of the world population which contributes to 60% of greenhouse gas emissions globally) as merely a side-step to realistically coping with the global climate crisis. In actuality, the significance of the ecological footprints of APEC activities are cause for a more serious tone and the development of implementable targets.

Many normative questions arise from this situation, such as how it came to be that Asia-Pacific does not have similar regional initiatives to the EU and whether modernization processes that are ecologically unenlightened can be robust at all when the environment is at stake. There are four major areas to consider for sustainable, self-sufficient energy sourcing in Asia-Pacific.

Firstly, it is clear that Asia-Pacific is in an advantageous position geo-spatially with regards to alternative renewable energy. There is high potential to develop solar energy, particularly in the Sunbelt, geothermal energy due to the location of tectonic plate boundaries, as well as wind and water resources. These possibilities remain largely under-exploited or untapped. For example, despite the global advancement of technology to harness wind energy (100-fold increase in the output of wind turbine, up to 5MW turbine, Figure 6), the technology remains under-utilized in Asia-Pacific. In Pakistan, this under-utilization has been attributed to a mix of human and institutional barriers, in terms of policy guidance, institutional structure, regulatory and financial incentives, and information and technology (Mirza, et.al. 2007; Table 2).

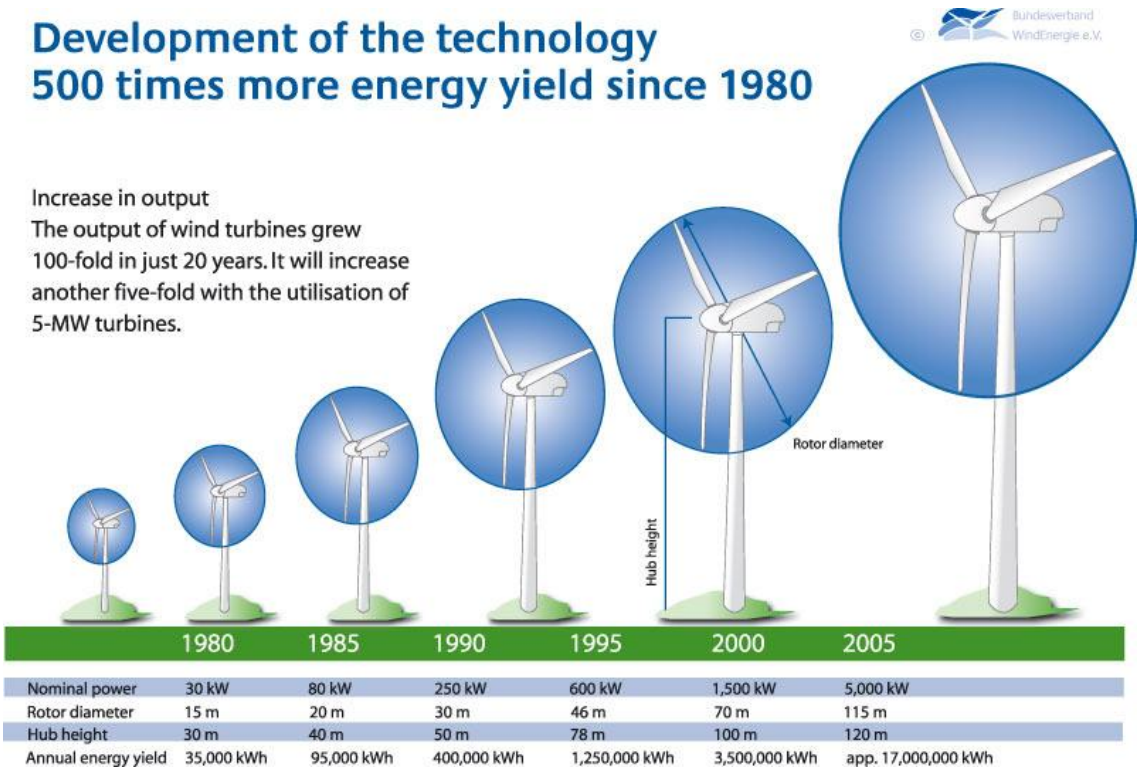

Figure 6: Advance of Wind Energy Technology (Source: DENA 2007)

Secondly, renewable energy resources are eco-friendly and hence becoming the norm. Yet, people's values driven behavioural repertoires will shape the developmental course of the emerging alternative renewable energy regime on the one hand; the market forces (supplies of clean technologies) and governmental regulation and/or subsidies will have imminent impact as well. In other words, many of the alternative and renewable energy resources have been utilized for some years, but recently, they have been re-discovered and identified to have the potential for sustainable development.

Table 2: Barriers against Adopting Renewable Energy

Barriers:	Brunei	Cambodia	Indonesia	Lao	Malaysia	Philippines	Singapore	Thailand	Vietnam
1. Lack of Experience in Technology & Management	X	X		X		X		X	X
2. Lack of Funding		X	X	X	X	X		X	X
3. Lack of Policy Framework	X	X			X	X			X
4. Lack of Institutional Structure				X	X	X		X	X
5. Reliance on National Grid & Lack of Private Sector Participation	X		X			X		X	X
6. Inadequate Date and Information	X	X		X					X
7. Reluctance to Invest due to High Cost			X	X		X		X	
8. Low Efficiency or Quality of RE	X					X		X	X
9. Insufficient RE Utilization		X				X			X
10.Lack of Experts to manage RE				X				X	X
11.Fossils Fuel Subsidies			X	X		X			
12.Taxes on imported Equipment						X			X
13.Inappropriate Distribution Facilities				X					
14.Political Involvement in Reform Agenda						X			
15.Legislation Issues to connect RE to National Grid					X				
16.Objections from the Public								X	
17.Lack of Government Support								X	
18.No Economically viable RE							X		
19.High total installed capacity resulting no requirement for new RE							X		

(Source: Adapted from Lidula 2007, p.1448)

Thirdly, the importance of civic participation, socio-cultural-ethical considerations in particular, in shaping the course for sustainable renewable energy sourcing, with an emphasis on bio-regionalism, should not be understated. In contrast, local groups and NGOs should be key stakeholders in the process for the rejuvenation and regeneration of local energy production, as well as consumption.

Fourthly, bioethics on and for renewable energy has a local but also a cosmopolitan, trans-national, domain. Hence, there is an emergence of cosmopolitanism in the dialogues at various geo-scales, between and among various states, IGOs, and iNGOs and social agencies. The reflections that result in such discussions regarding a sustainable future include consideration of the coexistence of different ways of life experience, and the vulnerability and fragility of the human species and eco-systems (Beck 2006, IPCC 2007). By taking a high bioethical stance through the implementation of development that is as sustainable as possible is one way Asia-Pacific can seriously contend with their global responsibilities.

Fifthly, as bioethics and green norms are the currencies for the coming modernity, how and under what conditions these normative considerations and beliefs are articulated will likely shape the course for eco-modernization. The contributions from civic forces at local, regional and global levels are fundamental in making a better sustainable global society.

Lastly, the developmental path of eco-friendly, renewable energy technologies highlights the *ethical challenges* for achieving energy self-sufficiency within the bio-regional geo-spatial scales. The control and access to know-how and technologies transfers condition the potential of a new form of clean energy and is critical as most renewable technologies are still very much protected by the intellectual property regime of governance which is enforced strongly by developed economies. For instance, Germany, Japan and USA control over three-quarters of the global market for solar cells, and over 70% of the wind turbines worldwide are produced by Germany and its European partners.

In actuality and more problematically, eco-friendly energy technologies, under the intellectual property regime, are becoming more or less monopolized by transnational corporations. Without these technology transfers and financial incentives for promoting the use of renewable energy, the prospect for self-sufficiency in terms of renewable and sustainable energy sourcing in the developing localities in Asia-Pacific is not good Small-scale locally based attempts to be more eco-friendly will not be able to compensate enough for the need for large-scale low cost, non-polluting energy solutions.

4. Policy Options for the Global Community

4.1. Envisioning a New Community with Environmental Governance

In this first section there is a synoptic sketch of the contours of the human community under globalization - which should be a self-learning one- to visualize the inter-related domains where people strive for sustainable development. Based on the paradigm of development various options can be developed. For this, a reminder of our modernity is necessary that *"most modern writers have recognized that the only secure thing about modernity is its insecurity ... Modernity, therefore, not only entails a ruthless break with any or all preceding historical conditions, but is characterized by a never ending process of internal ruptures and fragmentations within itself."* (Harvey 1989). This dynamic condition affects the state regulation and societal responses on environmental issues. In the 21st century, our community feels the impact of a globalization of economic activities with an explosion of environmental risks.

In a global market, green issues are also exacerbated by the mass media, especially in the strategic green warfare against the state and corporate polluters of the environmental agency such as the Green Peace critical engagement with (against) globalization (Lai 2004, 2008a/b). The political articulation of environmental issues and mobilization of people in their immediate community are quite obviously shown in the last three decades environmental movements. On the other hand, the historical challenge of environmentalism is also on the limitations of dominant people-centred politicking (i.e. majority rule in a representative democracy), which, in some instances, ignores the environmental impact on the eco-system.

Many regional policy initiatives have been responsive: for instance, the environmental policy and directives of the European Union over its member states will have strong implication in shaping an ecological sound socio-economic development. As the Declaration of the Earth Summit at Rio highlighted, sustainable development is the most important developmental agenda on the way to the next millennium. Hence, an ecologically informed and involved public at the local level should be advocated developed, juxtaposing the environmental policy initiatives for the developed and developing worlds.

At the community level, two distinctive processes are taking place. First, it is the participatory environmental governance, protest movements in particular. This is expressed in the form of confrontational, non-institutionalized politicking process. To defend for one's interests and survival, protests against the modern high risk technologies are quite obvious -like the NIMBY and NIABY community protests. More specific, the quest is for the mutual-development of people and nature (Melucci 1989, Scott 1990). Second and perhaps more worrying is that, given an increasing purchasing power of the middle class, they are returning back to their private sphere for the search for a better, high-tech and tailor-made quality of life. The individualization of living experience might act against the communal efforts to combat the battle for sustainable development.

Obviously shown in the last two decades, the further sophistication of the EIA and the related modelings is likely to be beyond the comprehension of ordinary people. As found in those controversies over the EIA and the sitting of hazardous industries, residents' oppositions against the EIA are not just related to their perception and knowledge of technological risks, but also reflect the trust, creditability, reliability and regulation of the state and its agencies (Stallings 1990). For future environmental governance, there is a strong need to develop and enhance the mutual trust among the involving parties.

Furthermore, environmental movements and environmentalism have been evolving in three arenas, namely, on the socio-cultural, the political and the cosmological interpretations of

the future. The socio-cultural interpretation of environmentalism is on the 'sense of belonging' of a community to its environment. The political one is the quest for pro-active policy initiatives of the state (Inglehart 1990). The cosmological one reflects individual's worldview on the nexus of the natural world (Lee and So, 1999).

From a historical perspective, controversies over risks are only part of the evolutionary process of the modernity. More precise, the awareness on the crisis of the existence of people, animals and the nature, is a consequence of the social learning process from technological mistakes. And the debates on environmental sustainability are focused upon the normative aspect, like values, worldview, of local and global development. What will be decisive, for global sustainability, are the 'self-creative' societal forces which likely advance the boundary of and the creation of new public spaces beyond the technologically structured and defined society, and revitalize the old democratic forms (Cohen 1983; Hegedus 1989). Accordingly, people can foster a new capacity to invent and realize their future, to politicize green issues and engaging in socio-political activities for the protection of nature, because every political decision has green relevance (Naess 1989).

The politicization of technology (with and without risks) critically re-examines technology against criteria of the environmental impacts and inter-generational effects. The process is a revitalization of the ideals of the modernity project; namely, not just to defend, but also to extend the public sphere of people and eco-system, vis-a-vis the state control and the market economy's hegemony. Indeed, ecological movements can be seen as attempts to draw on the beleaguered cultural tradition of modernity to new forms of cooperation and meaning outside the province of economic and political steering mechanisms. (Cohen 1983: 109)

To conclude, ecological movements are a set of fragile and heterogeneous social constructions which create 'new' meanings and identities for the collective actors (Melucci 1989). In other words, the movements foster a *new post-humanist consciousness*, a response to the challenge for rescuing the *One World* from the wild economic growth (Hegedus 1989; WCED 1987). However, it should be pointed out that the moments are fragile and subject to socio-political cyclical development (Offe 1990). Because of this peculiarity, the impact of ecological movements might be transient and not long-lasting, the rise and fall of the movements thus are contingent to community dynamics. Nevertheless, the appeals of the ecological movements are universal values (e.g., harmony between nature and people), with alternative lifestyles and beliefs (e.g. communal, self-help, and gender issues) which mostly do not correspond to any traditional techno-centred environmental governance, therefore they are revolutionary and emancipatory in historical sense. Obviously, through these movements new definitions on the future - environment values and justices, quality of life and other normative considerations - are being reconstituted. For the future, the challenge for people and their community is: What should be (re)produced and consumed individually as well as collectively, in the community, to ensure a sustainable development?

4.2. Establish international standards for risk and safety

There is a need to establish an international risk and safety code. Because of limited resources and experience in some countries, common materials could be compiled and made available for different countries to refer to. Information should be openly exchanged as broadly as possible to relevant community leaders, members of the community, and mass media. This needs to be done with international collaboration. Of course, each community may interpret these in different ways, but basic information and risk can be assembled.

Policy advice in each country should be the product of open social dialogue including all sectors of society. That the process of social debate needs to be held before constructing energy

plants, and fixing energy choices for communities, is a lesson learned from countries that have attempted to use controversial energy technologies before wide social discussion took place, or those that have suffered damage to health of humans and the environment due to use of different technologies.

