

13

To Think Like an Island: Three-capital model in pursuing GNH in Taiwan

Juju Chin Shou Wang

Abstract

One outstanding feature of GNH – as opposed to using Gross National Product (GNP) to measure the quality of life – is its focus on the Eastern world view in an attempt to deconstruct the long-standing practice of viewing the world largely through Western perspective. In particular, the “invisible hands” directing the market has turned into “invisible feet” that trample on society, producing the phenomenon of “affluent poverty” including environmental and social costs. Thus, GNP-oriented development in Taiwan has actually brought about three other GNPs: Gross National Pollution, Garbage, Noise and Pollution, $GNP=NG(Guns)+NP(Pollution)$. In a sense, GNPs are the major source against happiness in Taiwan.

According to “word map of happiness”, Bhutan ranked eighth and was the only Asian country to make it to the top ten list, while Taiwan came in 62nd and China 82nd. Considering Bhutan’s GNH model on “thinks like a mountain”, Taiwan might facilitate a GNH model of “think like an island” in terms of two perspectives. One perspective will be focused on three-capital discourse associated with natural capital, cultural capital and social capital. Another perspective put emphasis on three-dimension discourse including paradigm shift, institutional transformation and structural change.

This paper aims at developing an island-oriented GNH model in a theoretical fashion. In practice, this paper also presents a local case of Bamboo Broom Union (BBU) by applying above-mentioned two perspectives. Considering GNH as a social movement, BBU has launched a grassroots program in pursuing a GNH city in a glocalized and humorous way.

1. GNP: gross national product or pollution

Global problems, particularly global changes, have been a long-term result accumulated through “negative exchanges” between both environmental and societal systems. Anthrop-centered societal system, in an aggressive fashion, has long been exploiting the environmental system in terms of three factors: addition, withdrawal and simplification (Schnaiberg, 1994; Hemple, 1996). Food chain has thus been disturbed and then downgrades the natural system in both quantitative and qualitative aspects. On the other hand, a sub-system of the societal system, production and consumption, has also been “de-naturalized” and further enlarged the “role distance” between man and his environment. In a word, the ways our societies interacting with the environment have reached a state known as “structural distortion”. In this sense, GNP coins with Gross National Pollution; Garbage, Noise and Pollution; $GNP=NG(Guns)+NP(Pollution)$. Eventually, lower quality of environmental has been a source leading to unhappiness.

A paradigm shift based on social transformation, rather than technology, is urgently needed to tackle unsustainable and unhappy society associated with global environmental problems. This assertion was presented in early 1970 by the Rome Club and latter in 1990 by the Brundtland Committee. Brown (1992) has even coined the idea to be “environmental revolution”. Tomas Kuhn (1962) asserted that environmental problems, like knowledge and power, are constructed by the society and thus viewed as one of the social structures. Structural functionalism, a classic sociological theory, focuses on the interaction between “whole” and “part”, which is closely associated with “global” and “local” perspectives in environmental context. In other words, “structural adjustment”, in a form of paradigm shift, is required to tackle above-mentioned “structural distortion” in dealing with unsustainable and unhappy world. Moreover, islands, among various spatial forms in the unsustainable world, are confronting

“life and death” crisis in terms of their spatial and social characters as compared with continental counterparts. This paper intends to address how “Island Taiwan” works out her paradigm shift toward sustainable society in a glocalized context through GNH, discourse and movement.

