



Konrad  
Adenauer  
Stiftung

## Summary and Outcome of Paper Presentations

BM13-031

### **Ecological, Social and Economic Sustainability Perspectives for Thailand and ASEAN**

One Day Conference

Thursday, 28<sup>th</sup> November 2013  
8.00-17.30

Organized by  
Konrad Adenauer Stiftung Thailand, Bangkok  
&  
Assumption University of Thailand, Bangkok  
Guna Chakra Research Center - Graduate School of Philosophy & Religion

Venue: Salle D'Expo, Assumption University - Hua Mak Campus, Bangkapi, Bangkok 10240

#### **Session One**

**Topic: Sufficiency Economy**

**Speaker: Prof. Dr. Seri Phongphit**

**Rector, Learning Institute for Everyone, Thailand.**

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In this paper presentation, the speaker laid much emphasis on the fact that sufficiency economy was still mainly a philosophy and still only at the level of ideas. Sufficiency economy is starting off in the manner of many other philosophical ideas and theories like Capitalism and Socialism. It is not yet an economic and political system. The speaker, to buttress his point on the philosophical nature of sufficiency economy, made reference to an encyclical document of the Catholic Church, Rerum Novarum, "Rights and Duties of Capital and Labor" issued by Pope Leo XIII on May 15, 1891. This was an open letter sent to all Catholic bishops and which addressed the working and living conditions of the working classes. This document has guided the Catholic Church in her approach to economic and political issues. In much the same way, Thailand and other countries around her, like Bhutan started to develop their own philosophical framework to drive their economic and political machineries. In the speaker's view, and quoting Professor Robert Mandel, a Nobel Prize Winner, in the following words, said that "Sufficiency Economy is necessary for national development, especially for small-sized countries like Thailand."

The speaker gave three components of Sufficiency Economy as follows:

1. **Moderation (Human persons):** This component involves the human person following the Middle Way, a very Buddhist orientation and teaching. There needs to be balance and harmony in personal lives and in society.
2. **Reasonableness (Knowledge):** This is a call for families to be reasonable in their consumption of goods and services. This reasonableness is also a result of the application of moderation in daily life.
3. **Immunity (System):** To practice moderation or the Middle Way and to be reasonable in the use of goods and services would lead to the family and society becoming immune from poverty, greed and unnecessarily excessive lifestyles.

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The next point addressed by the speaker concerned the ways to self-sufficiency. In addition to the points raised, that is, moderation, reasonableness and immunity, the speaker advocated a return to the basics as the way to self-sufficiency. By going back to basics he meant a reorientation towards nature, making simple life style choices, and reverting to our roots and to good values.

### **How to Apply Sufficiency Economy**

The speaker then moved on to address the issue of application of sufficiency economy. The first step involved teaching the people how to apply sufficiency economy. He enumerated four approaches or plans to achieving this: Life Plan; Financial Plan; Occupational Plan; and Health Plan.

- a. **Life Plan:** There is a need to teach people how to plan and regulate their lives so that they can reduce their constant desires and need for more goods and services.
- b. **Financial Plan:** This plan would help the people save more money and reduce their expenditure. The proper use of money in turn improves their life qualities.
- c. **Occupation (Professional) Plan:** Through this plan, the people are taught how to boost their occupation and professional earnings as well as improve themselves and their society by doing simple and creative projects, especially in the area of farming,
- d. **Health Plan:** People need to be taught about the importance of proper health plans so that they are well prepared for eventualities in the area of health. People are taught about health insurance and the need for preventive as well as affordable health services.

In the speaker's view, important things in life must start from the family. The family must be taught how to be self-sufficient and how to make effective use of scarce resources. He stated that consumerism contradicts sufficiency economy. At the moment, sufficiency economy is still at the level of philosophy in Thailand. In addition to a new awareness and spirituality on the part of the people, a political willingness on the part of government is also necessary to create change. Through a concerted effort of the people and government, this economic philosophy could then be transformed into an economic and political system.

### **Recommendations**

1. **There has to be a new form of education for the nation.** This must be accompanied by a new way of teaching and learning.
2. There have been efforts to **reform education**, but they did not lead to much progress, as these approaches did not integrate the people of the country.
3. Education must **emancipate** people from every kind of exploitation.
4. Education must **empower** people to be self-sufficient and self-reliant.
5. There must be **appropriate financial means** to achieving the goals of sufficiency economy.