Part of the process is for a society to set values for consensus on risk assessment. There is a need to find a universal minimal standard of risk assessment as pollution and impacts cross national and continental borders. Researchers should assess all the scientific and social issues associated with different technologies and develop safety precautions to address potential risks. The scientific and social risks should be minimized through careful design of the systems, relevant experience, and careful choice of site including consideration of appropriate social and cultural factors.

Even if there are no perceived realistic risks, a procedure for their evaluation should be set up so that new information can be gathered and interpreted. This procedure may involve establishing a specialized ethical review committee and/or community engagement board to offer advice on the ethics of projects. There should be prior environmental, medical and social studies for site selection, and the most appropriate site should be chosen based on the data obtained. Consent should be obtained from the communities involved. Specific mechanisms for this need to be developed and will be useful for other areas.

4.3. Benefit sharing with communities

In the interests of justice, there is an emerging international consensus in many fields that communities participating in research should, at a minimum, receive some benefit. A benefit is a good that contributes to the well-being of an individual and/or given community (e.g. region, tribe, disease group) (Knoppers et al., 2000); it transcends avoidance of harm (non-maleficence) by promoting the individual's and/or community's welfare. Thus, a benefit is not identical with profit in the monetary or economic sense - some benefits are monetary, others are not. Determining a benefit depends on needs, values, priorities and cultural expectations.

Benefit is seen as the provision of energy or services. Prior consultation with individuals and communities, and their involvement and participation in the project design, is a preliminary basis for future distribution of the benefit, and may be considered a benefit in itself. Better information is clearly a benefit and may be linked to better compliance and/or use of other methods of disease prevention. Provision of information through appropriate means14 allows many people who are not policy-makers to have access to basic information about projects. Disseminating information in this way can be effective in resource-poor communities, but is not a substitute for finding good local communicators to spread the information at public meetings and provide written and pictorial descriptions of the reasons for the project. Not only is there the problem of Internet access but also the difficulty of understanding. Grass-roots initiatives can lead to innovations and pressure upon regulators to change policy, as seen in the history of agricultural interventions in developing countries.

We can envisage several types of scenario. One is technology transfer where a local community decides to embark on its own methods. Even in communities without established political structures for public participation, local consumers, women's and mother's groups, etc., may be able to exert political pressure on policy-makers to introduce appropriate technology into their communities if they are made aware of the potential benefits. This principle of empowerment is ethical.

14 The Internet is accessible to many, but not all.

Rather than simply conduct a public opinion survey on the acceptance of each technology (Macer, 1992; 1994) before it is clear what the specific proposal is, interviews and surveys may be included in educational efforts and prior informed dialogue with local people about the proposal. This should be a two-way educational process at person-person level in the field, starting with professionals who then inform their local networks.

People who want extra information can access it through the Internet and publications. Exercises should be developed for school students, to help them consider ethical and scientific issues, and develop maturity for making decisions they face in the technical age. Parents are often educated through children and schools.

4.4 Group consent

Recognizing the autonomy of people as a group demands that we apply the consent model to more than isolated individuals. A process for seeking group consent needs to be developed for each community. There are some parallels with seeking group consent from population groups that may be asked to give DNA samples for population genetics research (Greely, 1996), or from public health trials of modified disease vectors (Macer, 2003). The problem is, who represents a community? Is it the political or religious leaders? Another issue that needs to be investigated is the appropriate age of consent in different societies. The more inclusive the process the better. There is inadequate discussion of this procedure to date, and it is a key area for further discussion in order to decide the ethics of such interventions.

The changing economic, social, political and civil structures have implications for the concept of group or community consent to release of modified vectors or pathogens. There are also legal implications in those countries with laws such as patient's bill of rights (Annas, 1989). The question of whether every citizen has to consent to public health interventions is not a new one (Kass, 2001), but with the current social transition from a paternalistic society to informed consent and informed choice, this key concern is appearing in all societies, although at different speeds.

4.5. Environmental assessment

Environmental impact data need to be collected from long-term studies. It may be useful to start environmental monitoring several years before the intervention (e.g. prior construction) in target areas so there are local background data to compare future interventions with and to provide scientific accuracy for people to make informed choices. There needs to be consensus on the time needed for long-term studies, and for coordination and discussion of what amounts to "pollution". Thresholds for acceptable levels of ecological perturbation need to be established, and data and experience gathered from studies in countries under a wide range of environmental conditions. International guidelines and assistance in monitoring trials are urgently needed. Decisions as to what outcome measures are socially and scientifically appropriate, and what methodologies are appropriate to enable this in a way consistent with ethical principles such as beneficence and respect for persons should be developed. Because of the inherent uncertainties of ecology and societal stability, it is imperative that each intervention is tested under a range of ecological and social conditions, and that data are stored and shared in a database.

The approach with the lower overall environmental risk is to be preferred so that research into different mechanisms is simultaneously stimulated.

4.6. Further steps in consultation on community engagement

This report is only one step in considering ethical issues. Already there have been numerous environmental and social studies and we call for data that is relevant to be sent so it can be included for consideration of the WG5. Some case studies may be useful to add.

Data should be gathered on a continuous basis. There are still unknown factors in the way societies apply various types of ethical theories and principles to different aspects of life, so general descriptive ethics studies in the countries that may be likely targets would be useful for developing general social science approaches. More detailed surveys on focused issues may be useful when a project is getting close to the field study stage. The gathering and reporting of data can make countries more conscious of the issue, and may encourage local researchers to explore community attitudes and concepts of community engagement.

Different forums have distinct purposes. Intergovernmental forums aim at consensus, but this may not be necessary as governments have agreed that addressing climate change is a major priority, and that global consensus is required. However, for specific target areas when close to field implementation, multilateral consultations should be held with neighbouring jurisdictions to prepare for engagement across national boundaries.

Another type of forum should specifically aim at identifying the differences and diversity in world views that may affect the way scientific facts are interpreted, by inviting different communities that may be affected, interested civil society organizations (CSOs) (both not-for-profit and for-profit), and experts of diverse opinion. This identification of diversity of thought is also important as part of a systematic approach to ethical analysis. This would allow preparation of adequate responses to all points of view, and allow a chance for gathering descriptive information through forums where persons argue for different approaches.

These issues should be discussed in the bioethics community, in regional and global meetings, so that the full range of the global bioethics community is given a chance to participate. This will also aid information dissemination as case studies will be carried back to different universities and schools for more people to reflect on. Experience of the way science and technology ethical and social issues were discussed by teachers in many countries before introducing curricular changes (Macer, 1994) suggests that, if members of a community perceive a need as individuals, they will become involved in the process. Governments could utilize the individual initiatives of interested persons by providing information kits and access to information, and developing networks to encourage them.

All partners have a duty to individual people, individual countries, member countries as a whole, and humankind as a whole. The process of dialogue and negotiation can be a more ethical option than a prescriptive stand if we consider the autonomy of those involved and the consequences. The process of forum is essential for developing methods to obtain group and community consent for interventions in general. The implications of informed consent for energy projects have not been adequately developed.

5. Conclusions

The concern for sustainable development and people's acceptance for risks associated with new energy technologies are shown in debates at local, regional, national and global levels. More specifically, risk communication in real and virtual communities will more influentially shape policy discourses, as well as the related decision-making for good governance over energy sourcing and renewable technologies development in the coming decades. Policy-political debates on sustainability will likely enable "pro-active" community engagement as a must for all the stakeholders, as communities at both real and virtual worlds are more empowered, articulated and motivated by new informational technologies and media, from which they learn more or less with the scientific professionals.

It is the historic-socio-cultural embeddedness of not just the community's formation and dynamics at the local and regional levels where energy technologies take place, but more importantly the past experience, and future expectations, on socio-economic and cultural development, for the beneficiary of all the concerned parties, shape the goals of communities towards development. The essence of (quasi-) religions and ethnicities, as shown respectively by the studies included in this report on Islamic views on energy technologies indicates that the Muslim community must be encouraged to participate in environmental projects and the case study of Chen & Chen on irrigation project-related displacement processes, showed how members of communities played the roles of refugees, nomads and the exiled.

The delineation, elaboration and articulation of energy technologies in terms of ethical, equity, ethnic, justice and normative appeals will be likely to prevail, as differences and diversity are the key for the collaborated approach to confront global (eco-socio-cultural-economic) sustainability for humanity in this and in the next modernity. It is necessary to integrate the human dimensions – ethical and normative aspects of energy development, ranging over sourcing, technologies adoption, recycling and transformation of energies, and community participation, in order to move towards global sustainability and eco-modernity.

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Case Study: The Flowing People's Stories：A Study of the Migration due to the Construction of Shihmen Reservoir in Taoyuan County, Taiwan, China

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Abstract

The spatial development of Toayuan County reflects the migration processes that have occurred in the area. The opening of irrigation canals and the construction of the Shihmen Reservoir changed the regional landscape of different areas. The reservoir construction caused a high level of movement within the population, and those migrants who experienced migration first-hand provide insight into some of the effects of construction not often analyzed. The topic of this research, by discussing the flowing of people, is to explore the developmental influence and spatial transition caused by the construction of the reservoir through the temporal axis.

Related mobility studies include body mobility, basic transportation and communication device installations, spatial re-building of capitalization, displacement and migration, citizenship and cross-internationalism, tourism and travel related topics. The dialectical relation between nomadic and sedentary people appears to be the main knowledge output source during mobility discussions, and is used to emphasize the knowledge output process of displacement and migration in this study.

Trinh T. Minh-ha indicated that when people encounter the dilemma of displacement by narrating stories in a journey, people's imagination is extended and situations are changed. This paper collects the personal stories and experiences of different immigrants relating to the construction of the Shihmen Reservoir. In addition, by comparing the people that moved out against their own will and the people that immigrated voluntarily, we explore their place and meaning in the society, history and culture in Taiwan.

Keywords：mobility, Shihmen Reservoir, migration,

Method of this work: literary montage. I have nothing to say. Only to show. I will not draw upon anything precious or appropriate expressions full of spiritual values. On the contrary, rags and rubbish, but not in order to produce an inventory, rather in order to render them justice in the only way possible: by using them. Walter Benjamin1

1. Preface

Mobility paradigms can be divided into two dialectical relations, namely, nomadic and sedentary, which are the main knowledge output sources during mobility discussions. (Cresswell 2006) The newest periodical, "Mobilities", specially discusses mobility related studies which include body mobility, transportation and communication infrastructures, re-building of capitalized spaces, displacement and migration, citizenship and cross-internationalism, tourism and traveling related topics, etc. (Blunt 2007:684) When studying mobility related topics in this study, we focus on the knowledge output process of displacement and migration, especially aiming at the displacement and migration in the areas of Taoyuan County, Taiwan.

In the discussion of European and American cultural criticism in recent years, issues regarding "displacement" have slowly come to the surface. Moreover, the discussion of immigrants, refugees, those who are in exile, nomadic people, destitute and homeless people is placed together with travelers, explorers, tourists, and *flaneurs*. To be more accurate, in the western capitalism period, those who are mobile is associated with both commerce and leisure

activities. Displacement is the contemporary mass migration movement, including the mass migration current caused by the imperialist expansion in the 19th century to escape famine, racial extinction, imprisonment, which were continued through policies implemented in the 20th century. The traditional migration theory is based on the Push-Pull Theory. In history records, there are various types of displacement. Originally, displacement was mainly caused by the "push" factor, which refers to the environmental "push" of the original residents, based on the increased shortening of food supply, resources, and the overflow of population, etc., and after the common consensus of the community, they decided to carry out the whole displacement or the "Big Nation Displacement" method. The "pull" factor refers to the attraction of the displacement destination, such as better job opportunities. Nowadays, displacement is mostly based on the "pull" factor, as more people move to urban areas where the demand for physical labour is high. Therefore, displacement begins from rural areas to small cities and towns and eventually to big cities. (Cresswell 2006:2)

Displacement is induced by the "pull" factor. The main stream of modern displacement moves towards cities, but the urbanization style of developed countries is that of dispersed suburbs, forming displacement from cities to suburban districts. In history, economical factors and shelter were the main reasons for inducement displacement. For example, the displacement that occurred between Hong Kong and Mainland China during 1960 to 1980 (Jordan & Düvell 2002:21-23); immigrants from Brazil, Poland, Turkey towards England also belong in this category. (Jordan & Düvell 2002:87-92)

Forced displacement is caused by the power and authority of the country or social organizations, and is a product of the "push" factor; the most severe methods are exile and deportation. Today, forced displacement is occurring around the world, in particular, in developing countries that have unstable economic, socio-political, and environmental situations. When forced displacement occurs, the so-called "culture of terror" can also occur. Historical research has shown that when forced displacement occurs, agricultural people or citizens who are affected often end up as refugees, people searching for shelter, or city roamers (Urry 2007:36). For example, in the 1930s, on the border of Zambia and Zimbabwe, due to the construction of the Kariba Dam, a total number of 57,000 residents were forced to migrate. (Johnston 2000:8) In Namibia, A. Corbett (2000) pointed out that the Epupa Dam built in the 1980s also affected the Himbas immensely. The Himbas carefully calculated that they lost resources, land ownership, and socio-economy structure, which are the foundation for eternal subsistence in the particular area. (Corbett 2000:13)

According to the statistics of the World Bank, it is estimated that there are approximately ten million immigrants every year that are forced to migrate due to large construction projects, among which reservoir constructions are the majority. Furthermore, according to the global census in 1994, among the 192 involuntary migration cases, there is not one case that involves immigrants whose original living standards have been improved due to displacement. Also, according to the book "*Silenced Rivers*" written by P. McCully (1996), from 1959 to 1989, there have been approximately thirty million people who have been forced to migrate due to the construction of reservoirs. This study aims to determine the extent of the displacement problem in Taiwan, a problem that has been overlooked on all sides. Among the examples we examine is the impact of the Shihmen Reservoir built during 1956 to 1964 which caused the most immigrants (i.e. three thousand people), and the many problems it left. Therefore, this study uses the Shihmen Reservoir migration problems as the main focus of this research.