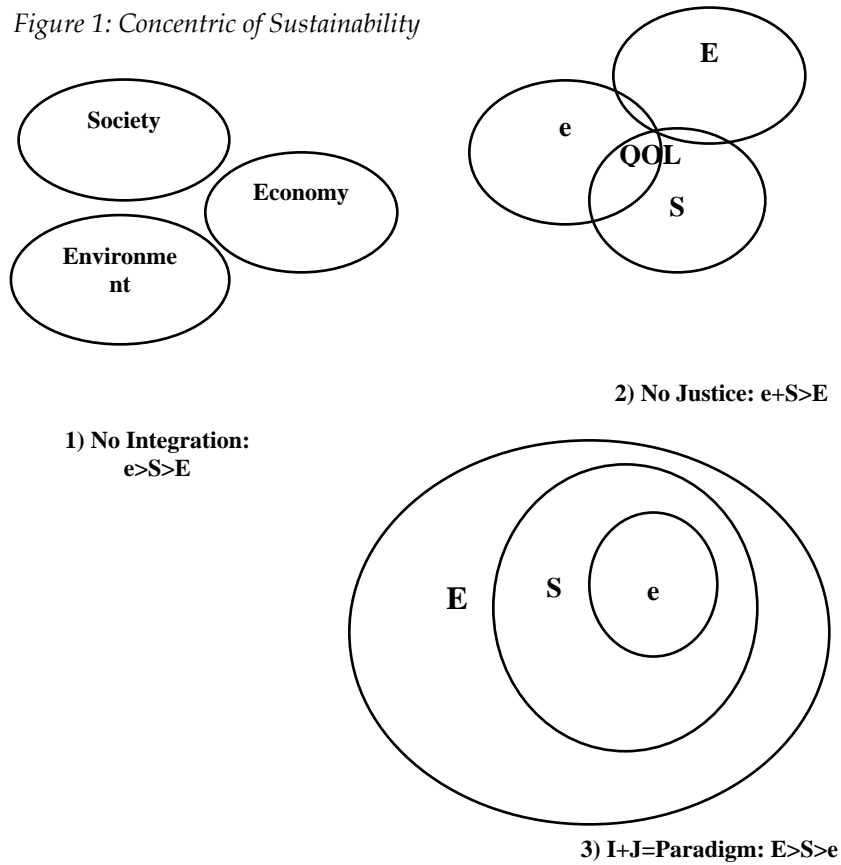
2. Sustainability gaps

The East-West "sustainability gaps" are to be addressed in terms of the conceptual and contextual insights. Sustainable gaps, in a qualitative perspective, are to be identified in terms of how far from “genius sustainability or happiness” (Maser, 1998; Rogers, 1998).

One of the “sustainability gaps” would be the problem engaged in system imbalance among environment, society and economy (See Figure 1). In the first phase, each system has its own indicators without any integration. For example, GDP stands for economy sector and PSI for environment, while social indicator movement works out for a better society. First phase, thus, provided no integration among three sectors and economy sector dominating over the two other sectors. In the second phase, some integration appealed in terms of quality of life (QOL). Indicators measuring QOL include Borda Index of Quality of Life (Fred Gruen 1996), Calvert-Henderson Quality-of-Life Indicators, CFI (Country Futures Indicators) developed by Hazel Henderson, GPI (Genuine Progress Indicator), HLE (Happy Life Expectancy) by Ruut Veenhoven, HSI (International Human Suffering Index) by Population Action International 1992 and so on. Second phase involved anthrop-centered practices without paying much attention to no-human aspects, so to speak, environmental and no-human justice. In that stage, attention on society was paid more than that in the first phase. Still, environment earned less in the pie. Coming to third phase, environment-based economy and society is the central theme in achieving sustainable development that would promote paradigm shift, from Social dominant

Paradigm to New Ecological Paradigm as Dunlap suggested. In this stage, environment accounts for largest share and includes social and economic parts.

Figure 1: Concentric of Sustainability



Source: Juju Wang, 2001

Other sustainability gaps include GNP's myth, particularly in developing countries, signifying several new GNPs without environmental concerns. They are: Gross National Pollution; Garbage, Noise and Pollution; $GNP = NG(\text{Guns}) + NP(\text{Pollution})$.

(wang,, 1998). Similarly, the Index of Sustainable Economic Welfare (ISEW), and a variation, the Genuine Progress Indicator (GPI), has been calculated for a number of developed countries including Austria, Australia, Denmark, Italy, Netherlands, UK, and US. All tell a similar story: ISEW growth accompanies GDP/capita growth until about the mid- 1970s when GDP continues to grow but ISEW begins to decline.

In addition, the "Happy Life Expectancy" (HLE) indicator developed by Ruut Veenhoven attempts to measure the degree to which a citizen of a country can expect to live happily, using estimates of longevity with survey data on subjective happiness. Surveys have been carried out in 48 countries. Predictably, scores tended to be higher in affluent, free, equal, educated and harmonious societies, but surprisingly they were not significantly related to unemployment, state welfare, income equality or population pressure. Countries with a high quality-of-life index do not necessarily have a high happy life expectancy, for example Iceland, and vice versa Bulgaria, which raises interesting questions about the relationship between "quality of life" and "happiness", and notions of progress generally.

Third dimension of sustainability gap would be the gap between the west and East. Although useful in promoting a civilized world, Western views have dominated most of modern aspects including sustainability. Perspectives from the East are needed to construct a complete word view.

Other indicators include those sets of indicator such as UNDP's Human Development Index (HDI), Human Poverty Index (HPI-1 and HPI-2) and Human Freedom Index, (HFI), EU's Environmental Pressure Indices and PPI (Policy Performance Index); IUCN's Wellbeing of Nations; Ecological Footprint (Wckernage & Ree, 1996), Environmental Space (George, 1999), Eco-efficiency (Desilmone, 2000), Waitakere's Greenprint (NZ), Vermont's Social Well-being Index; Washington's Environmental

Health; Green Map, eco-footprint, CofS, Japan's National Welfare Index (Kaya, 1998), Taiwan's Environmental Pain Index and Mother Pain Index (Wang, 1998) and National Well-being Index (Prescott-Allen, 2000); Green HDI, Green GDP, Natural Capital.

Among them, Human development Index (HDI) is probably the most popular indicator in reflecting basic needs on health life, acquiring knowledge and upgrading standard of living (UNDP, 1990-1999). Recently, new dimensions, such as gender inequity, were added in order to cope with the spirit of Agenda 21. With this change Japan drops from 1 to 17, while Finland moves up from 13 to 1. However, the HDI is much more useful in comparing developing countries than developed nations (Harris, etc., 2001).