## Session Two

Topic: Buddhist Economics and Ecology

Presenter: Professor Apichai Puntasen

Director: Rural and Social Management Institute Foundation for Thailand Rural Reconstruction Movement Under Royal Patronage

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### Main Points of Discussion:

1. What is Buddhist Economics? 2. Core Value 3. Production and Consumption in Buddhist Economics
4. Ecology 5. Ethics in Utilization of Natural Resources and Environment

1. **Buddhist Economics is generally defined as “*The subject that is derived from the lessons of the Buddha’s discoveries on his path to enlightenment to explain economic activities with the aims for both individual and society to achieve peace and tranquility under resource constraints*”.**

The teaching of Buddha is known as Buddha Dhamma. The teaching of Buddha is neither a religion nor a philosophy in the Western sense. It has its own scientific base known as a mind-based science. It is beyond Newtonian physics, but close to quantum physics in the sense that “truth” can be varied by different levels of mind development. As a result, a mind-based science provides a new dimension of “reality” which is more realistic than the old scientific paradigm.

2. **Buddhist economics views the human being as a special animal that has a potential to develop their minds to highest levels.** Unlike the Western model that is motivated by greed, insecurity and competition, Buddhist Economics replaces greed with *pañña*, which is the ability to understand everything in its own nature. Hence, *prayote sukha*, or happiness generated from being useful for others is also possible. Therefore, *Pañña* is the crucial factor that can help upgrade an animal with a sense of survival through self-interest and competition to a human being with compassion and cooperation. The accumulations of *pañña* can be achieved through the process of rigorous training of the mind known as the Threefold Training or *sikkhātaya*. This type of training consists of morality (*silā*), concentration (*saṃādhi*) and *pañña*, the ability to understand everything in its own nature (also known as the Noble Eightfold Path).
3. **Buddhist Economics is *pañña* and its economic system is known as *pañña-ism*.** Mode of production is not capital but *pañña*, which functions as a sufficient condition to reduce waste as well as use a minimum of renewable natural resources and energy as much as possible. In addition, non-renewable resources and energy should be used as an absolute necessity.
4. **Buddhist Ecology believes that all ecological components on this planet are interdependent.** When one part of the ecological system is over-utilized or damaged, it could result in the harm of other parts. Ecological balance is crucial for the continuation of human species. Thus, the factors of production must be kept in balance to sustain a healthy ecological system.
5. **Regarding the utilization of natural resources and the environment, the Buddha Dhamma expounds concepts that embrace both naturalism, as well as humanism, utilitarianism and liberalism all at the same time.** The concept of good intention (or *kusalacittā*) is close to that of Immanuel Kant’s categorical imperative. The concept of compassion to all beings is similar to that of R.A. Watson’s environmental ethics. Thus, in Buddhist understanding, the whole process of production and consumption is to achieve a healthy life (good life) and a healthy society (good society) at the minimum resource costs and ecological costs as much as possible.

### Recommendations

1. First, it is important to not just talk about Buddhist economy, but rather to understand it and to make every effort to practice it.
2. In Thailand there is a movement involving 7,000 schools to teach sufficiency economy and to encourage institutions that practice it through awards and gifts.



### **Session Three**

**Topic: Earth Charter, Sustainable Development and Trans-boundary natural resources, and Environment Justice: Implications for AEC/ASEAN**

**Speaker: Dr. Chamnien Paul Voraratnchaiphan**

**Country Rep., International Union for Conservation of Nature**

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#### **Main Points:**

Sustainable Development from...

1. Partnership
2. Equity
3. Carrying Capacity for Nature
4. Future Generation

The speaker started off by showing power point slides of the effect of environmental degradation in Thailand and in the ASEAN region. Notable amongst the slides were pictures showing the devastating floods that affected all parts of Thailand in 2011. The speaker then went on to speak about the need and necessity of ensuring environmental sustainability since it was the only solution to future natural and environmental calamities. He did this by first stating the ASEAN declaration on Environmental Sustainability.

#### **Ensuring Environmental Sustainability (ASEAN Declaration)**

ASEAN shall work towards achieving sustainable development as well as promoting clean and green environment by protecting the natural resource base for economic and social development. This includes the sustainable management and conservation of soil, water, mineral, energy, biodiversity, forest, coastal and marine resources as well as the improvement in water and air quality for the ASEAN region. ASEAN will actively participate in global efforts towards addressing global environmental challenges, including climate change and the ozone layer protection, as well as developing and adapting environmentally-sound technology for development needs and environmental sustainability.