2. The History of Taiwan's Migration Process

2.1. The Qing Dynasty

The relationship between the reclamation of space and the development of ethnic

groups is extremely close. In addition, the development of the Fujianese and Hakka groups serves as being representative of the Taoyuan district. During the immigration process, the push of immigrants led to an uneven rate of people and available places in Southern Fujianese and Guangdong Provinces. The pull factor was due to the superior natural environment, but during the Guangxu Emperor rule (1662-1722) and the Yongzheng Emperor rule period (1723-1735), the Taoyuan district was not ideal for immigrants to cultivate and develop. Also, due to the lack of natural environment, this particular area could only be cultivated and developed until the thirtieth year of Qianlong Emperor's rule (1766), as it was forbidden during the Qing Dynasty Maritime Prohibition. From the view of the development space, the *Nankan* and *Zhuwei* areas by the northern coastal area, and the inlands of the Taoyuan area were developed first, it was only later that the central, southern, western parts (*Yangmei* and Zhongli area) were developed and cultivated in the last years of Qianlong Emperor times.

The "Taoyuan Traditional Village Investigation Project", Huang Zheng-Ling (2007) describes the Han going into the Taoyuan plateau, which can be divided into three consecutive stages of development. The first stage is the development of western coastal areas, this is due to the fact that the Han first reached land passing through coastal roads to river mouth harbors, or through the old canal(coastal lines) to Xinzhu, then up north Taoyuan or after going south from *Bali*, opening and developing river valleys or canal lines. These western coastal areas were the first areas the Han developed into towns and villages. In the second stage the southeast inland near-mountain areas were developed. These areas were attractive to establish villages due to the access to the canal mountain lines and transportation routes made possible by the *Dakekan* River. The third stage involves the re-development of the southwest area and inner-plateaus, since the Han continuously entered Taoyuan plateau. Also, the population that settled down on the western part of the plateau and southeast inland near-mountain areas had already started to saturate the area resulting in movement towards the southwest to develop instead, or re-develop unoccupied places in inner-plateaus. After these three stages, the Han completed their development and cultivation in Taoyuan plateau, forming a Han-centered society.

2.2 Japanese Colonial Period

The governance method the Japanese adopted to rule Taiwan was very much like the governance method France used to rule Algeria (Wang 1993:114), and by doing so, the colony became completely assimilated with the colonial motherland. During the Kodama Gentaro1-Goto Shimpei period, the foundation of the colonial political affairs was established, and also, the development direction of agricultural Taiwan and industrial Japan was decided. Furthermore, the agricultural industry began migrating to Taiwan, thus, Taiwan's agriculture migration policy was decided. The "*Enterprise Report of Civic Immigrants*" published by the Office of the Taiwan Governor-General in 1919 pointed out the essentiality of Japan's agriculturist implantation, which is divided into the following points: (1) The reason for governance (2) Country-assimilation (3) To expand into tropical nations (4) The adjustment of the population process in Japan (Yanaihara 2001:154) Regarding the amount of Japanese immigrant villages in the Japanese rule period, the most important ones located in Western Taiwan are as follows: (Lin 1995:58-59) located in Zhanghua County are the Akitsu Immigrant Village (built in 1932, 181 *Jia* in area, has 156 households, 780 people, and is now known as *Fangyuan* Township today), Fengli Immigrant Village (built in 1936, 494 *Jia* in area, has 149 households, 745 people, and is now known as *Beidou* Township), Kajima Immigrant Village (built in 1937, 531 *Jia* in area, has 128 households, 640 people, and is now known as *Tianwei* Township). In the eastern area within the Hualien area, there is the Yoshino immigrant village (built in 1910, 1270 *Jia* in size, has 242 households, 1210 people, and is now known as *Jian* Township), the Fongtian Immigrant Village (built in 1913, has 172 households, 860 people, and

is now known as *Shoufong* Township), Lintian Immigrant Village (built in 1914, 766 Jia in size, has 171 households, 855 people, and is now known as *Fenglin* Township). According to Yanaihara Tadao, these immigrant villages take up 17% of the Japanese population and 30% of the Taiwan population in Eastern Taiwan. Compared to Western Taiwan, these statistics show that Eastern Taiwan was occupied by the Japanese, not the Taiwanese, thus, inevitably, Hualien Street was simply a Japanese city street. In fact, it is conspicuous that Eastern Taiwan is Japanized with Japanese immigrant residences built, which totally differs from the impressions of travelling in Western Taiwan. In addition, this mission, the development location of immigrants, is "*not only carried out for the satisfaction of being a motherland's colony, but also for a midway or a southbound expansion base.*" (Yanaihara, 2001:155)

During the Japanese Colonial Period, besides the fact that the Japanese voluntarily immigrated to Taiwan, the Indigenous Collective Migration Policy implemented during the Japanese colonial period was in fact immigration by force. Take the Bununs for example, the reason for their displacement firsthand was due to the increasing lack of food supply and resources, and population overflow, etc. (Tanapima Lumaf 2008) A great majority of modern displacement is forced displacement that resulted from the power of the state, such as the Indigenous Collective Migration Policy, with which the Japanese forced the Bununs, who were living among the mountains, to migrate to hills near the level ground. The Japanese took over the area to make use of the available forest resources, mineral resources and water that were once part of the livelihoods of the Bunans now displaced (Lin 1998). The main reason for modern immigration to big cities, such as for urban aborigines, is for more and better job opportunities. (Lo 1998)

2.3 Nationalist Government Period

The largest mass forced migration during the Nationalist Government Period is the exile movement after the Chinese Civil War between the Nationalists and the Communists in 1949, when two million civic and military men/women fled to the island of Taiwan for temporary residence. At that time, by calming down the nerves of the military, their remaining strength was preserved. Furthermore, in the overall planning of the Women's League hosted by the First Lady at that time, Soong May-ling, the military residential community construction project was unsealed. According to background material, the establishment of residential communities for retired military men can be divided into two stages: the first stage began in 1956 and lasted until 1967. During these ten years, ten single-storied communities for the families of military men were built; a total number of 38,100 buildings were distributed over 11 counties and cities in the whole of Taiwan. However, due to expense limitations, the average area of a room was rather small, the quality of materials below average, and the facilities were rough and primitive. The migration stories of these communities are important cultural events in Taiwan's modern history. There is much related information, yet it is irrelevant to this paper, thus it will not be further discussed. Another point to mention is, due to public construction needs, the government must search for other lands in order to help residents that have been deprived of their residences to settle down. The stories of these immigrants have existed till today, but they are unable to be recorded one by one, therefore, this study is directed at only the Taoyuan district and stories that have greater meanings. In addition, besides the migration story of the Shihmen Reservoir built during 1956 to 1964, Taoyuan related migration stories include immigrants who were forced to move out, and also those who moved in on their own will.

3. The Migration Story of the Shihmen Reservoir

Built during 1956 to 1964, migration in the Shihmen Reservoir left many problems; therefore, this research focuses on this issue for further discussion in this paper. The entire

process of Shihmen Reservoir immigrants that originally lived in *Ahmuping* Plateau migrating to Taoyuan *Datan* is further discussed in this paper, referring to the different and various impact that occurred in different stages. The establishment of the Shihmen Reservoir caused the structure of the *Shiyifen* area to shift from residences and businesses to a tourism industry structure that revolves around commerce today. Also, residents that used to consist mainly of the Hakka group have now turned into a village that consists of a mixed group of people including Fujianese, Hakka, and those who migrated from Mainland China.

Immigrants from the submerged area of the Shihmen Reservoir being forced to move out is one of the stories regarding the establishment of the reservoir. In fact, the story includes the original *Shiyifen* district (mainly consisted of the Hakkas) and the life experiences of the residents that moved in, which can be summarized into four types: (1) The residents that moved out: Aborigines and Hans from the submerged area (2) The original Hakka group of the *Shiyifen* areas (3) The residents that moved in: the staff from the Shihmen Reservoir Construction Committee (Bureau of Shihmen Reservoir Administration) and staff from the Chung-Shan Institute of Science and Technology (4) Residents that moved in temporarily: as dam labourers, and construction related employees and American consultants.

3.1 Residents That Moved Out: The First Displacement of Moving-Out Immigrants of the Shihmen Reservoir

3.1.1 Official Statement

Fifty years ago, the area along the upstream of *Dahan* River was once a scattered river terrace that rippled according to the lay of the land with the village and terraced field scenery above. After the government's construction of dams and the mass development of the Shihmen Gorge area, the Shihmen Reservoir has become the largest reservoir of Far Eastern Asia. The Shihmen Reservoir submerged area include *Sanceng*, *Siang* Plain, *Bajie* and *Ahmuping* Plain that belongs to Taoyuan County Daxi Township, and *Zhutoujiao*, *Lahao*, *Shueiliudong*, *Singan* Plain, *Jiaobansan* that belongs to Fuxin Village. Cultivated lands and residences that have the area below 1024 hectares became submerged areas (Xu 1963:46). For more description, the area from the Shihmen Reservoir site along *Dakekan* River (*Dahan* River) to *Lahao* with the length of about 16.5 kilometers, land with 250 meters above sea level, and 142.5 meters below in both shores of the back of the dam are all part of Shihmen Reservoir submerged area, among which there are 128 Aborigine households, 288 Han households, and a total of 2870 people. (Shihmen Reservoir Construction Committee 1966:607)

After the discussion between the Shihmen Reservoir Construction Committee and the Taoyuan County government, the immigrants were divided into five groups: the first group consisted of 29 households and were settled in *Caota*; the second group consisted of 48 households and were settled in *Shulinzih*; the third group consisted of 40 households and were settled in *Tatan*; the fourth group consisted of 79 households and were settled in the area from *Zhengutou* to *Jiadongkeng*, where the above four groups are all Han immigrants. The last group was all Aborigines, with a total of 82 households that were settled in *Zhongzhuang*, Daxi Township. However, later due to the Gloria Typhoon that invaded and attacked Northern Taiwan in September, 1963, the original residences of immigrants were severely damaged and destroyed; therefore they migrated to *Datan* instead. (Xu 1963:46) The Qara Tayals and the Han whose residences were submerged migrated to the *Datan* cultivated area to start new lives. During the entire process of migration, official records show that the selection and choosing of immigrant villages was the government's masterpiece from their hard efforts, which began from 1956, and staff was sent to different places of Northern Taiwan to search for suitable immigrant villages. Nevertheless, due to steep slopes or inconvenient traffic, residents from the submerged area were reluctant to go. In March, 1957, staff was sent along the two shores of the

Dahan River to search from Shihmen to Daxi, Sanshia, Banciao, Shulin, and Danshui, etc, yet no ideal locations were found. Afterwards, they proceeded to the coastal shores along Western Taiwan and headed north to search, and eventually, in *Caota*, *Shulinzih*, *Tatan*, *Jiadongkeng*, *Xuchukang*, of the Guanyin Township, Taoyuan County they found a secure forest area which had an area measure of hundreds of hectares and stretched out for a few kilometers. At the same time, the government implemented land improvement, road reconstruction, water conservancy construction, the rebuilding of an immigrant model village, the equipping of public facilities, and the distribution of cultivation farmlands (each household with the framework of eight divisions) (Shihmen Reservoir Construction Committee 1966:609-616) From the position of the government, most immigrants had positive attitudes of gratitude towards the new policies of the government. The chief executive officer of the Shihmen Reservoir Construction Committee at that time, Xu Nai, described:

> *New immigrant villages have been built in all the transplanted areas, and houses were built with red bricks, making the appearance beautiful and solid. …the public facilities in new villages such as schools, local police stations, village offices, health stations, water and electricity, roads, bridges were all completed. This, however, cannot be discussed together with their originally primitive and humble village. Therefore, after all the immigrants were safely arranged and settled down, they were excited and full of undying gratitude.* (Xu 1963:46)

In fact, in the view of the government of that time, the construction of the Shihmen Reservoir represents the many positive statistics1, which is the key important reconstruction for the development of the nation, thus, the construction of the reservoir is duty-bound. In comparison to the results of construction project developments, the negative problems of space, people, land and culture within the area seems rather trivial. The public opinion at that time can be shown in the comments below: "*Besides the high expenses and techniques, the accomplishment of a large construction project also needs the cooperation of local people. Also, local people need to embrace the spirit of sacrificing oneself to accomplish something bigger. Therefore, by just 416 local households and about three thousand and something immigrants, millions of residents are benefited*."1

3.2 The Real Situation

Nevertheless, from the viewpoint of immigrants themselves, the information mentioned above is not as it seems. First of all, the distribution of immigrant village land was considerably unfair. To draw the decision of where to locate immigrants might be a fair in the government's point of view, but for the immigrants, it was unacceptable. Yet, the immigrants had no choice but to go along with the government's policy, thus, they lost autonomy and the right to choose on their own. (Fan 1999)

From the field interview, it shows the hardship and despair the people went through is still deeply memorable and is an experience that they will never forget. Originally, the immigrants hoped for a new hometown that would be able to provide them a safe and comfortable home and shelter, but during the first stage of migration, the local natural environment and living adaptations left difficult psychological factors for them. Thus, in order to rearrange their homes into a comfortable place to live in, they had to spend a very long time and go down a difficult and tough road. For example, changing wastelands into a fertile farmland took nearly ten years.

