

OPENING DIALOGUE BETWEEN TRADITION AND SCIENCE: “SCIENCE AND SOCIETY” IN THE TRADITIONAL ASIAN WAYS

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Abstract

Besides modern marvels and their impacts on quality of contemporary life, rapid expansions of knowledge and technologies also have downsides. The discrepancy has shown in the clashing of modernity and globalization with local traditions and cultures. In addition, we realize that development driven by the dominant knowledge of science and technology makes it possible to consume natural resources at great speed. The exploitation of natural resources and degradation of the environment is threatening the sustainability of life on this planet. New trend of development looks to sustainability and the importance of cultural pluralism for a more holistic and harmonious development. This trend appears to be having similar line of thinking as traditional Asian cultures. This article presents a double fold discussion on ancient Asian sciences, especially, from the two Great Civilizations of India and China, together with traditional Asian ways of thinking that were comparable to the “Science and Society” perspective of today. It points out some approaches that enable PCST to assume its role in opening dialogue between tradition and science in order to mutually enrich and be enriched. The author also sees that this can be a natural way to integrate social and cultural dimensions to modern development.

Keywords: dialogue, science and society, cultural pluralism, sustainable development

Introduction

Advancement in modern or Western science and technology (S&T) has served mankind well in the improvement of lives in all aspects from health, livelihood, and standard of living to entertainment. Historically, the power of S&T was also a critical factor to military might and the period of global colonization. Even after the two World Wars and the emergence of free nations from de-colonization, inequity among nations and among people living, in particular, in developing nations remained high. S&T continues to provide better opportunity for richer countries over the poorer ones as well as to enhance the exploitation of natural resources with little appreciation of the connectedness and unity in nature. And the exploitation and depletion of natural resources as well as the deterioration of the environment is now threatening the well-being of life on earth.

The knowledge of S&T is dominant in modern development. Yet, S&T for the sake of benefit in the world under market economy without sensitivity, mercy and social responsibility, in other words, without social, cultural and ethical dimensions, is certainly the kind of S&T that we should not wish for.

Over the course of the last several years there has been lots of discussion on alternative approaches for development regarding the above concerns. It seems that most development discourses nowadays advocates on ultimate goal – moving toward sustainable development. Its emergence is probably an antidote of the failed conventional development paradigm. There is a more profound aspect to mankind than just economic development. Social and cultural dimensions of development are increasingly encouraged and integrated into development policy and plan.

Asian Science and Technology, Traditional Knowledge, and Sustainable Development

Though Asian S&T from the two Great Civilizations of ancient India and China have not been recognized in the classic history of S&T, in fact, it was sophisticated and advanced in many aspects. It even preceded the Greek and Roman beginnings of Western scientific development.

In both ancient Indian and Chinese intellectual pursuits, many scientific areas were studied and theories as well as discoveries were made, for example, arithmetic, astronomy, medicine, and herbal

pharmacology. Holistic view of nature goes beyond the cause-effect relationship, the aspect that is strongly advocated in Western scientific methods. Eastern philosophy usually encompasses social and cultural dimensions of knowledge. The unity of science and humanity in ancient Asian S&T is inseparable. However, this ancient knowledge is not generally well understood and appreciated.

There are widely known Indian and Chinese principles that underline or govern the application of knowledge in Asian societies. One example is *Ahimsa* or the principle of non-violence, which was the basis of many faiths in India. In China, Confucius's teaching regarded medicine as a humane art and emphasized self-cultivation and social responsibility. The word intellectual in Chinese has a connotation implying loftiness, a sense of social responsibility, a loving heart, honesty, and scrupulous conduct. The master would expel disciples who were found to be immoral or motivated by profit (Suwanwela 2003) [1].

Also on the same path of ancient Asian S&T, though at a less sophisticated level, is traditional or local knowledge of particular groups or rural communities (not necessarily limited to Asian region) called Indigenous Knowledge (IK)¹. There are terms for traditional knowledge, which can be used almost interchangeably. Among them are Indigenous Knowledge – IK, Indigenous Technical Knowledge – ITK, ethno-ecology, local knowledge, Local Wisdom – LW, Traditional Environmental Knowledge – TEK, and even people's science.