In section D of the ASEAN CHARTER, the declaration on ensuring environmental sustainability was highlighted as follows:

#### **Section D. Ensuring Environmental Sustainability**

D.2. Managing and preventing trans-boundary environmental pollution

    D2.1. Trans-boundary Haze Pollution

    D2.2. Trans-boundary movement of hazardous wastes

D3. Promoting sustainable development through environmental education and public participation

D4. Promoting Environmentally Sound Technology (EST)

D5. Promoting quality living standards in ASEAN cities/urban areas

D6. Harmonizing environmental policies and databases

D7. Promoting the sustainable use of coastal and marine environment

D8. Promoting sustainable management of natural resources and biodiversity

D9. Promoting the sustainability of freshwater resources

D10. Responding to climate change and addressing its impacts

D11. Promoting Sustainable Forest Management (SFM)

On the subject of trans-boundary environmental governance issues, the speaker discussed the haze problem from land and forest. He spoke about the phenomenon of the destruction of wetlands, marine and coastal ecosystems, and river quality. Added to these issues were the challenges experienced from industrial pollution, as well as the building of dams for electricity that cut off water supply for many

countries and communities. Then there is the problem of deforestation and loss of biodiversity. The speaker addressed a particular case study where the demands of particular classes of people, especially from China, led to the felling of rose woods in parts of Thailand.

Regarding the approach of the ASEAN region in dealing with the issues raised above, the speaker highlighted the weakness of the ASEAN declaration as follows:

The “ASEAN way” of non-interference, consensus building and cooperation also has significant implications for addressing shared environmental issues in ASEAN. Whilst reasonably equipped to deal with issues where there are shared interests and consensus, the ASEAN way is poorly suited to dealing with urgent situations and issues where states have divergent views that can result in the evasion of difficult issues, which are metaphorically ‘brushed under the carpet’.<sup>i</sup>

### **Solutions/Recommendations**

The speaker recommended as the way forward, a healthy relationship with human beings and nature. This concept he termed as *Galayanamitra*, which means, *Benevolent Friendship*. He highlighted five ways to achieving this friendship with human beings and mother earth as follows:

1. **Reasonableness:** This is a type of *Mindful living that helps people realize that everything comes from the same “energy”*.
2. **Moral Values and Living:** In the speaker’s view, this means “*Benevolent friendship; Giving and sharing*”.
3. **Self-Immunity:** In the speaker’s view, this relates to “*Practical actions, self-help, community organization networking/partnership e.g. waste management eco labeling, etc*”.
4. **Moderation:** This is the “*Sustainable consumption of food, goods and services; avoidance of meat, eating only seasonal vegetables, fruits, and organic farm products*”.
5. **Knowledge:** This is “*Thoughtful hearing and learning. Utilization of science and technology for a more sustainable world*”.
6. Through the instrumentality of ASEAN, bring member nations back to the Middle Way.
7. Let local governments (that is, individual nations) be allowed to develop sustainable programs as appropriate for their regions.
8. Specific to Thailand, and extending to other ASEAN nations, encourage communities to plant more Rose-Woods in order to reduce the demand for them. Thus a decrease in demand for Rose-Woods would lead to a reduction in deforestation. In the short-term, formulate programs to provide economic sustainability for the affected communities.
9. There should be a promotion of fair distribution of wealth in ASEAN.
10. The problem Rose Wood poaching and other local issues should be addressed both at the local, legal and international levels.
11. An awareness for the need of transformation needs to be created. This transformation should be governed by spirituality as the source of all values.

### **The Earth Charter**

The speaker then went on to propose what he termed “The Earth Charter”, which represents a global consensus on shared values and ethics for building a more sustainable and peaceful world. The Earth Charter is comprised of four core sustainability values and sixteen shared ethical principles. The four basic aspects are: 1. Respect for nature; 2. Universal human rights; 3. Economic justice, and 4. A culture of peace.