Another indicator in reflecting degrees of sustainability among 52 nations is a ranking of ecological footprints and deficits. Obviously, most countries occupy more ecological capacity than their country provides. Compared with 1.7 hectares per world citizen, USA is ranked first with 10.3 ha / per Capita followed by Canada (7.7 ha), New Zealand (7.6ha) and Singapore (7.2ha). In terms of ecological deficit, Singapore is ranked first with -7.2ha followed by Hong Kong (-6.1), Belgium (-3.7), USA and Netherlands (-3.6). India, Pakistan and China are three notable exceptions. According to the calculations of this study, they are among the few countries that consume at a level which could be reproducible for everybody in the world without endangering the planet life-support capacity. However, for both Pakistan and India their land-based footprint is larger than their terrestrial ecological capacity. The ecological remainder comes from their comparatively low use of sea space as their fish consumption is much below world average. First, the ecological deficits calculated here may be an underestimate of the true deficits. Second, if their population and per capita consumption continue to grow, this possible remainder will soon be used up. (<http://www.ecouncil.ac.cr/>)

Hanley et al., (1999) has conducted a dialogue to detect Scotland's sustainability between 1980 and 1993 among several measurement tools, such as Green Net National Product, Genuine Savings, Genuine Progress, Index of Sustainable Economics Welfare, Environmental Space, Ecological Footprint and Approximate Environmentally-Adjusted Net National Product. The aforementioned tools are single-dimension oriented, covering economic, social and ecological ones. The detecting results indicate a social and ecological sustainability downgrade, but an economic sustainability upgrade. Another project on "sustainable dialogue" through "weak sustainability", done by Pearce & Atkisons (1998), demonstrate that Japan and Netherlands were ranked first and second among 18 countries.

3. Taiwan's Island characteristics

According to STI research team and Yeh (2002), Taiwan is a continental island with approximately 36,000 sq. km land area and 1,200 km of coastline. The surrounding marine ecosystem provides local people with abundance resources. Geologically, Taiwan is relatively young, ranging from recent alluvial deposits to early sedimentary and crystalline rocks. A tilted fault block running along the entire length of the island forms its structure. This gives Taiwan its fundamental topographic feature—the Central Mountain Range, which lies from north to south. Within the 140-km horizontal distance between the east and west coasts, the elevation ranges from sea level to 3,950 meters. Steep mountain terrain over 1,000 meters constitutes about 30% of the island's total land area; hills and terraces make up around 40%; and low-lying alluvial plains make up the remaining 30%. Therefore, land areas suitable for human development is limited; however, the population density is very high. This have caused severe land use problems that land resources is not restricted to urban and suburban areas. Marginal land in non-urban areas, including hillside and coastal areas, also faces the threat of destruction through human development.

Despite its recent change from its peripheral “milk cow” status for Mainland China (J Yeh, 1996:), Taiwan is an island, once called Formosa. This is not a virgin island, however, it is an island under frequent colonization. Also, this is an island with high density of economic development. Further, this is an island of profound political transformation. And furthermore, despite its economic and political strength, this is an island struggling for its national identity and international recognition. It is against these salient features that we are developing a set of sustainable development indicators.

Islands are commonly defined as “land surfaces totally surrounded by water and smaller in size than the smallest continent (Goudie, 1990:252). Taiwan is an island off shore of Chinese Mainland. It is thus a continental island structurally a part of a neighboring continent not a sea island rise from the ocean flow. But above this geological connectedness, the relationship between island Taiwan and Continental China is much more complicated than it appears to be.

Despite many common features, all islands are not the same. Taiwan, as an island, shares some common features with other islands but presents its various salient features against other island. Two sets of concept underscore these dual features.

On the one hand, island Taiwan shares the feature of insularity with other island (Emilio Biagini and Brian Hoyle, 1999: 8) while showing greater interconnectedness with other parts of the world. On the other hand, Taiwan seems to be vulnerable but demonstrates fast and profound change and transition. Under the concept of insularity and interconnectedness, island Taiwan presents the following features:

1. Physical, biological and cultural insularity: like other islands, Taiwan presents a level of insularity in physical, biological and cultural sense.

2. Scarce natural resources: Taiwan is scarce in nature resources in the cause of industrialization, and that have increase the reliance on sea transport.
3. Colonial legacy: like most of the islands, Taiwan had been under frequent colonization over last 400 years.
4. High population and competitive in spatial allocation: Taiwan's population density has been among the highest in the world. Competing for space and spatial allocation has thus been a critical public concern.
5. Trade dependent economy: Over centuries, Taiwan relies on foreign trade to accommodate its island status. But it was since the last three decades that Taiwan has began to develop itself into a big trading economy in the world.

For vulnerability and fast changing, island Taiwan presents:

1. Natural disaster prone ecology: Taiwan is prone to natural disasters, including flood, hurricanes, and earthquakes.
2. Environmentally sensitive areas: A large percentage of land in Taiwan could be designated as environmentally sensitive areas that are significant for natural disaster prevention or natural conservation.
3. High turn over rate: life span of industries, system or prevailing practices is relatively short in Taiwan.
4. Constant changing society: Taiwan is a society constantly under change.
5. Transitional society: industrialization, political democratization, and economic liberalization in Taiwan all happened within a relatively short time. But the dynamics and result of the change have been profound and lasting.
6. Vulnerable to external influence: Taiwan society is very vulnerable to external intervention, environmentally, economically, socially, and culturally.