In developing countries, majority of population lives in rural areas. And IK plays an important role in their lives. A community shares IK. It is bound by language, tradition, value and worldview to a particular community. It is in the form of local know-how and cultural practices that a community uses to manage their lives and natural resources. It is knowledge for survival, living and blending with nature.

As much effort has been moving toward a knowledge-based society, the importance of knowledge for economic and social development is increasingly vital. At the 2nd Knowledge for Development Conference (GKII)², the final action plan included a strong endorsement of the Indigenous Knowledge Program and specifically called for the identification, development and dissemination of local knowledge in various forms, including local language. It also called for developing strategies for using indigenous knowledge in development (Liebenstein 2001) [2].

Both Asian S&T and IK point to the intrinsic elements of traditions and cultures within knowledge systems. According to this perspective, knowledge must be holistic or harmonious between human activities and nature as well as the universe. This kind of practical knowledge is critical to survival, relevant to immediate problems of local people and culturally compatible.

The author neither intends to defend the merit or efficacy or validity of IK (and Asian S&T) in gaining more positive public image or equal footing in the realm of development. Rather the argument focuses on providing a collaborative path that traditional knowledge systems can enter development dialogue with the more dominant knowledge of S&T in development practices. Nor does she want to prove that Asian S&T and IK are "scientific" per se, or to show the supremacy of tradition over modernity. She only tries to point out the unique element of them that modern S&T lack that is the embeddesness of traditional or cultural dimension in their systems. Modern S&T can learn from this aspect to adjust itself within the perspective of cultural pluralism in development.

Regarding IK in its ecological-oriented aspect known as *Traditional Ecological Knowledge* or TEK, local people have a wide knowledge of ecosystem in which they live and ways to ensure that natural resources are used in a sustained way, reflecting their TEK. A stark contrast shows when comparing Descartes' orientations and interpretation of mankind as master and owner of nature reflected in the worldview of modern science and technology and IK that holds a holistic value of nature and sustainable development. In IK or TEK, mankind is not or does not consider itself as separated from nature.

¹ For more information on Indigenous Knowledge:
www.scidev.net/dossiers/indigenous_knowledge/ikinro

² The GKII conference was organized by the United Nations for Development Program (UNDP), the World Bank and other organizations. It was held in Kuala Lumpur, Malaysia in March 2000.

The new socioeconomic and environmental conditions require a better and deeper understanding of both nature and S&T that can contribute to achieve the goal of sustainable development in this contemporary context. Within its report on “Sustainable Development: Critical Issues”, OECD (2003)³ expresses concern about economic, environment and social trends. It estimates that World GDP is projected to expand by seventy-five percent during the years 1995-2020. This expansion will bring increased pressures on environmental and social resources [3].

For various reasons, be it de-colonization, democratization, social justice, social responsibility and environmental concerns, now it is high time that modern development driven by the advancement of S&T should broaden its horizon and shift its paradigm of development. Development is no longer the exclusive domain of modern science and technology (Libenstein 2001). IK finds itself among these development discourses. The recognition of indigenous knowledge within scientific communities coincides with the world’s growing tendency towards a cultural dimension of development. It raises a debate on using IK not only out of economic necessity but also for cultural inclusiveness of local people and the nations [4].

IK is in national and international agenda and involves various actors in development efforts. The World Bank urges that in order for development programs to be sustained within the limited facilities of rural communities, they have to meet the needs and fit the context. Development agents need to recognize IK, value it and appreciate it in their interaction with local communities. Before incorporating it in their approach, they need to understand it and critically validate its usefulness for their intended objective. The World Bank (2003) also sees IK as a part of global knowledge. So, IK can be preserved, transferred, or adopted and adapted elsewhere [5].⁴

This article offers Thailand as a small example of an Asian nation. Thailand is quite a prosperous and sophisticated nation with long traditions and time honored culture. Regarding IK in the Thai context, Local Wisdom is the preferred term. LW covers the entire range of local knowledge specific to the land and its relationship with nature and people. For example, LW in agricultural practices, LW in handicrafts, LW in traditional medicine and LW in natural resource management. The dimension of nature and environment is already a value embedded in any area of this knowledge. There is no need to separate or classify it as is done in the western system (as seen in the TEK terminology). It is the same in how the Canadian North – native people often refer to their *knowledge of the land* rather than ecological knowledge. Land however, is more than the physical landscape; it includes the living environment (Berkes 1993) [6].