The conditions of the natural and actual environment of the *Datan* new immigrant village in the beginning were poor and all the facilities were primitive, humble and not in shape to be used. Also, the farmlands did not have enough crop input, so some immigrants went from *Ahmuping* to *Datan*, hoping to continue farming the fertile river terrace before their *Ahmuping*

Plain homeland was completely submerged by the Shihmen Reservoir, thus, making up for the difficult life in the early days (Fan 1999). This is shown in the words of a resident named Liu Chuan-Xing at that time:

"In 1960, I built houses by the sea, and I invited neighbors to join me. I came here to build houses in November, and I always rode my bicycle to the area by the sea. It takes me a long time to get from Ahmuping to the sea, about four to five hours, then I would stay in there for a night and leave the next morning."

It was a pity that, due to the strong attack of the Gloria typhoon in 9 September, 1963, there was a downpour of rain for two days consecutively, and not only did the rain fill up a reservoir, it also caused a flood discharge. Typhoon Gloria was detrimental to their original plan, and according to the memory of Liu Bao- Luan, who was a resident at that time:

"*The government once said that the Shihmen Reservoir is fairly large and it would take about up to three typhoon attacks for the water level to rise to the top and fill up the reservoir. No one thought that Typhoon Gloria would overflow the water in the reservoir! Also, to my surprise, at that time I was still tilling the land when the water ran along the field and filled up the steps one by one, the rapid speed of water running in nearly made it hard for me to escape. It wasn't long before all the fields were soaked in water. Before I knew it, all the houses in the village were soaking under the water*."

From then on, *Ahmuping* was permanently changed and the group of people from *Ahmuping* ended up as homeless orphans who started an endless journey of body displacement and soul drifting. For the *Ahmuping* residents and who had to leave their hometown that had been there for generations against their own will is utter grief and sorrow. Nevertheless, because of the pressures in life, they had no time to worry about other problems, the only thing for them to do was to positively overcome the problem and to adapt.

3.3 The new hometown of *Datan*

The villagers that used to live in *Ahmuping* have long ago already built up a friendship from their mutual life experiences and spatial memories. Especially under the topography restrictions due to the inconvenient water canaling and irrigation on river terraces, the supported network, providing a continuous and stable water source, was built together by the villagers after searching, dividing, digging canals and setting up tubes together. Due to the time of water supply and distribution of canals, disputes or disagreements might have occurred during the process of chanaling and irrigating water, yet they benefit from the disagreements and problems were solved. Moreover, the mutual understanding between residents was re-built from helping each other out voluntarily. Circumstances had brought them closely together in a tight bond, and this bond will not break or change from moving to *Datan*. (Chen & Fan 2002)

During the migration process, the Shihmen Reservoir immigrants brought their religion, the Earth God, to their new homes. Furthermore, after they settled down, they built an Earth God temple in the new village. The Earth God temple in *Datan* Village, relocated by the villagers to its present place, was formerly a stone shrine. It was then named "Zhen-Ping Temple"; "Zhen" and "Ping" were adapted from the places "Daxi Zhen" (Zhen meaning "Township") and "*Ahmuping*" (Ping meaning "Plain"), and this moving and naming process has a deep, significant and memorable meaning in the history of migration. (Cheng 1999:92-95) The Earth God Temple in Zhen Ping Temple is the main religious center of the new immigrant village of *Datan*.

"Bidding family name", a total of ten years a round, refers to the local religious custom of the Daxi Township, *Sanmin* and *Ahmuping*. People agreed on which family is in charge of hosting the Pig Slaughtering Ceremony, which is held annually every year on February the 25th in the lunar calendar at the Fuxing Temple where "Developer of Zhangzhou" was worshipped.

Every year, the Pig Slaughtering Ceremony is the grandest local folk custom ceremony. Although the residents from *Ahmuping* migrated to *Caota, Shulinzih, Tatan, Jiadongkeng,* and *Xuchukang,* the "Bidding Family Name" activity still exists. (Fan 1999) Even though the members that participated in the activity were forced to move to five villages by the coastland of GuanyinVillage, Taoyuan County, they still believed in the Zhangzhou native god instead of the religions from their migration place; this significant religious behavior has continued and still exists in villages today.

In early *Datan*, life by the sea was not easy; it was simply not a place suitable to live in. Although *Datan* was located at the seaside, there was an immense lack of living resources. Throughout the year in *Datan*, there are strong sandstorms, sterile lands, and a surfeit of salt. Also, the location of *Datan* is remote; not only were there no other jobs opportunities whatsoever, crops were not able to grow. Nevertheless, after ten years and striving to open new fields and improve the environment, whether they are Fujianese, Hakka, or Aborigines, people that lived on the same land all worked together in unity to rebuild their homes, eventually transforming this sterile land that stretched out to several kilometers long into a green field, a brand-new home. Furthermore, residents gradually developed a set of organized collective systematic patterns that effectively transformed a wasteland into a fertile farmland. When life started to improve, they began to actively enhance their homes. The fields and farmlands of each home no longer looked barren; instead it was paved with loess and asphalt, and flowers, plants and trees were planted around the fields. In other words, these Shihmen Reservoir immigrants built a living environment they could belong to on this uneven badland; they rebuilt *Datan* into a beautiful new homeland, a homeland that future generations could trace roots and find home in. (Chen& Fan 2002)

4. The Second Displacement of Shihmen Reservoir Immigrants Moving Out

4.1 The Coin Chemical Industrial Co. Cadmium-Pollution Incident

In 1974, the Coin Chemical Industrial Co. set up factories in *Datan*. In the 1960s, many factories used the military flag's reputation for industry development to go deep into what was originally the base of operations of agriculture production. These factories did indeed provide the rural society some job opportunities, but they also produced lots of industrial pollution, seriously effecting the living environment in that area. It was hard to imagine that when *Datan* village, whose residents had worked so hard to transform their dire living conditions into a comfortable and happy pastoral life, were again to face displacement and migration due to cadmium pollution.

In fact, in a remote rural village like *Datan*, if there were factories willing to set up in *Datan*, young people from new generations who did not want to devote themselves to the farming industry were able to find jobs nearby, therefore, they no longer needed to work in places far away from their home villages; the attitude of the majority was thus positive. Due to the education level of the majority of the population in rural villages, it was virtually impossible for them to have the foresight regarding factory safety standards and the damage that may occur from environmental pollution caused by the output of factory production. Everyone just presumed factories would be able to bring prosperity and job opportunities to the place. On the other hand, in the political environment of Taiwan before the martial law was lifted, factories only needed to acquire the establishment permission of the government. Due to the collusion between government officials and businessmen, minorities had very little chance at having their voice heard regarding the dangers factories posed to the environment and the livelihoods of nearby residents.

The cadmium-pollution incident in *Datan* village refers to the industrial waste water, which contains heavy metal poisonous substances such as cadmium and lead, that was discharged

from the Coin Chemical Industrial Co. site in1974. The waste water was not properly processed and was discharged directly into section 11, rows number 2 and 3 of the Taoyuan irrigation canal. Moreover, for a long time, the pollutants in the waste water accumulated at the bottom of the irrigation canals and in the water, and this was the beginning and origin of the *Datan* village cadmium-pollution incident. (Fan 1999; Chen& Fan 2002)

4.2 The Second Displacement

From the end of 1982, the *Datan* village started to become a fallow land, proclaiming the order to residents to prohibit them from selling the polluted crops, breaking off the most fixed financial resources of the villagers. Although, ever since 1984, the government awarded compensation at the rate of NT$18,000 per hectare to compensate for the loss of the farmers, the work is exhausting and the salary is low, thus, the lives of local residents fall into a unprecedented predicament. The residents, not being able to plow their lands or drink the water, began to consider migrating once again.

In 1989, the government had already made a resolution to change the *Datan* district into a Restricted Industrial District. As soon as the government finished land collecting and compensation, residents were required to leave in a limited amount of time. Therefore, *Datan* faced another catastrophe, residents looking hopelessly at the new hometown they worked hard together to build turn into nothing but a useless wasteland. After the negotiation of both sides, the price of lands cost 8.4 million dollars a hectare. However, since the purchases of real estate was separately collected, (Chen & Fan 2002) many lands have already been purchased or collected by the government, thus, residents had no choice but to choose to use money in exchange for the home they worked hard for their whole lives. Under the execution of the fixed policy, the only pathway residents could go was to leave *Datan* and immigrate once again. In 1974, the Coin Chemical Industrial Co. set up factories in *Datan*; in 1978, cadmium pollution was confirmed in 1982, lands were left fallow; from1990 to1991, *Datan* was established as a Restricted Industrial District. From the beginning to the end, all the events mentioned above lasted for up to 17 years long. This long period was also the fall of the once prosperous new immigrant village. After residents received their compensation, they searched for new destinations, and slowly the village became an empty and unoccupied place with only a small number of those who refused to leave or those homeless with nowhere left to go in *Datan*. However, due to *Datan*'s vast and spacious village, remote location and cheap rent, it became the most ideal place for building recycle factories, stone factories, automobile disassembling factories and even garbage factories. Instead of the tranquil and peaceful pastoral scenery the place once had, it has now become a shocking sight, as a report at that time covered: "*In recent years, Guanyin Village in Taoyuan County has had unworthy people who stole sandstones and backfilled garbage, causing the condition of waste soil to go downhill. Also, not only did this result in the damage of environment quality, …local public could not bear the low living quality.*"; "*In Datan village and Baozhang village, there is about ten areas that, due to an overflow of digging gravel sand, garbage backfill, and medical treatment waste, has formed into a deep grand canyon hole…*"

At that time, the residents once requested a land-for-land collective immigration. However, it was a pity that, in the end, the government decided to adopt the purchase and compensate method, making it impossible for villagers to reunite in the same place. Therefore, they had no choice but to each search for their own roads and pathways by themselves, breaking their deep friendships. Unfortunately, the solid community consciousness that had been accumulated for a long time was not able to be passed down to the next generation.

4.3. Returning home

Residents could decide whether they wanted to move to the northern or southern part of Taiwan. In particular, the couple, Liu Jin-Xiong and Xiu Ju-Zhen decided to go back to their hometown, *Ahmuping*, the place that held all their childhood memories. Ever since they left *Ahmuping* and went through the different life experiences of different places such as *Datan*, Taipei, and Dayuan, Liu Jin Xiong and Xiu Ju-Zhen could not stop thinking about their desire to go home.

Nevertheless, they also came across difficulties because of the Shihmen Reservoir construction project. Their wonderful *Ahmuping* hometown from former times had already become a lonely island on the water, thus, if people wished to leave or go there, they could only rely on sampans or bamboo rafts. Large construction machines and tools were needed to build new homes, but these tools were too large and heavy for the small transportations to carry across water, so their dreams of returning home were shattered. Fortunately for them, due to the drought in northern Taiwan in 1994, the water level of Shihmen Reservoir dropped to its lowest level, therefore, boats were able to pass on land in the reservoir. Also, automobiles and motorbikes were driven all over the reservoir. As a result, this unique and rare chance immediately solved the dilemma of the Lius, large machines and tools were brought to *Ahmuping*, and Liu Jin-Xiong, who was a born carpenter, was finally able to personally build a new home. There were many ordeals, obstacles, difficulties and blame that occurred from the first time the idea of going home came up to the process of forming, deciding, and accomplishing the actual idea. The many struggles during those experiences demonstrated people's strong sentiment and attachment to that particular land. During the Lius' interview, the interviewer tried to understand their reason for returning home, and the only answer the interviewer got was "I missed home", this simple answer expressed the strong desire from deep within their hearts.

5. The Migration Story of the Qara Tayal

5.1 The Sorrows of Qara Tayal

Qara, as the Tayals called it, was the name for *Shixiuping* Plain during the Japanese Colonial Period. The Tayals called it "qara" because there is a big stone ("stone" in Chinese is "shih") in their tribal unit that the local tribal society called "tunux qara", "tunux" meaning a beautiful geographical scene formed by mountains, rivers and stones. Also, because of the wide terrace for cultivating paddy fields, and all the descriptions mentioned above, the area was named "*Shixiuping* Plain" (the "*xiu*" taken from the Chinese adjective " *xiuli*", literally, beautiful), which, translated directly into English, means "Stone Beautiful Plain". The "Tribal Community Experiences and Culture Transitions—the Migration History of the Tayals in the Shihmen Reservoir Submerged Area" (Lee 2007) written by Lee Huei-Huei (Tayal name: Aho Batu) studies the Tayal aborigines that lived in the msbtunux submerged area (former *Dakekan* mountains) and were forced to migrate because of the Shihmen Reservoir. From introducing the Tayal msbtunux community to the whole process of being submerged and migration, three stages according to three time periods are discussed: *Zhongzhuang* (1963~1964), *Datan* (1964~1987), Migration (1987~now). Besides the migration stories, the book focuses on economical transitions and the description of being forced to move, in the end, emphasizing the practice of gaga and describing in detail the difficulties they faced in the migration. Moreover, the "*The Qara People: Losing Their Tribes for Thirty Four Years*" published by Yang Suo (1994) further described the Qara Tayal people's difficult lives in *Datan*. From 1957 to July, 1963, one after another, the Qara Tayal aborigines that were scattered in the Shihmen Reservoir submerged area migrated to the new immigrant village in *Datan*. Although, during the village migration gathering meeting held by the government in 1957, officials vowed solemnly, promising: "*You will all have good houses to live in, and your children will have schools to go*

to. The government will make up for the consequences and pay you back ten times more in return." The truth was that the lands given were only sand beaches with hot sand that was almost impossible to walk on and transportation problems posed great difficulty.