7. Struggling for identity: Taiwan has been struggling with national identity both in the island and international arena.

4. New paradigm for environmentalism: GNH

Two sets of paradigm shift are presented as follows in order to conduct a discourse on GNH.

From economic capital to natural capital: Capitalism always intends to maximize the economic profit as possible it could, which is viewed to be the major reason resulting in “common tragedy”. Gross National Product (GNP), an indicator of capital accumulation, is the only showcase in displaying a state’s power. Under a new international labour division, “commodity chain” accompanying with “pollution chain” and “disease chain” have brought about a dilemma known as “affluent poverty”. In this sense, GNP is given three other new meanings: Gross National Pollution (GNP), Garbage, Noise, and Pollution (GNP) and $GNP = NG(\text{guns}) + NP(\text{pollution})$ (Wang, 1994;2001). Thus, Work Bank proposes a set of three indicators in evaluating a state’s power as a whole. They are human capital, natural capital, and economic capital. In the future, natural capital is expected to be the dominant indicator among others because of its scarcity of which people have become aware.

From anthropocentrism to eco-centrism: Human-centered values, particularly male-centered ones, have treated Nature as a “green slave” representing “cruelties of civilization” (Salt, 1897). From Homo Sapiens to Homo Rapines, human beings have been exploiting the earth despite of the earth housing us. To apply the concept “the world is your body”, human beings should be humble and always “think like a mountain” in an “inter-subjective” view (Watt, 1966; Leopold, 1960). Eco-centrism, thus, has been a major value in shifting to New Ecological Paradigm (NEP) from Human Exemption Paradigm (HEP) and also in promoting environmental justice (Bryant, 1995). Being a

significant frame of environmental justice, eco-centrism puts its emphasis in the rights of nature rather than natural rights (Nash, 1990).

Following those perspectives toward new paradigm, GNH movement is in process among many nations. The third International Conference on Gross National Happiness (GNH) was held in Thailand from Nov. 22 to 28 at Chulalongkorn University in Bangkok in 2007. The conference was an attempt to launch three changes in the form of a social movement : a paradigm shift, institutional transformation and structural change (Wang, 2008).

One outstanding feature of GNH—as opposed to using gross national product (GNP) to measure the quality of life—is its focus on the Eastern world in an attempt to deconstruct the long-standing practice of viewing the world largely through Western perspective.

The concept of happiness as the ultimate goal is common to both Eastern and Western religions and philosophies. Unfortunately, capitalism has narrowly defined the quality of life in economic terms, as measured by GNP, putting excessive emphasis on anthropocentrism and materialism.

As such, the “invisible hands” directing the market has turned into “invisible feet” that trample on society, producing the phenomenon of “poverty within prosperity” as well as incurring other social costs. In fact, some have defined GNP as “gross national pollution” The incurred social costs are diametrically opposed to the core values of happiness-dignity, sensibility, faith, reassurance and hope.

Bhutan took the lead in promoting the GNH movement in an attempt to pursue happiness at the national level. The king of Bhutan set an example by partaking in the movement organized by the Center for Bhutan Studies.

The movement covers eight areas - psychological well-being, health, balanced use of time, education, cultural diversity, good governance, communal vitality, ecological diversity and resilience and living standard.

Bearing in mind that the government is responsible for connecting public opinions to these domains to create happiness on a structural level, Bhutan set up two commissions-the Royal Civil Service Commission and the Anti-Corruption Commission—to carry out the three changes in order to integrate and expand the scale of happiness.

Since 2004, when it began hosting international conferences on GNH, Bhutan has become a focus of discussion because it has been brave enough to create new paradigms.

One of the paradigms from which Taiwan can learn is Bhutan only has diplomatic relations with 22 countries, as it believes that sparing expenses is conducive to domestic affairs.

Adrian White, a social psychologist at the University of Leicester, has produced the first ever “world map of happiness.” White based the ranking on the findings of more than 100 studies from around the world, including data on life expectancy from the WHO and various national surveys about satisfaction with life.

Denmark ranked first in the survey, which covered more than 80,000 participants from 178 countries, followed closely by Switzerland and Austria. Bhutan ranked eighth and was the only Asian country to make it to the top 10 list. Taiwan came in 68th and China 82nd.

Three-capital model for island Taiwan: from sustainable development indicators to GNH (island happiness)

Taiwan should pay attention to such a trend as it is a crucial turning point for “glocalization.” Bhutan walks its own way and “thinks like a mountain.” If Taiwan “thinks like an island” and

supports the “three capital” – natural capital, cultural capital and social capital – it will also have an opportunity to make itself an island of happiness. Hopefully the public will speak out in pursuit of happiness and launch a grassroots GNH movement. In this sense, ten-year Sustainable Taiwan Indicator (STI) system is an appropriate base to link with GNH.