Equidistant between the great ancient civilizations of China and India, were a rich land of Thailand called “Suwannabhumi” or the “Golden Land”. It used to be a land of ancient settlements belonging to various ethnic groups. Before the establishment of the first kingdom “Sukhothai” or “Dawn of Happiness” in 13th century, beliefs in animism prevailed. Other important cultural influences came from Mon and Khmer of which the Thais also inherited Brahmanism and Hinduism. Buddhism from India arrived later, however with remarkable effects.

Knowledge from diverse ethnic groups, India and China was borrowed, adapted and assimilated into the Thai context and transformed into a new adaptive and unique Thai knowledge. For example, traditional medicine in Thailand has been very receptive to foreign medical systems. In early times, much knowledge was adopted from the Chinese and Indian civilizations in the forms of herbal medicinal formulas, massage, yoga, and various health philosophies. Later, it was blended with various folk beliefs and local practices. Generally, knowledge in Thai life is related to daily life blending with concern to nature and pursuit of the four basic needs of human life: *food, clothing, shelter and medicine*.

³ Organization for Economic Co-operation and Development (OECD) is an international organization that helps governments of the 30 member market democracies to tackle the economic, social, and governance challenges of a globalized economy. <http://www.oecd.org/oecd/pages/document> Retrieved 26/05/2003

⁴ World Bank plays a crucial role in funding and providing loans for development programs worldwide. <http://www.worldbank.org/afr/ik/basic.htm> Retrieved 12/05/2003

The history of Buddhism cannot be separated from the history of Eastern culture and Eastern society (the same as science and technology are to the Western culture). Of all the influences that molded the culture of Asia, Buddhism was the most profound. For more than 2,500 years Buddhist principles and ideas have colored the thoughts and the feelings of the people of the East (Piyadassi 1998)[7].

Many researchers believe that to gain a true insight into the Thai culture, character and worldview require recognizing Buddhism as the key determining factor in Thai cultural development (Burapharat 2003, citing Blanchard 1958, Klausner 1987, and Mole 1973). Buddhism is of holistic teaching. It is a way of moral, spiritual and intellectual training leading to complete freedom of mind. And the guiding principles of Buddhism are compassion and wisdom. In the world's history, Buddhism is the first teaching that deliverance can be attained independently of an external agency, that deliverance from suffering, conflicts of life or unsatisfactory must be eliminated and approached by each individual himself through his own action [8].

One main teaching of Buddhism concerns the relationship between individuals and their society. *Theravada*⁵ Buddhism (the teaching of the elders, or the established form) stresses the effects of the individual's actions and behaviors on the group or society as a whole. Buddhism emphasizes that:

"... man's being is not self-contained, but finds expression in the relationship with other human beings. Moreover, the realization of existence derives from the universal unity with all creatures. ...Man cannot live on his own and only for himself. By living for others, he lives his life 'fully'. Paradoxical as it may seem, it requires getting rid of one's 'ego' in order to be oneself. The personal and social dimensions have to become one, like two sides of the same coin (Phongphit 1988)" [9].

Opening Dialogue

In summary, both traditional knowledge or IK and modern S&T are crucial for sustainable development. Then we should find the proper mechanism for gathering these kinds of knowledge to allow them to work together effectively and efficiently. A condition that allows dialogue and co-operation must be created in order to achieve a true dialogue. Actors and stakeholders in this innovative development perspective have to be sensitive and open-minded. We must be careful because most development practitioners, even with well intention still see the ideal as putting IK at the service of economic and capitalistic development, rather than using S&T at the service of the traditional or cultural values and goals of local communities.

In effect, before opening dialogue, we should recognize not just the potential of IK but its vulnerability. With all the great expectations on IK in global arena, associated problems arise. There are at least three main concerns to overcome, in order to achieve true dialogue.