It was necessary for the men and women of Tayal to take many part-time jobs which still resulted in inadequate livelihood standards. Often the elderly in the tribe lying on their deathbeds could not help complaining: "*This is not a place for humans to live in! Why does the government pretend nothing is wrong and allows us to move to this awful place*?" Itan Yugan, another person who lived in the Tayal immigrant village located in *Datan* and who is a graduate from the National Taiwan University, said bitterly:

"*The Shihmen Reservoir brought up the residents of Taoyuan and the Metro-Taipei region, which, in exchange, was the unfortunate result of the diaspora of the Tayal tribal people. The yachts and cruise ships of the reservoir spared no time in taking all the benefits from profit-seeking businesses, while my tribal peers fought with the sea wind all day long and lived together with cadmium poison! Others who attend university rely on rental payments to complete their education, but me, my two sisters supported me by becoming prostitutes so that I could graduate from NTU."*

5.2 The Migration Process

In the migration movements, the migration process of Qara Tayal people was the most difficult and arduous of all. In the first migration, the government originally arranged for them to be moved to the reclaimed land located in Zhung-Xing neighborhood, Daxi Township but when the houses were partially built, a typhoon destroyed them. Therefore, Qara people asked the Shihmen Reservoir authorities to build houses on a safer place. After that, reservoir authorities re-coordinated the location to *Zhongzhuang*, Daxi Township, and each household would be distributed over about one hectare of the reclaimed land according to the number of people in the household. At the same time, each household was given a NT$12,000 mortgage to pay the loan to the bank. The houses in *Zhongzhuang* were built by the help of engineering companies in the same style as public houses of today, even the road and lane systems were also planned. At that time, churches of the religion that Qara tribal people believe in were built there. On September 13th, two days after the typhoon Gloria hit Taiwan, the reservoir suddenly released floodwater, making the water level rise higher and higher. Also, the houses, rows, crops, and livestock closest to the river were flushed away by the river water. This was the first flood discharge since the completion of the Shihmen Reservoir construction project. According to the reservoir management statistics, the amount of floodwater released was about 500,007,400 cubic meters. As a result, all the tribal people of Qara hid in a nearby elementary school for about a month or so before they started to rebuild their homes. All the households were left empty-handed. After the disaster, government departments assisted the Qara people to migrate as a community, and this time they had arranged to be moved to *Datan* Village, Guanyin Township.

This immigrant village was built using the area along the coast of preserved lands and state land, by the government, and the government distributed residences among the households for them to purchase, also giving them a ten thousand dollar grant for building houses. Moreover, eight lots were re-distributed, and new houses were built on sand lands by the sea with no roads whatsoever, only heaps of piled up sand and soil. A Canadian preacher, Wadan Malin, who lived together with the Qara community, bought forty carts of red soil and handed them out to every household for them to pave the road with. Among the eight pieces of land that were given to each household, there were two that were the backward flowing areas, and the other six were sandy reclaimed lands. Yet, the cultivated lands were not connected to each other, instead, they were all separately scattered between beefwood and wild pineapple trees, which

made it difficult for the tribal people to plow and sow on the lands. Furthermore, it was almost impossible to grow crops on sand lands, plus, due to the strong sea wind, even sweet potatoes were not able to grow there. Thus, there was no choice for the Qara tribal community but to find jobs in the factories of the Han. During this period the Qara people lived their lives in hunger and fear. Since they lived by the sea, every time the typhoon season came and the water level rose, they had to evacuate in advance and be prepared for evacuation at all times. Wang Ching-Guei from the Qara tribe reminisced:

"In order to build the reservoir, the government randomly chose a place to relocate us, just to fulfill their responsibility of migration. On the surface, it seemed as though we had houses to live in, fields to plow on, but the truth was the places they located us in were either reclaimed lands or new lands reclaimed by inwelling. We lived in torture, and no government officials came to check and see if we were fine or not, let alone try to help us improve our living situation. They were clearly there to dupe and deceive us!" (Lee 2007:82)

Suspicions of discrimination arose amongst the aborigines regarding their treatment and the government's choice in Datan as their new home. The majority of the Tayals feel the same about how the government dealt with the whole migration situation, which included the distributing and giving of lands, the area in which they are relocated, and dealing with compensation standards. All the points mentioned above gave the Tayals the feeling that the government, in planning out and executing the migration situation, discriminated against them, causing them to go through three painful experiences of forced migration. Nevertheless, the people from southern Fujian Province and the Hakka immigrants that were also affected by the Shihmen Reservoir migration movement did not feel they were being forced to move against their own will. Msbtunux Tayal devoutly believed in the gaga standard, at that time, they saw the government's promise as *gaga*; in other words, they did not believe one word of the promise (Lee 2007:82). However, in the end, during the migration process they were discriminated against and felt deceived, thus, it was inevitable that their rebound and reaction against the government was bigger. As a result, the community that was originally located in *Zhongzhuang* ended up either returning to the remote mountains to plan their future on their own, or carry on migrating to *Datan*. Among the nine tribes of the Msbtunux submerged area, there were 82 households that migrated to *Zhongzhuang*, and only 46 households that continued to migrate to *Datan* (Lee 2007:80)

5.3 The Coin Incident

In the beginning of 1974, the Coin Chemical Industrial Co. set up factories near the new immigrant village. Although the women of the tribe got more job opportunities, after two or three years, odd illnesses arose. For example, Jiang Qing-Shuei's feet started to rot and blacken, and it was not long before he oddly passed away. Also, there were a few Qara youngsters that had headaches after coming back from work and did not wake up from their sleep at all. These consecutive tragedies shocked the community. When government officials came to investigate, they found out that the terrible incidents were caused by the cadmium pollution; the water source of the village contained heavy metal pollution.

As a result, unfortunately, the Qara community faced their third migration. The Qara tribal people placed great value on their families, yet they truly had to face the fate that forced them to separate. Although the development of Shihmen Reservoir contributed immensely to the country's development, the movement left unforgettable scars in the memories of those who were forced to migrate. Besides the immigrants that went their own ways, there were 16 households that moved back to their tribes. The tribes involved included the *Toujiao* tribe, *Siayun*, and *Siasikou* tribes. *Zhengtaili*, who came from *Siasikou*, recounted their rough journey

of returning to tribes in the mountains:

"When we were returning back to Zhongzhunag, what we saw was unarranged and unorganized wastelands. What's more, the cultivated lands were all stones, so you had to pick up all the stones before you could even slowly begin to bring the wasteland under cultivation, and all the houses were also swallowed up by floodwater! Then, when we arrived in Datan, the government gave us sand lands that burned our feet when we walked on them, they totally deceived us! We moved all over the place, ten years later we were in on the east side of the river, then another ten years later we were on the west side, life did not improve, so when we returned to the mountains, our tribal people would mock and laugh at us! Running all over the place then running back, moving again and again, all the moving made us poorer and poorer, and we ended up coming back to build laborer-shacks to live in!" (Lee 2007:81)

In order to soothe their wounds and feelings, the magistrate of the Taoyuan County, Liu Bang-You, once promised to make up for everything:

"It was the government's idea to build the Shihmen Reservoir, and the aborigines from the Shixiuping Plain cooperated with the migration policy. At that time, if people were not satisfied with the compensation, the only solution was to compensate comparing to the cadmium pollution compensation of Datan Village and the market price and value of lands in Shixiuping Plain in 1989. If there was a price difference in between, then the government would indemnify it." (Lee 2007:92-93)

The head of the county promised that, after checking thoroughly, they would complement the difference in amount, which might redeem their hurt souls from migrating for thirty years. Unfortunately, the head of the county was shot in an accident and died, thus, the matter was left unsettled. What's worse is in 1997, Shih-Siow Plain was proclaimed as the Shihmen Reservoir water source, water quality, and water amount preserved area, and the preserved lands that were restricted kept expanding. Also, eleven pollution acts were banned. Even many years after the Shihmen Reservoir was built, many laws and decrees restricted their living environment, and tribes were always under the pressure of the laws. Under the many restrictions in economic development, returning home was also torture and painful. (Lee 2007:74)

6. The migration stories of the *Shiyifen* areas

6.1 Lungxi Ancestral Hall

Among the Hakkas that originally lived in the *Shiyifen* areas, the Lee family name of Lungxi Ancestral Hall has the longest history. The Lee family used to be a prominent family in Long-Xi, so a shrine in their honour was named "Long-Xi Hall". Then, the Lee family established their territory in the *Shiyifen* "Musketry territory marked" area. The Lees originally came from the Guang Dong Province in the Jieyang District. During the 18th century, in 1791, Lee Yuan-Fong came to Taiwan and rented land from the aborigines in Longtang to plow, passing from the one generation to the next, it was only until Lee Huo-Lai of the 15th generation, that the industry began to bloom. Lee Huo-Lai built the Long-Xi Ancestral Hall, the ancient Lee house, located in Longtang Village, Jiaan Village, *Shiyifen* area No.59. Lee Huo-Lai died in the WWII, and his son Lee Gai-Rih, who was born in the year 1900, acceded to his family's career after he graduated from elementary school. Thus, under Lee Gai-Rih's striving hard efforts in operating his family's business, the Lee business was even more thriving than ever. Later, in 1953, Lee Gai-Rih won the 3rd annual Head of the Taoyuan County Council election with high votes from his show of consideration and concern for local infrastructure and development. In addition, before the Shihmen Reservoir was built, it was rumored that Lee Gai-Rih advised

President Chiang Kai-shek to build a reservoir in the Shihmen Gorge, and that was when President Chiang agreed to the construction of Shihmen Reservoir1.

During the construction period of the Shihmen Reservoir, in order to provide the large amount of employees a place to live in, Lee Gai-Rih generously donated lands to the workers of the Shihmen Reservoir Construction Committee and the *Shiyuan* (literally, Stone Garden). The only condition was that they could only be used as staff dormitories. The lands now have all already been purchased by the government, and the property right belongs under the name of the Northern Water Resources Bureau. The location of the *Shiyuan* second village originally belonged to the land of the Xiu family. When *Shiyuan* second village was going to be built, the Xiu family paid the price of 600,000 *jia* for the land. It can be said that from the construction proposal of the Shihmen Reservoir in the beginning to the actual construction process, the obtaining of lands were all due to the help and the push of Lee Gai-Rih. Were it not for Lee Gai-Rih, there would not be the Shihmen Resevoir today; also, there would not have been the development of the *Shiyifen* areas. From the generations of Lee's grandfather and father to his generation, the whole Lee family played decisive roles in the construction of the *Shiyifen* areas. They were the hand that pushed the industrial development forward.

6.2 The beginning and end of the Shihmen Reservoir construction project

Early in 1924, after the Taoyuan Irrigation Canal system was completed, Japanese technician, Hatta Yoichi, started to study the possibilities of building dams to reserve water in Shihmen Mountain. Since the geography of the Taoyuan plateau is a bit higher, and the river stream is a little less, only wetlands and canals could be used to irrigate water, which was not entirely efficient in developing water resources. In Showa 4th year (1929), there was the Shihmen Reservoir construction project plan. In the same year, Japanese geologist Ooe Ziro once did further research on the geology near Shihmen, and the "Shihmen nearby Geology Investigation Report" was issued. During 1930 to 1943, a total of 14 years, the investigation of the *Dakekan* River hydrology data during the flood and the geology research of the reservoir and dam dike were carried out. Furthermore, in 1938, Ooe Ziro drilled to the bottom of the dam ground to survey whether it was bedrock or not, then mapped out the construction project plan summary, which was the so-called "Showa Water Conservancy Project". The main aim of this project was to expand the plateau on the south-east side of Taoyuan Irrigation Canal, and although this project focused more on irrigation, it also took the efficacy of flood prevention into consideration.

After the restoration of Taiwan, the Provincial Water Resources Bureau continued the research of the Shihmen Reservoir construction project, and also the exploration of dam dikes and basic laccolith drilling. Related organizations pointed out the project research paper was about the form of reservoirs and dams and using water to generate electric power. Nevertheless, the plan in the beginning was very similar to the "Showa Water Conservancy Project" of the Japanese Colonial Period. According to records taken down, in 1949, when vice president Chen Cheng came to Taiwan for medical treatment, he once went to Shihmen and heard a local resident say:

"*The Dakekan River is often either short of water or flooded with water, and when it is short of water, the insufficient amount is not enough for irrigation. The Japanese built Wushantou Reservoir in the Chianan (i.e. Chiayi County and Tainan County) area; as a result, the farmlands in Chianan area got irrigation advantages. Also, Taoyuan residents wish to build a reservoir to solve the irrigation and flood prevention problem in the Shihmen district. However, due to budget limit and technical conditions, the idea could not be implemented and no action could be taken, they could only do a little bit recording of hydrology.*" (Chen 2003:9)

Vice president Chen thought that it was crucially essential to build the Shihmen

Reservoir and in the future there might be many economical benefits. Therefore, the earlier the plan was implemented the better, and this was the major key to actually accomplishing the idea and plan of building the Shihmen Reservoir.