In general, there are four schools of thought on sustainable development (Yeh, 1996). The first is the carrying capacity model, which defines sustainability as development staying within natural limits. Under this construction, sustainable development was defined as improving the quality of human life while living within the carrying capacity of supporting ecosystems (IUCN, 1991). The second is an intergenerational justice model that defines sustainability as the development of the present generation without depriving the development of future generations. The Brundtland Report defined sustainable development as the development that meets the needs of the present without compromising the ability of future generations to meet their own need. The third is an economic internalization model that extends the context of economic development to include all elements of social welfare. Under this construction, sustainable development is defined as a maximization of the net benefits of economic development, subject to maintaining the services and quality of natural resources over time, where economic development is broadly construed to include all elements of social welfare (Pearce, 1990). The fourth is an institutional capacity-building model that links decision-making process and real world and thus incorporated with the role of institutions. Accordingly, sustainable development is better understood as a desired institutional environment, and not as a desired result. The essence of sustainable development is thus the dynamics of social capacity building, through which the ex post regret of collective decisions can be minimized.

Though the world is claimed to have a "common future," we have seen how differently each nation (or each island) can view its interests in development and the environment (Porter & Brown, 1993). Conflicts in values are equally pervasive at the national level, especially in countries undergoing rapid transition such as Taiwan. It is imperative to ask how a transitional island society would define the course of national development in terms of sustainable development, given its prior developmental pattern and current international dependence. Among four different models of sustainable development, Taiwan takes the institutional capacity-building model to be her base for essential rationale in designing her sustainable development indicators.

In developing sustainable development indicators for island Taiwan (STI), STI team incorporated the concept of institutional capacity building. An extended PSR system is further employed to demonstrate the structure of the chosen indicators.

STI system, covers Island Taiwan and Urban Taiwan, adopted PSR model in which social and economic components are treated to be pressure. In a sense, social and economic components are the source of unhappiness lead to unsustainable state of environment such as pollution. For both GNH and three-capital model, good environment is a major source of happiness on the one hand. Social capital, in a positive way, is another source of happiness.

Comparison among major components

STI	GNH	Three-capital Model
Environment (State)	environment	Natural capital
Society (pressure)		Social capital
Economy (pressure)		Structural change
Institutional (response)	Governance	Institutional change
	culture	Cultural capital
	Balanced development	Paradigm shift

In addition to island features, a discourse on Three-Capital Model is to be interconnected with a three-change framework in terms of

structural change, institutional change and paradigm shift (change). Nature and culture are the foundation of island Taiwan. Currently, GNP-oriented governance structure in Taiwan has

Island GNH: Three-capital model

	Natural capital	Cultural capital	Social capital
Structural change	From GNP to GNH	From GNP to GNH	From GNP to GNH
Institutional change	Hunter to protector (indigenous people) Sea food culture to ocean culture	Moveable feast in terms of cultural depth Cultural citizenship	Incentives on national trust movement PPP (public-private-partnership)
Paradigm shift (change)	Environmental protection is the best economic development	From glocalization to llobalization	From power to empower

7. National trust movement as a mechanism for GNH: happy social capital

Better environment base upon natural capital is one of the major sources of happiness. Natural capital is accumulated through social capital based on national trust movement. Following new trends on GNP (Gross National Happiness) and CSR (Cooperate Social Responsibility), trust system (particularly environmental trust) could be a constructive means to better promote both natural and social capitals. Trust system has long been a tradition of charity in most part of the Western world. Moreover, Trust is not only a legal term, but also a social one. Socially speaking, Trust has been viewed by sociologists to be empowerment’s switchover by which social capital is accumulated in terms of network and money collection. For example, National Trust movement since 1895 put strong emphasis on a slogan: 10,000 men one dollar each is much powerful than one man’s 10,000 dollars (Waterson, 1994). By this movement and concept, civic society is possible through “charity society” including social charity and environmental

charity. Through GNH, this paper is an attempt to conduct a discourse on people’s social enterprise in terms of national trust movement associated with natural, cultural and social capital. In a sense, people’s happy power is not only the most powerful association in terms of social capital, but also the most powerful foundation in terms of natural and cultural capitals.

Overview of environmental trust around the world

Case	Legislation(s)	Organization	Trusted	
UK	Status of Mortmain(1279) Statute of Uses (USE) (1535) Statute of Charitable Uses : Elizabeth an Act(1601) Public Trust Act (1853) Trustee Act, Consolidated(1893) Judicial Trustee Act(1896) National Trust Act (1907) Public Trustee Act(1910) Trustee Act(1925) Civic Amenities Act	National Trust (1895) NT, Scotland (1931) Civic Trust (1957) Landmark Trust (1965) English Heritage (1983)	Trusted land 248,000 acres 1200 KM seashore line 31 natural reserve 557 Green Heritage Site	Members 3.5 million 149 museums Heritage Lottery Fund (HLF) (1994) Working Holidays (1967) Charity shops Heritage shops
Japan	Trust Act and Trust Business Act (1923) NPO Promotion Act (1998) Trust Act Updated (2006)	Trust Association (1926) First Public Trust (1977/5/20) JNT (1968)	334 Public trust cases (1990) 558 cases (21 in environmental trust)	Acorn Camp (2000)