- IK suffers from scientism or the cultural hegemony of science in that science is placed at the epistemological pinnacle (Cobern and Loving 2000) "...Too often that science is used to dominate public square as if all other discourses were of lesser value". In fact, it will be more productive to remember that IK originated quite independently of science and technology, and generally also quite independently of Western culture. We should consider traditional knowledge systems and modern S&T as complementary, not competing with one another. It is more productive to accept IK on its own merit, not using modern S&T as a reference [10].
- The de-contextualization of IK or to take IK out of its location is another concern. Though it is important to address the linking or integration of global knowledge of S&T and local knowledge of IK, we must avoid the tendency to try to turn local into global knowledge. To take IK (and any traditional knowledge) out of its location, or to de-localize it, runs the risk of leaving out the "culture" in which the knowledge is created and used. The characteristic of being context-specific of IK is lost. Knowledge is fragmented and reduced to its technical aspect or know-how as it is the most obvious element. Using partial IK in this manner means that we ignore its important characteristic and thus weaken it.

⁵ There are two main sects of Buddhism in Thailand, the *Theravada* and the *Mahayana*. *Theravada* has been the dominant spiritual force in Thailand since its adoption by the kings of Sukhothai. It is considered the teaching of elders, or the established form, while *Mahayana* was introduced much later and found in only a few places.

However, the efforts from development practitioners, IK academics, IK regional and international resource centers seem to focus on systematically codifying, recording, documenting and storing it. It is to create a repository for later retrieval to be used in development programs (Brokensha et al. 1980; Warren 1995; World Bank 1998; and Libenstein 2000). Action as such may be necessary and worthwhile as some IK is disappearing and some has already disappeared. But it should be done with awareness not to present it as a model or blueprint for general use [11, 12, 13, 14].

- The issue of Intellectual Property Rights (IPR) for IK is receiving increasing attention worldwide. A broad range of traditional and cultural knowledge has high potential for commercial value, for example, knowledge of plants with medicinal properties, farming practices that prevent erosion and creative products such as music, textiles and crafts. This gives rise to the problem of bio-piracy⁶ or the exploitation of the bio-diversity that exists in developing countries by multinational academics, institutes or companies to develop products without proper compensation to the traditional communities that first discovered the usefulness of such material. Bio-piracy is an example of the negative impact of science and technology without ethic.

Role of Public Communication of Science and Technology (PCST)

PCST needs to adapt its strategy and be more sensitive to unique social and cultural context. The role of PCST will be even more important in the process of democratization and the production of new useful knowledge required by rural community. Tinnaluck (2005) explored a number of case studies in rural Thailand on the co-creation of knowledge between traditional knowledge of Local Wisdom and modern S&T. The findings are interesting in that knowledge of modern science and technology is welcome to collaborate with the existing traditional one of LW in a dialogue process [15].

In response to the collaboration of modern science and technology and IK to co-create new, useful knowledge, PCST may find itself a new challenge. The fact that IK values harmony, respects nature, is dynamic and has been used for hundred, or thousand of years by large number of population could open a new perspective for PCST. In this perspective PCST can broaden its scope, renew its methods in order to enrich other knowledge systems and S&T including its practice. It will reach new target groups and more people.

However, PCST is familiar with the modern context in which mass and high technology media play important roles in the communication process. Conventional popularization of science and technology is rather content-oriented with a global perspective to reach a large number of audiences quickly and simultaneously. Even evaluation tends to be quantitative. These habitual traits of PCST prove to be less than efficient in the new context of traditional society.

If PCST aims to broaden its global goals (Fayard 1991)⁷ in a humanistic and democratic manner, including environmental concern for sustainable development and enabling a knowledge-based society to become a reality, a more community-oriented approach may be learned from the work of Asian S&T and IK. Effective communication begins with people's need and involvement. Efficiency is measured on a qualitative basis. Though time consuming, it may be easier to evaluate the outcome since knowledge will be integrated in actual action to solve problems of the community. Specificity and diversity of this new target audience, taking into account the cultural and social values of the local communities, will transform the way content is presented. Knowledge is not the aim, but integration or enrichment to create a "better" knowledge (Tinnaluck 2004). In controversial issues within IK itself (such as validity and safety of herbal medicine) or from science and technology (such as biotechnology, and GMOs), PCST can help facilitate understanding, dialogue and democratic decision making [16, 17].

⁶ For more information on this issue: <http://www.wipo.int/globalissues> , and South to South Bio-piracy Summit <http://biowatch.org.za>

⁷ There are 3 global goals of PCST, namely: *Political*, *Cognitive* and *Creative*, as specified by Professor Pierre Fayard, one of the founders of PCST Network.