When vice president Chen served the post of Taiwan Governor in 1949, Taoyuan local residents asked him to set the Shihmen Reservoir construction into action, advising and urging the Provincial Water Resources Bureau to carry out investigations and project research. In 1952, local gentry Wu Hong-Sen organized a Shihmen Reservoir Construction Promotion Committee who assisted the government in advancing and coordinating local jobs. In March, 1954, the first organization established for the Shihmen Reservoir, the "Shihmen Reservoir Design Committee", was established. This committee devoted themselves to geology, hydrology, and agricultural economic investigation, and also the preliminary construction project and the estimation of construction cost and benefits. In July of 1955, the Shihmen Reservoir Construction Preparation Committee was established. However, since the government did not have such a large amount of money to build the reservoir, they borrowed and collected funds for building the Shihmen Reservoir by turning to USA and applying for a loan. The attached subsidiary condition of the loan was that our government had to employ American design consultancy and construction consultancy companies, thus, they chose the Tippetts–Abbett–McCarthy–Stratton engineering company and the Morrison-Knudsen engineering and construction company to serve as the design and construction directing consultants respectively. Both the companies signed contracts consecutively. Under the help of American technique, qualified engineering workers were sent to the Bureau of Reclamation and the two consultant companies in USA for 6 months or for one year practical training, then they returned to Taiwan to work. In addition, with the help of the consultancy companies, a large number of special technicians were publicly and selectively recruited through exams and then trained. The number of technicians was about ten thousand people. (Chen 2003:11)

The most important change during the Shihmen Reservoir construction process was the change of dam patterns. Due to the reservoir's river valley terrain, geology, construction deadline, and engineer building cost, the concrete arch dam plan was selected and chosen after comparing and analyzing initial research and conclusion research. After digging the dam ground in November, 1959, they realized the geology of the dam ground was not as expected from the surveying process, therefore they decided to change the dam pattern into earth and rock-filled dams (Chen 2003:20). In addition, besides geological factors, the arch dam breakdown incident in Malpasset, France was an important factor in the modification of the dam construction.

The construction of the Shihmen Reservoir began in 1956, and about 7,000 workers were employed, working day and night. However, unfortunately, due to the vast work area and the dangerously steep terrain, a total of 34 workers died during construction, and up to 2,079 workers were injured. Eventually, through the hard efforts of the Committee and all the workers, after 8 years, the Shihmen Reservoir finally finished construction in 1964.

6.3 Moving in: the new residents of the *Shiyifen* areas

6.3.1 *Shiyuan* (literally meaning "Stone Garden")

In the beginning of the Shihmen Reservoir Construction project, Taiwan employed many American engineers from the Tippetts-Abbett-McCarthy-Stratton Engineering Company and the Morrison-Knudser Construction Company to teach others how to build a reservoir. Moreover, in order to make it comfortable for the group of American consultants during their stay in Taiwan, the government built the village of *Shiyuan* for them to live in. The consultants were divided into groups according to construction rate of progress; the highest number of people was 65, but, adding the number of family dependants, the number of people was 110.

The Shihmen Reservoir Construction Committee built 40 American-style bungalow houses especially for the Americans to live in, which is also known as the *Shiyuan* Villa today. As for the unmarried, they were distributed to the singles' dormitories and when government officials came on inspection visits they stayed in hostels also located in *Shiyuan*. The entire *Shiyuan* had a spacious environment, and many different sorts of public facilities and infrastructure such as swimming pools, tennis courts and sports grounds were built. This residential village imitated the standalone single dwelling residence style of U.S. communities. Also, *Shiyuan* faces *Dahan* River; on the right hand side is the Shihmen Reservoir, across of Mount *Xizhou*; on the left hand side is Daxi River terrace, where the scenery is magnificent. The American consultants were particularly picky about living taste; in the holidays, they often had family gatherings, parties, and musical events. Even today, we can still see the red soil tennis court that was built at that time and the historical remains of golf courses. From this we can see that, besides the time when the American engineers were working, they still did not forget about leisure activities and pastimes. The road next to *Shiyuan* is now called Xin-Sheng Road, which, in the beginning, was the short cut specially built for American consultants, making it more convenient for them to go to the reservoir. From then till now, that road has always been called "America Road" by the local residents. On America Road, a security guard stand still remains, that was the place in which Taiwanese guards would stand on guard to ensure the safety of the environment where the U.S. workers lived and prevent outsiders from entering. Therefore, the *Shiyuan* at that time was sort of like a concession area. Also, Americans often drive pass America Road, and when they do, local children would stop the cars along the road, then the Americans would generously throw out candies and sweets for them to pick up on the road; this became a huge joy for the local children.

6.3.2. *Shiyua* First Village

After the construction of the Shihmen Reservoir was completed, the American consultants returned to their country. The dormitories built during the Shihmen Reservoir Construction Committee period were given to the Shihmen Reservoir Administration and the *Shiyuan* became the dormitories for the higher-classed staff of the Shihmen Reservoir Administration. The Chung-Shan Institute of Science and Technology and the Institute of Nuclear Energy were respectively established before and after 1981. The area of the Chung-Shan Institute of Science and Technology took up about 200 hectares of *Huaizihpu*, and the government simply directly gave the Chung-Shan Institute the Shihmen Reservoir Construction Committee office and American consultants' dormitories were renamed as the *Shiyuan* First Village. Therefore, the dormitory area of Shihmen Reservoir Administration lost about one third of its square measure, and the *Shiyuan* First Village was officially given to the hands of the military to manage and maintain.

Then, after collecting *Shiyifen* lands of the Hsiu family to build the *Shiyuan* Second Village, the *Huaizihpu* dormitory area project was cancelled. The employees of the Chung-Shan Institute reached up to nearly ten thousand people; besides the part of military tasks that belonged to military scientific and technical talents, many research tasks were conducted by domestic and overseas technical professionals. In order to take care and look after the people who go there to work, security guards were employed to provide service for the community, molding another kind of closed community environment. The *Shiyuan* first village's control over the community was extremely strict, firmly shutting out outsiders. Also, the facilities inside the community were complete and whole; there were restaurants, welfare stores, gymnasiums, tennis courts and indoor swimming pools, all complete for the needs of residents. The pattern and layout of dormitory appearance and the amount of area used was top-class and the best of the dormitories in the *Shiyifen* areas. Unfortunately, due to the mysterious veil put on

by the strict administration of the military control, in the last 50 years, no outsiders entered the *Shiyuan* first village, not even people from the *Shiyifen* areas.

6.3.3. Shihmen Reservoir Administration Dormitory

Besides the *Shiyuan* first village, the Shihmen Reservoir Administration also established another dormitory building with 250 households. Under the distribution of government organization, families of employees lived in that building. With its low building coverage ratio, the elegant environment indeed provided the employees sufficient and good care. Furthermore, in terms of selecting materials and construction quality, the buildings in the community were built to a high standard, and this is also the main reason why, even after going through many typhoons and earthquakes, the community has never had severe disasters. Regarding the government's gesture in building residences for them to live in, the employees felt gratitude in their hearts and deeply valued this gesture. For many years, the family dependents of the employees were all under the care of the government. In the Shihmen Reservoir Administration dormitories, besides basic dorm residences, there were also several public facilities and installations. In the 1960s and 1970s, this type of community living environment was actually extremely unique to the society.

If the Shihmen Reservoir Administration dormitory is compared with *Shiyuan* first village, it is obvious that the amount of space used for particular dormitories reflected the job level and positions of employees. Middle-rank employees lived on Jiaan East Road, although the dorms here cannot be compared with the bungalow houses of *Shiyuan* First Village, the dorms are still separate buildings that stand individually, and each household has their own little garden. On the other hand, low-rank laborers lived on Jiaan West Road, which is near the market. Each townhouse-style attached house, with no garden, were closely linked together, thus, the whole lane and living environment was inevitably a lot smaller and narrower. As seen from the size of the dorms and where they were distributed and located, the low-rank employees were placed near the market where it is the noisiest and dirtiest area, thus, the closer the dorms were to the market, the smaller the households were. In other words, their living environment is far from the middle-class workers living on Jiaan East Road and even more incomparable to the living environment of *Shiyuan* first village.

The road plan and space arrangements of the *Shiyifen* office dormitory areas were all perfect examples of public government organization dormitories; the neighboring *Sankengzih* and *Daping* residents referred to this area as the "new village". Moreover, the cultural landscape and space characteristics had the most dramatic change before and after the Shihmen Reservoir was built, therefore the Shihmen Reservoir Administration dormitory area became the headquarters of immigrants that moved in. In addition, the reason for immigrating was mainly due to their jobs and the dorms they were distributed to. The 250 households of Shihmen Reservoir Administration plus the 348 rooms of *Shiyuan* first and second village the *Shiyifen* area gained prosperity through a bustling marketplace. Therefore, the Hakkas living in the *Shiyifen* areas had to accept the spatial transition caused by immigrants moving in, and also to adjust their regional perception. The immigrants that moved in also had to adapt to the new environmental space in order to increase their identification of the particular region.

Also, since the dormitory for family dependants was under the control district of *Shiyuan* first and second village, the residents of the *Shiyifen* areas had fewer opportunities to go there, thus, giving the Chung-Shan Institute staff a sense of superiority that cannot be explained. Most of the parents from the residential area work at the Shihmen Reservoir Administration and the Chung-Shan Institute, and most of their children went to the same school (Shihmen Elementary School), therefore the government welfare of both major organizations were about equal and they all worked hard together, interacted and helped each

other. The residents watched movies and swam in the indoor swimming pool together. However, if compared with an objective view, the welfare and budget expenses of the Chung-Shan Institute were much higher than the Shihmen Reservoir Administration. After the construction project was completed, the Shihmen Reservoir Administration, with only hundreds of employees, was established to be in charge of operating the reservoir. Because of new workers coming in, the living space and pace changed tremendously. Although the Mainlanders living in the Shihmen Reservoir Administration village yearned for their hometown and thought of themselves as Chinese people, and even though the Mainlanders looked down on the local Taiwanese people they began to blend in with the local culture and Taiwanese people. Regulations and measures prevented retired elders to live permanently in the area. The original residents of the Shihmen Reservoir Administration village, Lin Wen-Chi, whose father had already retired from the Shihmen Reservoir Administration, was forced to move out due to related regulations and law:

"*Being forced to move out of the Shihmen Reservoir Administration was the biggest challenge in my life, and also the start of my living willpower and stamina. Reluctantly, I bought the Yiyuan (literally, amenity villa). In two years, besides our full-time jobs, my wife and I also put all our strengths in taking part-time jobs. Every day my wife would ride a bicycle from Yiyuan to Xianziding back and forth, which was extremely exhausting. In those two years, together my wife and I paid our debts, and those rough years of hardship, struggling and working our heads off really paid off, because we had the ability to continue buying houses. I once had the fortunate opportunity of being a part of the Shiyifen areas, of fully enjoying the wonderful environment, but now, in the current migration process, being forced to migrate has left an unforgettable memory in my life, and I can now relate to the sorrow of the reservoir immigrants before." (Lin 2008)*

6.3.4 Permanent new immigrants since the construction of the Shihmen Reservoir

For up to 8 years, the highest number of employees and laborers hired went up to about 8000 people. Plus, adding the family dependants that workers brought in, there were approximately 15 thousand people. In order to accommodate such a number of people, not only did the Shihmen Reservoir Construction Committee provide *Shiyifen* dormitory areas, they also built a large amount of aluminum temporary dormitories on the north and south embankment area of the dam, providing employees and laborers working during the construction period a temporary accommodation, which was scheduled to be demolished after construction. However, this still did not satisfy the needs of the entire group of laborers. Because of the shortage of accommodation, there was the establishment of the "*Erhshijian*" house which is a house with 20 rooms.

Although it seemed as though the *Shiyifen* areas were fairly prosperous and boisterous, deep in the employees' hearts, there was uncertainty. After all, the construction project was going to last only for only a few years, and they were uncertain about their futures. In 1964, when the Shihmen Reservoir construction project was completed, an intense population transition of the *Shiyifen* area occurred. The workers that had completed their work were all either dismissed or required to switch jobs. Including family dependants, the total number of immigrants was over ten thousand. Workers of each class were able to receive an average of three to five month payment benefit. This movement resulted in the displacement of thousands of workers' family dependants, and the former geographic scenery of the *Shiyifen* areas started to change dramatically. There were a few technical laborers that had already gotten used to their lives in the *Shiyifen* areas, and they got along well with the Hakkas in the nearby area. Even though the dormitory area accommodated ethnic groups from all over the place and the percentage of Mainlanders was considerably higher, we saw the birth of a harmonious new

village. In order to reach the goal of long lasting permanency, a permanent plan was produced. The following are a few representative cases taken down in a field investigation report:

I. Representative migration 1: "*Erhshijien* House"

The technicians that were signed in contract for two years, and the *ErhshiJien* House they rented was located on the border, road intersection of *Sankengzi* and *Daping*, which was also the starting point of a section in American Road that is restrained. The *Erhshijien* House was where the laborers rented places to live in. In fact, in *Sankengzi*, *Daping* and *Erping*, renting houses was very common in those days. The main reason for that was because it was close to Shihmen Reservoir and workers were under time pressure to take turns to work three times a day.

An *Erhshijien* House consisted of brick house with a pitched roof paved with red tiles, ten rooms in the front row, and ten in the back. According to investigation, it was first built by a landlord, the Gu's family, and subleased to Shihmen Reservoir laborers. Since the house was located in a popular spot and transportation was considerably convenient, renting was extremely popular. There were not any individual bathrooms and kitchens, in other words, it was a public space. Also, the rooms were not big and if a family of five moved in, the space would become rather crowded. After the construction project of the Shihmen Reservoir was completed, the majority of laborers were dismissed, so the residents of *Erhshijien* House could only move to another place. After encountering several resells, the *Erhshijien* House had already been pulled down and rebuilt, and just like that, its history was slowly forgotten by people. During the interview of Lee Guo-Guang and his father, Lee Cing-Xiu, it was known that in 1959, because Lee Qing-Xiu was transferred from Taipower Company engineering branch in Wushe Reservoir to the engineering branch in Shihmen Reservoir, it took their whole family *Shiyifen* hours to get to *ErhshiJien* House, and they lived there for about 3 years.