		Japanese Association for National Trust (1983)	(2007)	
USA	National Historic Preservation Act(1966) Congress legalized National trust(1949)	National Trust for Historic Preservation(1947)	2500 National Historic Landmark	Main Street Movement (1980-) Save America's treasures movement (1998) Historical Hotels (1989) Cultural Heritage Tourism (1999)
New Zealand	Resource Management Act (1991) Historic Places Act (1993)	NZ Historic Places Trust (1954)	5649 listed in inventory	Lottery support cultural and environmental preservation (1987)
Australia	The Natural Heritage Trust (1997) by government EPBC Act (1999) Australian Heritage Council Act (2003)	NTSW (1945), NTSA (1955) NT Tasmania (1960) NTQ(Queensland) (1963) National Trust Association established : ACNT (1965)	300 sites 77 NHL sites 335 CHL sites 681 trees	Annie Wyatt started NT movement (1945)
Malaysia	Antiquities Act (1976) National Heritage Act (2005)	Heritage of Malaysia Trust □BWM (1983) PHT (1986) MHT (2007)	50 tangible NHR sites and 50 intangible NHR sites.	National Heritage Register (NHR)

			(20070)	
India	Regional and Urban Planning Act added article in preserving cultural and environmental heritages (1994)	India National Trust for Art and Cultural Heritage (1984)	National Heritage List (NHL) no. 1 in 1987	
Holland		Gelderland Landscape Trust (GLT)	11,000 acres	Members 42,500 National lottery (NPL) cultural and environmental fund (1989)
Korea	National Trust Act(2000)	NTK	6 trusted sites DMZ forest	
Taiwan	Trust Act (1996) Trust business Act (2000)	No. 1 Public Trust 2001/10/11 Taiwan Trust Association (2003)	45 cases, 3 in cultural, none in environmental	(ECO Working Holiday (2004) Environmental Trust Act is a presidential policy

Source: Juju Wang, 2008

Taiwan's trust system has started from 1996 when is 143-year later then England and 73-year later then Japan. Following Japanese model, Taiwan's trust system also coins similar shortcoming putting emphasis on trust rather than public interests. Reviewing those public trust cases in Taiwan, it is obvious that "scholarship-distributing" type of trusts account for 95% in total. However, cultural and environmental trusts require fund-raising and business-running urgently due to their characteristics. So many

cultural and environmental sites are in stake because of rapid development here and there. PPP(Public-Private-Partnership) could be developed smoothly through environmental trust in this stage. Taiwan's trust system has followed Japan and other nation's path in a glocalized context. However, current trust system in Taiwan is not approaching the spirit of National trust, 10,000 men one dollar each is much powerful than one man's 10,000 dollars. It is now a turning point to set up a goal to reach GNH(Gross National Happiness) in terms of natural and cultural capitals. Thus, trust system in Taiwan should be developed in a llobalized way, for instance, to think like an island in coin with Leopold's concept, to think like a mountain (1949).

Conclusion

From I. Wallerstein's "world system" providing concepts of center, periphery and semi-periphery to differentiate global economy in 1970s to index for national competitive power in 1990s, it is obvious that the state of economy has been dominating the measurement of national development trend. Until now, the development of sustainable indicator has initiated a crucial mechanism to balance the disparities between environment and development. However, "sustainable indicator movement" has also encountered serious problems in terms of feasibility, indicator availability, international linkage and social empowerment (Overton, 1999; Bossel, 1999). Collaborated with the other island states, this system may contribute partially to look into the rationale for indicators theoretically, and partially to present linkage and empowerment practically. In addition, this system may integrate Taiwan case into global circle, in particular, island factor and non-UN member factor will contribute her global partnership to some extents.

Island Taiwan has gone a long way in the transformation from a milk cow periphery to an island state, from a rural economy to industrial economy, and from an authoritarian regime to liberal

democracy. A sustainable island Taiwan is certainly a just cause for citizens and government of Taiwan at the turn of the century. Developing GNH, instead of STI, for island Taiwan is thus a mandate for Taiwan's sustainability.

Sustainable development with happiness, however, is a global mandate. Being a member of global village, Taiwan has much to offer in searching for global sustainability with Island GNH. With its island status and profound transition in environmental, social, economical, and political dimensions, Taiwan serves an important showcase of searching for happy sustainability for the global village.