Conclusion

While IK benefits from modern S&T in using scientific methods for codification, verification, modification and dissemination in a contemporary context, science and technology can have a closer approach to this wisdom and be more holistic by learning from IK. The global goal of PCST can be achieved, when science and society are getting closer. When specialized knowledge of S&T, as well as IK, is brought out into the public sphere and mutually shared, then both the scientific community and the village community can benefit from mutual learning by applying knowledge of each other to their activities. Both would learn to look at each other through different lens. Modern S&T and IK may transform themselves within the collaboration process – a unique platform could be available and a favorable condition is created. PCST finds itself in a new challenge. Within this open and new perspective, PCST may be able to expand and to strive for its global goals, especially in empowering rural community or traditional society. At the same time, modern society and the rural one can be interwoven within the knowledge society and sustainable development can be achieved.

References:

- [1] Suwanwela, C., 2003, The Unity of Science and Humanity: Lessons from Ancient Asian Sciences, A Keynote Address in the **Twentieth Pacific Science Congress**, March, Bangkok.
- [2], [4] Liebenstein, G.W., 2001, Linking Local and Global Wisdom. **Indigenous Knowledge and Development Monitor** 9(3), <http://www.nuffic.nl/ciran/ikdm/9-3/column.html> , Retrieved 3/4/2003.
- [3] Organization for Economic Co-operation and Development (OECD) <http://www.oecd.org/oecd/pages/document> Retrieved 26/05/2003
- [5] World Bank, 2003, Indigenous Knowledge, http://www.scideve.net/dossiers/indigenous_knowledge/ikdocs.html , Retrieved 5/10/2003.
- [6] Berkes, F., 1993, Traditional Ecological Knowledge in Perspective, **Traditional Ecological Knowledge: Concepts and Cases**. Inglis, J.T. (ed.), International Program on Traditional Ecological Knowledge and International Development Research Center Publication, Ottawa, Canada.
- [7] Piyadassi, T., 1984, **Buddhism: A Living Message**, World Class Publishing, Bangkok.
- [8] Burapharat, C., 2003, Unpublished Doctoral Thesis, **Patterns of Learning and Knowledge Exchange in Thai Work Teams: A Study of Team Members Communication and Relationship Etiquettes**. Graduate Department of Adult Education, Community Development and Counseling Psychology, Ontario Institute for Studies in Education, University of Toronto, Canada.
- [9] Phongphit, S., 1988, Religion in a Changing Society: Buddhism, Reform and the Role of Monks, **Community Development in Thailand**, Arena Press, Hong Kong.
- [10] Cobern, C.C., and Loving, W.W., 2000, **Defining “Science” in a Multicultural World: Implications for Science Education**, <http://www.wmich.edu/slssp/SLSSP148/slssp148.pdf> Retrieved 7/11/2004.
- [11] Brokensha, D., Warren, D.M., and Warner, O., 1980, **Indigenous Knowledge Systems and Development**, University Press of America, Lanham.
- [12] Warren, D.M., 1995, Introduction, **The Cultural Dimension of Development: Indigenous Knowledge Systems**, Warren, D.M., Slikkerveer, L.J., and Brokensha, D. (ed.) London: Intermediate Technology Publications.
- [13] World Bank, 1998 Indigenous Knowledge for Development: A Framework for Action, <http://www.worldbank.org/afr/ik/basic.htm>, Retrieved 12/05/2003.
- [14] Liebenstein, G.W., 2000, Interfacing Global and Indigenous Knowledge: Towards an Indigenous Knowledge Information System, **The Sixth UNESCO-ACEID International Conference on Education**, Bangkok, Thailand, 12-15 December.

[15] Tinnaluck, Y., 2005, Unpublished Doctoral Thesis, **Knowledge Creation and Sustainable Development: A Collaborative Process between Thai Local Wisdom and Modern Sciences**, LABORatoire de recherche sur la Communication et l'information Scientifique et technique, Institut de la COMmunication & des nouvelles TECnologies, Universite de Poitiers, France.

[16] Fayard, P., 1991, But Where Are the Cossacks?: An Alternative Strategy for Popularization. London, February, **International Journal of Science Education**, Vol. 13.

[17] Tinnaluck, Y., 2004, Modern Science and Native Knowledge: Collaborative Process that Opens New Perspective for PCST, **Quark**, April-June, Number 32.