The sixteen shared ethical principles are: 1. Respect earth and life in all its diversity ... 2. Care for the community of life ... 3. Build democratic societies ... 4. Secure Earth's bounty and beauty ... 5. Protect and restore Earth's ecological systems ... 6. Prevent harm and apply a precautionary approach 7. Adopt [sustainable] patterns of production, consumption, and reproduction ... 8. Advance the study of ecological sustainability ... 9. Eradicate poverty ... 10. Ensure that economic activities promote human development ... 11. Affirm gender equality and ensure universal access to them ... 12. Uphold the right of all people to a natural and social environment ... 13. Strengthen democratic institutions ... 14. Integrate [sustainability] into formal education and life-long learning ... 15. Treat all living beings with respect and consideration ... 16. Promote a culture of peace.

The speaker then explained that the Earth Charter is promoted through the “Earth Charter Initiative”. This is a global network of organizations, institutions and people who participate in promoting the Earth Charter, as well as implement its principles in practice in different areas. These areas include: Education for sustainable development, Youth action & Empowerment, International law & Ethics, Business engagement in global ethics, Religion & Sustainability, and Arts & Culture.

#### Session Four

**Topic: Chiron and Machines of Loving Grace**

**Speaker: John T. Giordano**

**Graduate School of Philosophy and Religion**

**Assumption University of Thailand**

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#### Main Points

1. Harmonizing our cybernetic systems to the environment.
2. We need to change the rules.
3. Our rate and speed of development could lead to the death of our civilization.

#### Preambles

In his presentation, the speaker reflected on how the human being could be a part of nature, a part of its cycles, its circulations of forces and its elements while at the same time managing to develop an understanding of these cycles and circulations. He wondered whether the circle closed in on itself. He posed the question of how it was possible that at the moment when we can see our place in nature through our theories and technologies, nature is increasingly in danger of being destroyed. He asked the question whether there was a connection between the fact that we have more lucid visions of the world and of its decline. It would seem that the human's better understanding of his or her place in nature does not necessarily lead to a wiser political or economic adjustment. Thus, one can only watch in horror as the destruction continues and is even rationalized. The speaker admits to still being on the search for answers.

#### Cybernetics

The speaker introduced his paper that is mainly concerned with “Nature and the span of the human’s life”. It examines machine intelligence and poetry with regards to optimism and pessimism.

The speaker, using the poem titled “All Watched Over By Machines of Loving Grace” by Richard Brautigan (1967) in *The Pill versus The Springhill Mine Disaster*, stated that the singularity theorists seemed to show optimism in believing in the harmony of technology and nature. This harmony sparks a



leap of faith that hoped to shape the world under a single system. The speaker however went on to ask whether this sort of optimism was justified, especially when one considers that we live in an age where more and more economic and political decisions are entrusted to our systems; computers, information systems and stock markets. The question becomes, “how can we move towards harmony with the environment?”<sup>ii</sup>

The speaker also cited the work of Gregory Bateson concerning systems theory and cybernetics. In the writer’s famous lecture found in his book *Steps To an Ecology of the Mind*, he describes the interconnectedness of the human being with the environment. He proposes a cybernetic kind of thought where our computer systems are harmonized with ecology. But he warns that we must not allow the computers to lead us into more and more rigid situations whereby we blindly follow the calculations of our cybernetic inventions and blame the computers’ results rather than taking responsibility for our actions. This is particularly so when one considers the implications of the systems theories (which has been applied to every sphere of life) as examined by developed nations using their super computers.

#### Bateson: on Western Epistemology

Bateson considers the question of whether a computer thinks and states that it does not. What “thinks” and engages in “trial and error” is a result of the interaction between man *plus* the computer *plus* the environment. He supposes that the lines between man, computer, and the environment are purely artificial, fictitious lines. They are lines *across* the pathways through which information or difference is transmitted. They are not boundaries of the thinking system. What thinks is the total system which engages in trial and error, which is man plus environment (p. 488).

#### **Momentum**

Regarding the idea of momentum, the speaker espoused the position of Hölderlin as recognized in his writings on Pindar. In Hölderlin’s view:

“Humanity conditions nature, changes nature in its interaction. As the river grows in strength, as humanity matures, it develops a power over its surrounding, it develops a free will. But this free will is also a symptom of its distance from the source.”