Reference:

- Beatley, T. (2000). *Green Urbanism: Learning from European Cities*. Washington, DC: Island Press
- Beck, U. (1992). *Risk Society: Towards a New Modernity*. London: Sage
- Becker, E. & T. John (2000). *Sustainability and Social Sciences*. New York: Zed Books
- Bell, M. M. (1998). *An Introduction to Environmental Sociology*. Thousand Oaks: Pine Forge Press
- Bossel, H. (1999). *Indicators for Sustainable Development: Theory, Method and Applications*. Institute for sustainable Development
- Braat, L. (1991). *The Predictive Meaning of Sustainability Indicator: In Search of Sustainable Development*
- Bryant, B. (eds.) (1995). *Environmental Justice: Issues, Policies and Solutions*. Washington, D. C.: Island Press
- Buckingham-Hatfield, S. & B. Evans (1996). *Environmental Planning and sustainability*. New York: John Wiley & Sons
- Bueler, W. M. (1997). *An Agenda for sustainability: Fairness in a World of Limits*. New York; Crossroads
- Carley, M (ed.) (2000). *Managing sustainable Development*. New York: Earthscan Publisher

- Chapman, A. R. (ed.) (1999). *Consumption, Population and sustainability: Perspectives from Science and Religion*. Washington, DC: Island Press
- Commission on Sustainable Development, UN (1998). *From Theory to Practice: Indicators of Sustainable Development*. CSD Homepage
- Clayton, A. & N. Radcliffe (1998). *Sustainability: a Systems Approach*. Boulder: Westview Press
- Darmstadter, J. (ed.) (1992). *Global Development and Environment: Perspectives on Sustainability, Resource for Future*
- Desilmon, L. D. & F. Popoff (2000). *Eco-efficiency: The Business Link to Sustainable Development*. Cambridge, MA: MIT Press
- Dragun, A. & K. Jakobson (1997). *Sustainability and Global Environmental Policy: New Perspectives*. New York: Edward Elgar Publisher
- Catton, W. & R. Dunlap (1989). "Competing Functions of the Environment: Living space, Supply Depot and Waste Repository", paper presented at the Annual Meeting of the Rural Sociological Society. Salt Lake City, Utah, USA
- Catton, W. & R. Dunlap (1993). "Towards an Ecological Sociology: the Development, Current Status and Probable Future of Environmental Sociology", *The Annals of the International Institute of Sociology*, 3, 263-84
- Durham, P. F. (1992). "Cultural Carrying Capacity: I=PACT" *Focus*, 2(3), 5-8.
- Eckersley R, (1997). "Perspectives on Progress - Is Life Getting Better?" *Resource Futures Program*, CSIRO, Australia, p13 <http://www.dwe.csiro.au/research/futuress>
- Ehrlich, P. R. (1991). *Healing the Planet Strategies for Re-solving the Environmental Crisis*, Reading, MA: Addison-Wesley.
- George V. & P. Wilding (1999). *British Society and Social Welfare: Towards a Sustainable Society*, New York: St. Martins Press
- GLT (Global Leaders of Tomorrow Environmental Task Force) (2001). *2001 Environmental Sustainability Index*

- Harris, J. M., T. a. Wise, K. P. Gallagher and N. R. Goodwin (2001).
A Survey of sustainable Development: Social and Economic
Dimensions, Washington, Island Press
- Hannigan, J. A. (1995). *Environmental Sociology*, London:
Routledge
- Hanley, N., I. Moffatt, R. R. Faichney & M. Wilson (1999).
“Measuring Sustainability: A Time Series of Alternative
Indicators for Scotland”, *Ecological Economics*, 28: 55-73
- Hardi, P. & T. Zdan (1997). *Assessing Sustainable Development:
Principles in Practice*, Canada: International Institute for
sustainable Development
- Harper, C. L. (1995). *Environment and Society*, Upper Saddle
River, NJ: Prentice Hall
- Hawken, P. (1993). *The Ecology of Commerce: A Declaration of
Sustainability*, New York: Harper Business.
- Hempel, L.C. (1996). *Environmental Governance*, Washington,
D.C.: Island Press.
- Holloway, A. (1999). *Risk, Sustainable Development and
Disasters: Southern Perspectives*, New York: Periperi
Publishers
- IUCN (1999). *Assessing Progress Toward Sustainability.*, IUCN
- Johnson, H. D. (1997). *Green Plans: Greenprint for Sustainability*,
Lincoln: Univ. of Nebraska Press
- Kaya, Y. & K. Yokobori (eds.) (1998). *Environment, Energy and
Economy: Strategies to Sustainability*, Tokyo: UN University
Press
- Keekok, L. (2000). *Global sustainable Development*, New york:
Columbia Univ. Press.
- Kotler, P (ed.) *Repositioning Asia: From Bubble to Sustainable
Economy*, New York: John Wiley & Sons
- Liu,,Jin-Tan, Shang-Lien Lo, Ling-Ling Lee, Chin-Shou Wang,
Shui-Li Huang, Huei-Min Tsai and Wen-Chen Shih (2005). “
Sustainable Development Indicators for Taiwan”,
Journal of Asian Environmental Engineering, (4)1: 19-28
- MacDonald, M. (1998). *Agendas for Sustainability*, New York:
Routledge