"*There is a long row of buildings in front of my house, also known as the Erhshijien House. There was a period of time once when these houses were empty, and children from the neighborhood would often chase each other, play hide and seek, roast sweet potatoes, play paper cards and toys…etc. The walls of ErhshiJien House were built with red bricks, and the pitched roofs were paved with red tiles and Taiwanese China fir. However, it is a pity that all that has already been pulled down and taken apart, the building that was filled with my childhood memories will never come back again." (quoted from Lee Gou-Guang)*

In order to provide for domestic expenses, the Lees appeared to have foreseen a business opportunity, thus they moved out of *Erhshijien* House and built another small grocery store on the intersection of American Road as a subsidy for the family. Moreover, during the weekends, the whole family used the opportunity to sell tourists soda drinks and beverages to engage in making profit. The Lee family transformed from a technician laborer family to new immigrants living in Longtang *Shiyifen* areas.

Before 1971, the Shihmen Reservoir was one of the most popular sightseeing spots of northern Taiwan, with travelers and tourists from central, southern and northern part of Taiwan visiting to see the beautiful scenery. The extraordinary sight of cars queuing and waiting in a long line just to be part of the wonders of the reservoir remains a vivid memory for Lee Gou-Guang:

"*Our home was just located on the traffic road section, and also because we had a grocery store, our parents worked hard and were very busy all the time. As sons and daughters, it was inevitable that sometimes we had to go down and help attend to customers. Especially on the day of the Moon Festival, the beverages in our store would be sold until there were no iced beverages left, but customers do not care if the drinks are iced or not, they just always seem to think that drinks without ice is better than no drinks at all.*

Besides helping on Moon Festival day, our father used the weekend, when there were a lot of people at the Shihmen Reservoir, to take us to the reservoir to sell beverages and souvenirs. To be honest, it wasn't easy selling drinks to strangers, because when I was still young and shy, hesitating to shout out "Cold drinks! Cold drinks!", such an experience was something I found hard to adjust to when I was small. So every time I return to Shihmen Reservoir, it would remind me of those days." (quoted from Lee Gou-Guang)

II. Representative migration 2: (Fresh Fish Street)

The prosperous sight of the *Shiyifen* areas after the Shihmen Reservoir was built showed that the locality of residents had slowly been established. The regional space included the Hakkas that originally lived there, the large number of laborer family dependents that moved in because of the construction project, and some businessmen; this caused the *Shiyifen* areas to bloom and develop in a way that had not been seen. During the construction project, the construction site was desolate and food and other goods were not easy to get as a long drive to Da-Xi was necessary to make purchases. It was because of the Shihmen Reservoir project that the Shihmen fresh fish street existed, and restaurants advertising with Shihmen fresh fish began to appear. In the 1960s, small restaurants using "fresh fish" as their restaurant theme started to appear. According to the tourists' wishes, the chefs could cook varieties of fishes for them, and this gradually became a big feature of the local dietary business. Moreover, this changed the industrial structure of the *Shiyifen* areas from an agricultural region into a business area catering to tourism. Shihmen Fresh Fish became the specialty of the *Shiyifen* areas, and the Taoyuan County Government generously helped advance and popularize this specialty. Then, in 2004, the first annual Shihmen Fresh Fish Festival was established, and from then on, fresh fish culture had become an intangible cultural asset.

The rise of Shihmen fresh fish was on the so-called "Old Fresh Fish Street" on Jia-An West Road of Long-Tan *Shiyifen* areas. "Jin Lan" on Jiaan West Road was the trade name of the oldest local fresh fish restaurant in *Shiyifen* areas. The name "Jin Lan" came from the founder of that restaurant. In 1965, Yu Chao Jin-Lan and her husband, Yu Ruei-Bin, moved there from their home in Puli Township, Nantou County putting themselves in water conservancy construction projects such as dam construction. While her husband went to the office for business, Jin Lan stayed at their home on Jia-An West Road and started her own business opening a small restaurant. At first, her restaurant sold steamed buns with stuffing and noodles; it was only until 1966 that her restaurant began having carp dishes on their menu. Although, in the beginning, they only had spicy fish, braised fish and braised fish head in casserole, this dish still managed to spread their name around. This was why, in 1981, they simply decided to start making fresh fish dishes. Fresh fish restaurants started back from the first "Jin Lan" to the Fresh Fish Street today, the range of the new Fresh Fish Street nowadays with a number of about twenty something stores, is from Shihmen Elementary School to the Wenhua Road section of Northern Water Resources Bureau. (Feng 2004:42-46)

The climax period of Shihmen fresh fish business was during the 70s, among which the Shihmen fresh fish of *Shiyifen* areas was the most developed. The background story of the development of *Shiyuan* Fresh Fish was also filled with touching stories. According to the person in charge of the *Shiyuan* Fresh Fish restaurant, Chen Huei-Cing, who still serviced the Air Force in 1971, after work hours, would immediately join his wife to make steamed buns with and without stuffing to prepare for business in the mornings. Then, after they finished serving breakfast to customers, he would get on his 65cc scooter and drive to Taipei to stock up goods for their store. The drive from Shihmen Reservoir to Taipei is long, the small scooter had to carry 240 kg of stock, and he only slept 4 hours a day. Nevertheless, it was not long before he bought the shop *Tianrangu* restaurant next door. In 1974, the 48 year-old Chen Huei-Cing

retired from military service, so he put his heart fully in operating the restaurant. In the beginning, the *Shiyuan* Fresh Fish restaurant only had the basic fresh fish 3-way-eat: braised, spicy and braised fish head in casserole. Then, hoping to change that, the manager of *Shiyuan* Fresh Fish restaurant, Chen Huei-Cing deliberated and communicated with the chefs so that there was not only the traditional fresh fish 3-way-eat, instead, hundreds of fresh fish dishes were invented and produced.

7. Corporeal Mobility

7.1 The metaphor of mobility

The study of mobility has already become a popular discussion topic amongst scholars whether it is from the view of pilgrimage, invasion, exploration, migration, and exile, they were all widely and profoundly discussed (Urry 2000; 2007, Cresswell 1997: 2006, Thrift 1996, Solnit 2000). In this case, Tim Cresswell pointed out that, issues related to the have actually filled up the title pages of intellectuals, socialists, geographers, and culture critics. In the discussion of mobility, nomadic people, immigrants, travelers and explorers represented that the post-modernism of nomadic persons replacing the modernism of traditional sedentary (Cresswell 1997:360-361). Take the Shihmen Reservoir for example, firstly, in the Qing Dynasty and Japanese Colonial Period, the places in which explorers, missionaries, ambassadors, and ethnography scholars were interested belonged to the colonial frontier. English reporter Owen Rutter's *Through Formosa* (1923) compares the area to a frontier district defended by an army of volunteers (Rutter 1923/1990:228). In the Nationalist Government Period, the area was considered a sightseeing spot: during the times of the Civil War between the National Government and the Communist Party in 1949, Chen Cheng, who was convalescing in Taiwan at that time, once visited Shihmen Gorge; therefore, he had the opinion to build the reservoir. On the other side, in 1950, young Ma Ying-Jeou was brought by his family to the Shihmen Gorge, where they took a picture as a souvenir, which also represented the trend and current of global reservoir construction that began in 1950. Nevertheless, the Shihmen Reservoir benefited the residents of northern Taiwan, but it also caused the people from the submerged area to end up as homeless roamers. In the eyes of the government, the construction of Shihmen Reservoir represented an essential step for development. However, the government's consideration of the spatial, social-cultural, and environmental impacts were negligible. In many examples of large reservoir development in under-developed countries, governments have often neglected to prevent, mitigate, or even identify potential impacts of such infrastructure development in their grander pursuit to bolster their economies (McDowell 1996; McCully 1996; Cernea 1996; Johnston 2000). From the 1960s to the mid-1970s, the Shihmen Reservoir attracted many tourists domestically and globally, creating the summit of tourism popularity of the reservoir. An endless stream of tourists and travelers were seen on the dam.

Just as noted film scholar Trinh T. Minh-ha once indicated, stories transform the "impossible" to "possible". For those who had disastrous encounters during their journeys, Trinh recounted personal traveling experiences, which considerably soothed their sorrows effectively. Through the acknowledgment of their unfair treatment, the stories helped people to adjust, adapt and heal. When a person is exiled or moved to a different place, the space-time journey thus becomes extremely complicated and people fall into the dilemma of displacement. Moreover, Trinh stated how stories expand people's imaginations and how they have the potential to transform wastelands (Trinh 1994:10-11). The charisma of telling stories lies in when anyone is telling the travelling experiences of others, they are actually making an interpretation of themselves (*ibid.* 20-25).

Nevertheless, according to the version of Trinh T. Minh-ha, those were not American or

humanism interpretations, but stark-naked, painful experiences:
"For people who have been dispossessed and forced to leave for an uncertain destiny, rejected time and again, returned to the sea or to the no man's land of border zones; for these unwanted expatriated, it seems that all attempts at exalting the achievements of exile are but desperate efforts to quell the crippling sorrow of homelessness and estrangement. The process of rehabilitation, which involves the search for a new home, appears to be above all a process by which people stunned, traumatized and mutilated by the shifts of event that have expelled them from their homelands learn to adjust to their sudden state of isolation and uprootedness. … Dispossessed not only of their material belongings but also of their cultural heritage, refugees lead a provisional life, drifting from camp to camp, disturbing local people's habits, and destabilizing the latter's lifestyle when they move into a neighborhood." (Trinh 1994:12)

Trinh's description captures the sentiments felt by the Shihmen Reservoir immigrants, who were treated with indifference and ignored by authority who were unable to understand the trauma caused by the entire migration process. As described in the article, the spatial map and journey was filled with many displacement images bearing witness to the mass migration caused by economical infrastructure development. The aim of the article was to evoke empathy for those subjected to forced migration, roaming, and nomadic stories. Among these migration stories, lies the root difference: one is the force and refusal; the other could be selected a) once one leaves, they cannot come back again b) one can freely choose whether they wish to leave or stay.

In those stories, we can see collaboration between immigrants from *Ahmuping* to *Datan* in irrigating, exchanging labors, harvesting, and interflowing together in community. Also, with common religious beliefs (the Earth God, the Bidding Family Name activity), the immigrants built social, economical and religious relations, which meant that the residents were no longer missing their homes. In other words, *Datan* had already become another home in their lives. In the example of the *Shiyifen* areas, Mainlanders generally felt superior at first but then, due to the passing of time, the Mainland culture of the Shihmen Administration community gradually blended in with the local culture of the *Shiyifen* areas. For example, because the children in the area all attended the same school (Shihmen Elementary School), they shared benefits with each other, such as movies and indoor swimming pools, without being divided into different nations or groups. In the modernization process of Taiwan, without a doubt, the Shihmen Reservoir of the 1960s and the Ten Major Constructions of the 1980s represented an important progress index. Through the theoretical discussions, Deleuze & Guattari, Michel de Certeau, Iain Chambers (Cresswell 1997:360-368), and Tim Cresswell attempted to used these three theories to discuss the profound meanings of the migration stories resulting from public construction.

7.2 The nomadic and sedentary roles of immigrants

In the whole displacement process, the construction immigrants played the roles of refugees, nomadic people and exilic people. Also, during the 1960s and 1970s the Shihmen Reservoir *Shiyifen* area, and in 1979 after the opening of the international airport, the roles of the economic immigrants, engineer technicians and many tourists that were attracted from all corners of Taiwan. In the discussion of Deleuze & Guattari (1987), their roles were like the nomads and migrants of post-modern times, continuously moving until it became daily ritual to them, nothing was sedentary. They thought the romantic process of nomadic people was the highest-level of geographical metaphor. Moreover, the scholars' depiction and analysis of nomads has become central to post-social and cultural theories, thus, by using the metaphor of nomadic people, it has also become the key center to understanding the post-modern world.

In the beginning, due to the bad environment in *Datan* , the new immigrant village, when there was insufficient harvest, some of the immigrants would run back and forth from

Ahmuping to *Datan*, hoping to continue cultivating before Datan was completely submerged. This proved to be a particularly taxing strategy and a very rough beginning of the migration movement. There was a conspicuous contrast between the *Datan* immigrants and those living in the American-style *Shiyuan* First Village community, where residents could enjoy swimming in pools, playing tennis, living immobile and idle lives. Through mobility, the *Datan* immigrants crossed over the restrictions on immobile places so that the "place" expressed a type of nomadic and non-sedentary environment. In the example of the *Shiyifen* areas, we also saw how former Shihmen Administration resident Lin Wen-Chi overcame the pressure of reality, in two years, "*besides having fulltime jobs, my wife and I also had part-time jobs. Every day, my wife would ride a bicycle back and forth from Yiyuan to Shanziding, which was extremely tiring.*" (Lin 2008:56). Also, Chen Qin-Huei of Shiyuan Fresh Fish Restaurant would rush about from *Shiyifen* areas to Taipei every day, thus, allowing "place" to express a nomadic and non-sedentary environment.

7.3 The process from deterritorialization to reterritorialization

In early 1980s, G. Deleuze & F. Guattari's theory of deterritorialization became a very popular topic of literature and cultural criticism (Kaplan 1996:92). The deterritorialization and reterritorialization concepts formed through physical displacement can be used to understand the *Datan* migration. The Datan migrants were first subjected to deterritorialization at the time of their original upheaval, but over time, underwent reterritorialization as they began to feel at home in their new location.