In much the same way, the *free will* of consumer society is likewise a condition of disconnectedness. Also, our machines - though programmed by our minds - have developed a mind of their own, even though their temporality is encoded within them. Paul Virilio, in his book *Speed and Politics*, talks about the present global situation as being characterized by “speed.” This can for example be seen in the way the stock market transaction is carried out. An immoral thinking process that mainly focuses on profit at any cost continues to perpetuate this fast and furious pace of global affairs. Jared Diamond, in his book *Collapse*, speaks of the type of thinking which maintains these decadent activities that ultimately lead to the “collapse” of various civilizations. He speaks of “Irrational behavior” that tries to succeed at the expense of others. In Diamond’s view, a sure way against such behaviors is for the masses to rise up and stand against such people who would exploit them for profit. The only challenge consists in the fact that such destructive economic systems also put in place mechanisms to control the people. Furthermore, the problem that is ignored by Diamond lies in the observation that the destructive rational and irrational beliefs have been intertwined. Finally, he acknowledges the great difficulty to knowing which values can be given up and which need to be retained.

In the speaker’s view, our destruction of the environment is interconnected with our very ideas of development, progress, economic growth, the manner in which money is valued by oil, and our economic systems based on the stock markets and investment.



## Oscillation

Using the Greek mythology of Chiron, a centaur, which is a kind of wild earth deity, the speaker describes how humanity has created the very “poison” that is turning out to be its destroyer. As he put it:

The distance from nature is represented by poison, “a poison is between us,” which is the poison which led to Chiron’s downfall. In some versions of the myth, Chiron earlier gives Hercules this very poison that will lead to his own downfall.

The pain and dividedness of humanity is inevitable. This is the result of our pursuit of “progress and success.”

## All Resistance is Futile

The speaker then asked the question: how is it possible to *accept* the inevitability of destruction? And how can we use this inevitability to reflect on our role in this destruction? How can we *slow* this momentum that human thought and technological systems used to wrest control of the earth from the gods of nature? How can we readjust our cybernetic systems with our environment?”

In the speaker’s view, the clue to answering this question was provided by Hölderlin who states that it is *pain* that unites us to what is lost. It is our dividedness, which gives life to an imagination – a poetic imagination – that can ultimately maintain a connection at a distance.

Furthermore, the speaker recognizes the “consciousness of distance” as an important element. If humans have made any “progress” at all, it originates from a certain estrangement from nature. Going back is difficult. We can only maintain a connection from a distance. The way technologies have been created and are applied in modern times pose a danger to the consciousness of nature. Our consciousness of our estrangement from nature is our connection to nature, hence the alternation of joy and despair, and the relationship between conflict and creativity.

Applying this alternation between joy and despair, the speaker says this of himself:

For me, I can see, I can feel the process of aging. My youth – much of it spent walking alone in the forest, investigating every rock and burrow, the rhythm of my thinking caressing, circulating through the landscape. And with experience and age, a gradual distancing, a hardening, my thoughts now moving through deeply incised channels. Closer to death – and yet, moments of fleeting visions about the arc of humanity, its conceits, its hubris, my own alternations between joy and despair.<sup>iii</sup>

In his view, what is *most human* is to respect something that exceeds calculation, balance, and efficiency. It is some form of *grace* that cannot be encoded into machines. As the famous French economist and philosopher Jacques Attali once suggested, “...we must move beyond a society based on repetition and replication towards one based on creativity and composition....”<sup>iv</sup>.

## Singularity Theorists

The speaker does not always agree with singularity theorists. In his opinion, the mistake of the singularity theorists is that their idea of the harmony of thought and nature involves a collapse of distance. The poetic imagination alone is able to hold on to something outside of the calculations which increasingly distance us from nature, even as it creates the illusions of harmony and cybernetic efficiency. Daniel Hillis, an inventor, has reservations about the manner in which the internet protocol has become the platform by which all communication takes place and calls for a plan B. He also plans to build a giant mechanical clock, the “Clock of the Long Now,” inside of a mountain which will run for 10,000 years, to get people to think about the future of humanity itself, to lead them beyond their short-term concerns.



### **Solutions/Recommendations**

The speaker offered a solution to the problem by first analyzing the word “cybernetics” which comes from the Greek word “to steer.” He argues that one could see this in Heraclitus’ definition of Logos; that which steers all things through all things. It suggests a process which can re-direct in a controlled manner. He suggested that if our cybernetic reality involves our machines and their pathologies, there is a need to envision systems of steering and not a system of resistance, or for that matter, a revolution which would be extremely destructive and play into the penchant for war.