- Martell, Luke (1994). *Ecology and Society*, Cambridge, UK: Polity Press.
- Marien, M. (ed.) (1996). *Environmental Issues and sustainable futures: A Critical Guide to Recent Books, Reports and Periodicals*, New York: World Future Society
- Maser, C., R. Bedton & K. Smith (1998). *Setting the Stage for Sustainability: A Citizen's Handbook*, Lewis Publishers
- Meadows, D. (1998). *Indicators and Information system for Sustainable Development*, Hartland Four Corner, VT: Sustainability Institute
- Milbraith, L. (1989). *Envisioning a Sustainable Society*, Albany: SUNY Press.
- Miller, M. L. (1995). *The Third World in Global Environment Politics*, Boulder: Lynne Rienner
- Muschett, F. D. (ed.) (1997). *Principles of sustainable Development*, New York: CRC Press
- Noll H, (1998). "Social Indicators and Social Reporting: The International Experience" <http://www.ccsd.ca/noll2.html>
- Norgaard, R. (1994). *Development Betrayed*, London: routledge.
- Overton, J & R. Scheyvens (1999). *Strategies for sustainable Development: Experiences from the Pacific*, New York: Zed Books
- Pearce, D. And G. Atkinson (1998). "Measuring Sustainable Development", *Ecodecision*, (2):64-66
- Pirages, D. C. (1996). *Building sustainable Societies: A Blueprint for a Post-industrial World*, New York: M. E. Sharpe
- Porter, G & J.W Brown (1991). *Global Environmental Politics*, Boulder, Co : Westview
- Prescott-Allen, R.(2000 *The Wellbeing of Nations*, Washington, D.C.: Island Press.
- Pugh, C. (2000). *Sustainable Cities in Developing Countries*, New York: Earthscan
- Redclift, M. (1987). *Sustainable Development: Exploring the Contradictions*, London: Methuen. (2000). *Sustainability: Life Chances and Livelihoods*, New York: Routledge

- Rogers, J. & P. G. Feiss (1998). *People and the Earth: Basic Issues in the Sustainability of Resource and Environment*, London: Cambridge University Press
- Sachs, W. (1998). *Greening the North: A Post-industrial Blueprint for Ecology and Equity*, New York: Zed Books
- Schnaiberg, A. & K. A. Gould (1994). *Environment & Society*, New York: St. Matins Press,
- Singh, N. S. (1995). *Empowerment Towards Sustainable Development*, New York: Zed books
- Sitarz, D. (1998). *Sustainable America: American Environment in the 21st Century*, New York: Earth Books
- Smith, F. (1997). *Environmental sustainability: Practical Global Implications*, New York: CRC Press
- Solow, R. M. (1998). *An Almost Practical Step toward Sustainability*, Washington, DC: Resources for the Future
- Spaargaren, G. and Mol, A. P. J. (1992). *Sociology, Environment and Modernity: Ecological Modernization as a Theory of Social change*, *Society and Natural Resource*, 5: 323-44
- Stefanoric, I. L. (2000). *Safeguarding our Common Future: Rethinking sustainable Development*, Albany, NY: SUNY Press
- STI Research Team, Taiwan : Jiunn-Rong Yeh, Shang-Lien Lo, Ling-Ling Lee, Jin-Tan Liu, Juju Chin-Shou Wang, Shu-Li Huang, Huei-Min Tsai, and Wen-Jenn Shih (2002). "Sustainable Taiwan Indicators: Glocalized Perspectives of Sustainability", Asian Conference of Indicators for sustainable Development, Seoul, Korea
- Susskind, L.E. (1994). *Environmental Diplomacy*, New York: Oxford Univ. Press.
- UNDP (1990-1999). *Human Development Report*, New York: Oxford Univ. Press
- Van Pieren, W. (1995). *Taking Nature into Account: A Report to the Rome club: Towards a Sustainable National Income*, Copemicus Books

- US Interagency Working Group on Sustainable Development (USWGSD) (1998). *Sustainable Development in the United States*, Washington, DC: USWGSD
- Wackernagel, M. and W. Rees (1996). *Ecological Footprint: Reducing Human Impact on the Earth*, Gabriola Island, B. C. Canada: New Society Publishers
- Wang, C. S. (1998). "Economic Growth with Pollution : Taiwan's Environmental Experience " in Uday Desai(ed.) *Ecological Policy and Politics in Developing Countries: Economic Growth, Democracy, and Environment* (chapter 5:121-151), Albany, NY: SUNY Press
- Wang, C. S. (2000). "Social Sustainability of Island Taiwan: Perspective of Environmental Sociology", *International Conference on Sustainable Development for Island Societies*
- Wang, C. S. (2001). *Imagination of Environmental Sociology*, Taipei: Mega Books
- Wang, C. S. (2001a). "East-West Dialogue and Linkage on Indicators of Sustainable Development (ISD): Global Perspectives of Environmental Sociology", *Kyoto Environmental Sociology Conference (KESC)*
- Wang, C. S. (2008). *Cultural Trust: Mechanism and Strategy*, Taichung: Cultural Commission
- Waterson, M. (1994). *The National Trust: The First Hundred Year*, London: BBC & NT Limited.
- Yeh, Jiunn-rong (2003) *Sustainable Development Indicators for Island Taiwan*.

Ecological Diversity and Resilience