The local residents of the *Shiyifen* areas were not allowed to enter the *Shiyuan* First Village and the *Shiyuan* Second Village restricted areas in which their family dependants of the Chung-Shan Institute of Science & Technology were located. Furthermore, the Mainlanders of the Chung-Shan Institute and the Shihmen Administration generally felt superior to other groups. There was a substantial difference in the living quality and welfare of the Chung-Shan Institute and Shihmen Administration, and the Hakkas that lived around them. The Hakka residents of the *Shiyifen* areas had to accept this disparity and succumbed to their deterritorialization. The Mainlanders of Shihmen Administration, who had originally wanted to reconquer Mainland China began to come to terms with and adapt to their new living environment. Eventually and gradually, they blended in with the local culture of the *Shiyifen* areas, and began to accept the Shihmen Administration dormitory and surroundings as their other hometown. They were beginning to reterritorialize. Therefore, the displacement process of the *Shiyifen* area residents, that had begun as a deterritorialization process, slowly became a reterritorialization process.

7.4 Strategies and tactics

In the book "The Practices of Everyday Life", Michel de Certeau considerably quoted the metaphor of nomads. In his opinion, power is linked to territory or frontiers. Michel de Certeau used strategies and tactics to represent the strong and the weak respectively. The strong apply strategies, to use accurate methods such as classification, division and segmentation to standardize space. On the contrary, the weak use tactics, and in this case, they use mobility against territorialization, representing refusal of spatial domination .Therefore, tactics became the weapon for the weak, and also the art of urban nomads. As de Certeau says: "*they circulate, come and go, overflow and drift over an imposed terrain, like the snowy waves of the sea slipping in among the rocks and defiles of an established order."* (de Certeau 1984:34) Walking in the streets, nomadic people used unpredictable tactics against those who dominated urban space through their use of strategies (de Certeau 1984:31-34). For de Certeau, the nomad represented an urban hero/heroine akin to a post-modern version of the 19th century flâneur. In

fact, way back in the 1950s and 1960s, during the so-called Martial Law and the Suppression of the Communist Rebellion period, the immigrants had to. Under the strict atmosphere the government enveloped the nation with, communities were powerless to question the demands of authority as they began their displacement journey. The weak continued to use their tactics against the strategies of the strong, however, the discrepancy between power remained largely unnoticed as the tactics used by the weak to deal with their ordeal, namely moving somewhere else, reflects compliance to the wishes of stronger powers. Had there been an organized, collective community stand resulting in an incident visible to more people, perhaps the migrants woes would be better reflected in historical records.

It was still the Martial Law period at the beginning of the *Datan* cadmium pollution incident, yet, the government still used power and authority to communicate and coordinate with farmers (Sheng 1996:1). Finally, during 1988, the residents could not take that kind of treatment anymore; therefore they chose to use violence to protest. In fact, the lifting of the Martial Law was also a key factor. None the less, in *Datan*, there were factories that were able to provide prosperity and job opportunities for the local place and people, but when the target they were protesting against were their own parents, it formed an interesting picture of conflicts both internal and external, of the factories: the younger generation striving to earn money in the factories, and the older generation insisting to surround the outside of the factories. This image showed that they had no choice and their struggle between reality and ideality, also declaring the inevitable results of immigrants taking the journey of displacement again. Unfortunately, in this conflict, the villagers still did not use de Certeau's theory of the weak/tactics against the strong/strategies, which resulted in the main culprit of the cadmium pollution incident—the newly established Coin Chemical Industrial Co. in *Datan* industrial area, continuously enjoying the benefits of future construction developments. On the contrary, the *Datan Ahmuping* immigrants roamed and walked about in the streets, this was no longer the art of urban nomads indicated by de Certeau, instead becoming the sorrow of exilic people, roamers, and drifters.

The story of the *Shiyifen* areas gave us a completely different impression. Lin (2008) pointed out that when the Shihmen Construction Committee acquired the usage authority of the *Shiyifen* area land in the 1950s, the tea trees were eradicated and flattened out in order to make space for the committee office area. The spatial planning of the entire area was generalized into three elements: (1) Divisions (architectures and grass lands) (2) Axes (3) Roundabouts. The basic plan would include roundabouts joined to axes, and axes segmenting divisions. It seemed as though, in the entire space of the office area, the mobility of the district was distributed according to the roundabouts, thus controlling the direction of any individuals, the living pace of new immigrants would also revolve around the roundabouts. There were a total of four roundabouts in the Shihmen Administration office area, and every roundabout had a different spatial meaning according to their different scales and positions:

(a) The small roundabout of the bus stop: this was the entrance of the Shihmen Administration, and it also seemed to be the sign of spatial power. Spatially, this roundabout represented "entry" or "arrival".

(b) The big roundabout of the office hall: the core and center of the Shihmen Administration, and also the midpoint of the axis. The roundabout was positioned directly in front of the office building, managing six intersections. Spatially, this roundabout represented the "manager" and the "core".

(c) *Shiyuan* roundabout (north): the big roundabout in the *Shiyuan* restricted area. People, in general, did not have the chance to reach this roundabout (including Shihmen Administration staff), thus, spatially, it represented inaccessibility to the "high-class" or being people "too far to reach".

(d) The big roundabout of the water tower (south): this roundabout was named because of

its proximity to the big water tower that provides the community water, and it is the main route when headed to the *Shiyuan* Second Village. However, the *Shiyuan* Second Village was not yet built at the beginning of the project; therefore this roundabout spatially meant "frontier" or "outer-edge".

De Certeau's theory applies well to this scenario. The strategy applied by the strong (Shihmen Administraion), includes methods such as classification, division and segmentation to standardize space, which represents the domination of urban space by strategies. (de Certeau 1994:31-34)

In the 1970s, small restaurants using fish as their theme started to appear in local areas, slowly becoming a distinguishing feature of the area. Though the core district was the urban space dominated by strategies, the fish restaurant phenomenon changed the space structure of the *Shiyifen* areas. Big and small Shihmen fresh fish restaurants began densely appearing near the Shihmen Administration *Shiyifen* areas (Feng 2004:42-46). Some twenty fresh fish restaurants were completely free from the Shihmen Administration, and were the defilement of an established order.

7.5 The origin of returning home

According to Iain Chambers' theory of nomads, the return of the Lius was a post-modernist occurrence. In the nomadic culture, every drifter has their own special baggage and history, crossing over to the territory of uncertainty and neglect (Chambers 1990:14). The conscious form of travelling often refers to leaving from one place and then returning back the origin place. Nevertheless, in the discussion of post-modernism, whether metaphorically or from a substantial perception, travelling no longer has the implication of leaving and returning, instead, it may include an even broader journey. The broader journey may refer to a period of continuous mobility, or repeated displacement processes such as those experienced by the Lius (Chambers 1994:245-246).

In 2008, the Taoyuan County Government mapped out plans to develop business in the surrounding areas of the International airport and to expand the land usage from 1223 hectares to 6150 hectares which would mean the displacement of some residents. The residences of those who were forced to move might become luxurious houses of others who may move into the area. In addition, those newcomers would also be tempted by International Aerotropolis, attracting the business immigrants from foreign villages and townships.

According to I. Chambers, travelling is not just about setting out and returning back, it is about an even broader journey, which is, in other words, a repetitive and endless displacement process (Chambers 1994:245-246). In the future, the government should be careful as to not instigate another repetitive displacement process in the Taoyuan International Aerotropolis district.

8. Conclusion

Usually after major constructions have been completed, a pyramid is built mentally in people's hearts and minds. Major development projects promote and develop national economies and also increase the confidence of the populace. Politicians often choose to use major development projects to show their governing achievements and capture the hearts of the people. Early in the 1940s, the Shihmen Mountain was a spot with beautiful scenery that saw a humble number of tourists. In the 1950s, large reservoir construction began developing, likely pushed forward by Governor Chen Cheng who wanted to leave a legacy in the political world. At that time, the many migration stories caused by construction projects was something politicians did not consider at all. However, the establishment of the Shihmen Reservoir promoted the Shihmen area as a popular sightseeing spot, which helped attract a mass of

domestic and foreign tourists to the *Shiyifen* areas from 1960 to 1970, creating the peak of Shihmen Reservoir tourism. The first to invest in Shihmen was Chang Ke-Dong, who invested in the 5-star Sesame Hotel with international standards. Then, overseas Chinese invested in the Asia Garden followed by the Window on China Theme Park and Leofoo Safari Zoo Village. Moreover, tourism investments such as Fresh Fish Street, Hotel Cloud, Hotel *Daoxingcun*, Fairy Tale World, and the cable gondola were stationed in Taiwan, thus making the area around Shihmen Reservoir prosperous and very popular, also benefiting civil organizations. (Lin 2008)

This economic prosperity attracted more and more investment and immigrants to the *Shiyifen* areas and the reservoir immigrants that had previously been pushed to the frontier of the Taoyuan seacoast were all but forgotten. At that time, the Shihmen Reservoir was a major national public construction. Thus, once again, land requisitioning caused a large number of residents to migrate, which resulted in the recurrence of a repetitive displacement processes among the construction immigrants. In recent years, in order to promote economic development, the "Taoyuan Aerotropolis Development Regulations" of Taoyuan County was discussed enthusiastically.

Iain Chambers (1990:57-58) once quoted Paul Virlio's words to explain that the international airport will become a future urban city: The Mass Rapid Transit (MRT) system connects millions of people together and planes fly from one megasuburb to another. As he said:

"Enter a modern airport and you can see what inspired Virilio's prophecy. With its shopping malls, restaurants, banks, post offices, phones, bars, video games, television chairs and security guards, it is a miniaturized city. As a simulated metropolis it is inhabited by a community of modern nomads: a collective metaphor of cosmopolitan existence where the pleasure of travel is not only to arrive, but also not to be in any particular place….. to be simultaneously everywhere. This is a condition experienced not only by the contemporary traveler but also by many a contemporary western intellectuals: the flaneur becomes a planeur."

Travelling and displacement issues can be discussed as post-modern space issues. We can query the structure and proliferation of modernism (Kaplan 1996:2-5). For instance, the Tayal people of the *Shihxiu* Plain submerged area. In the research of Lee Hui-Hui (Aho Batu), it is pointed out that their cognition of lands and cognition of the modern society is different. In the modern world, property is referred to as changeable assets in capitalism. On the contrary, in the opinion of the Tayals, it was not simply assets or products that they have lost, but the place in which aborigine culture is cultivated and identification is held together. (Lee 2007:62) Furthermore, when the migration movement happened in *Datan*, the solution method authorities pondered on was still the capitalism-style cash compensation. At the moment, requisitioned land is sited as the *Datan* Coast Special Industrial District, becoming the first step of manufacturing Taoyuan County Golden Coast plan. This is in fact the standard of modernism structure and proliferation method, yet, it was the land where the *Datan* residents cultivated culture and maintained identification that was sacrificed.

Therefore, the displacement problems resulted from the Shihmen Reservoir construction can be divided into two aspects for observation: one aspect is the population that moved out, and the other aspect is the population that moved in. In general, the former is most probably the group of people deeply affected negatively by the reservoir construction; this paper places emphasis on observing the problems and meanings caused by the entire displacement process in history. On the other hand, the latter refers to the population that volunteered to move in on their own, changing the inhabitant structure of the *Shiyifen* areas from a Hakka-majority area into an area that consists of a mixed population of Southern Fujianese, Hakkas, and Mainlanders. The

Mainlanders that came to Taiwan, especially, experienced the breakups and deaths, cross-strait mass migration and political power alternation in less than ten years. Therefore, their homesick and desire for stability was naturally stronger than any civilians living in Taiwan. From the historical perspective, those civilians, who were affected more on the positive side, also included foreigners, Mainlanders, and Taiwanese. In other words, they were the ones who gained the benefits and advantages. Even so, although their displacement stories are not as solemn and tragic as those that moved out, they still had little grief and sorrow. Perhaps it was something every civilian living here in Taiwan, a migration island, had to deal with and accept—and that is fate.

Regarding the migration process resulted from major constructions in Taoyuan County, this paper mainly adopts the personal stories of immigrants to declare in addition. Moreover, all these travelling stories are the most common and ordinary experiences of everyday lives. Even though the stories are described in extracts and fragments, they are the most authentic and genuine descriptions, and they also contain many significant meanings. The social culture researches in recent years said that stories have already become a highly important role. On the other hand, in anthropology, stories are the important pathway to understanding culture. In psychology, stories are the bases of identity. In history, stories provide the tropes to understand the past. For psychoanalysis, stories provide the narrating truth for analysis. For philosophy, stories are the foundation for creating new worlds and new communities. In fact, even economics recognize its storied character (Plummer 1995:18). In addition, Trinh T. Minh-ha further indicated, for the speakers, the narration itself is considerably contradicted, because the speaker has to determine between "*here and there, home and abroad, third and first, margin and core*" (Trinh 1994: 20).

In addition, besides describing various influences of the reservoir immigrants in Taoyuan County and the construction migration problems, this case study uses the mobile travelling metaphor to examine the entire migration and displacement process, which was undoubtedly a difficult and painful experience. However, through the metaphor of mobility, the whole displacement process actually also has a positive and constructive aspect. All these are expressed through the words and true stories personally told by immigrants, just as Trinh T. Minh-ha said: "*every voyage is the unfolding of a poetic: the departure, the cross-over, the fall, the wandering, the discovery, the return, the transformation.*" (Trinh 1994:21) If the specific characteristics of this group of immigrants and their significant meaning in Taiwan's society, history and culture is not profoundly introspected and reflected on, the entire displacement process will come to a stop, and future migration stories can only turn to written records of individuals.

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