In his view, the breaking of time and arresting of momentum requires new possibilities and creativity. It requires a re-questioning of ourselves -not as individuals, but as a mysterious and conscious part of life and nature. Not as names in conferences, banks, records, professions, but as something which participates in the span and arc of life, connecting the past with the future; something which alternates between joy and pain.

### **Session Five**

**Topic: Environmental Philosophy’s Perspectives for Agrinature Farming for Social and Economic Sustainable Development in the Mekong River Basin.**

**Speaker: Dr. Charn Mayot**

**Director: St. Martin Center for Professional Ethics,  
Assumption University, Thailand.**

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### **Traditional Thai Mode of Farming and the Green Revolution**

The speaker started this session with a description of the early Thai traditional way of farming, which consisted mainly of subsistence methods. People mostly farmed to feed their family and sold excess produce for profit, which was quite little. Then in the 1970s the Green Revolution was introduced to Thailand. This came with practices like (a) Growing single crops in a certain farming area (b) Using machines, appliances and chemical fertilizers to increase crop yield per rai (c) Using pesticides and insecticides (d) Building irrigation systems (e) Commercializing agricultural products. The Green Revolution brought about many promises and corresponding failures. The following promises were for example issued: Increasing rice production per rai; increasing income for rural farmers; and eradicating abject poverty. Correspondingly, the following failures were observed: deep-rooted indebtedness cycle (nii anata); loss of land ownership; shortening of life expectancy; environmental crisis; urban and city migration from villages; and loss of social and cultural bonds (Lieng Luke Thang Praisanee).

The speaker, noting the failure of the old Thai farming methods, went on to propose some solutions and recommendations.

### **Solutions/Recommendations**

- There is a need to create a self-supporting economy.
- Sufficiency Economy Theory developed by the King Rama IX.
- Nature farming or Agri-nature, including the following:
  - o Ecological farming method developed by Masanobu Fukuoka, a world-famous Japanese farmer-philosopher
  - o Organic farming in harmony with nature
  - o Agri-nature farming which involves establishing plantations, fisheries, husbandry and forestry
  - o Sustainable agricultural practices which enhance the environmental quality in addition to the quality of life of farmers and society over time.

### Common Practices of Sufficiency Economy

- Say no to chemical fertilizers, pesticides and insecticides
- Keep and build good fertile soil structures using recycled crop wastes and animal manures
- Natural pest control measures
- Optimal use of water resources

### Philosophical foundations of Agri-nature farming

- Sufficiency economy
- The middle path in social and economic life
- Respect for nature
- Human resource development

## Session Six

**Topic: Ecological Change, Social Impact and Climate Change. Adaptations after the 2011 Flood and Perspectives for Thailand and ASEAN.**

**Speaker: Prof. Dr. Kampanad Bhaktikul**

**Dean: Faculty of Environment & Resource Studies,  
Mahidol University.**

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The speaker mainly focused on methods of adaptation during natural and environmental disasters. He describes such **adaptations** as actions taken to help communities and ecosystems moderate, cope with, or take advantage of actual or expected changes in climate conditions. He then went on to propose the following recommendations for adaptation in environmental crises.

## Recommendations

### **Five Guiding Principles for Adaptation (Nairobi Principles)<sup>v</sup>**

**No. 1 - The Development Principle:** Adaptation must be addressed in a broad development context, recognizing climate change as an added challenge to reducing poverty and environmental degradation.

**No. 2 - The Resilience Principle:** Building resilience to ongoing and future climate change calls for adaptation to start now by addressing existing problems in land and water management.

**No. 3 - The Governance Principle:** Strengthening institutions for land and water management is crucial to effective adaptation and must build on principles of participation of civil society, gender equality, subsidies and decentralization.

**No. 4 - The Information Principle:** Information for local adaptation must be improved, and must be considered as a public good to be shared at all levels.

**No. 5 - The Economics and Financing Principle:** The cost of inaction, and the economic and social benefits of adaptation actions, calls for increased and innovative financing.

## Endnotes

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<sup>i</sup> See slide 21 of Dr. Chamnien Paul Voraratnchaiphan's presentation at the conference.

<sup>ii</sup> See Page 3, paragraph 4 of Dr. John Giordano's paper.

<sup>iii</sup> Ibid. p. 11

<sup>iv</sup> Ibid. p. 11.

<sup>v</sup> See slides 183-186 of the speaker's power-point presentation.