

Translation and Encapsulation of ‘Sustainability’ into Science and Technology Policy in the Context of Thailand: Sakarindr Bhumiratana

Introduction by chair:

We have Prf. Sakarindr. He is the president of National Science and Technology Development Agency of Thailand.

Presentation:

Thank you very much. I'd like to thank you the organizing community for opportunity to give you what I have to talk and, at the same time, to listen to other people.

What I try to say with the title “Translation of ‘Sustainability’ in the Context of Thailand” is that, in view of sustainable development, we looked at it within the context of Thailand and already tried to put it into our policy. But policy remains policy in Thailand. Implementation seems to be the greatest difficulty. I think any dream or any hope for future goals in development, but this is what I would have to share with you.

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From our perspective, sustainability depends on country's context of the situations. We have to look at the socioeconomic metaphor and national goals in the development along the line of sustainability and I will reflect on this a little. There are key factors to achieve national goals that I will discuss, which also possibly are the key factors. But we have to consider for sustainability and development. We go to the “National S&T Strategic Plan”, which has incorporated some of necessary factors for sustainability. In Thailand there is a principle that we call “dual development”. A lot was tested but we have still very weak S&T infrastructure, which we have something to ??? like Korea has done. But we haven't been that successful. So, we remain with a big population still living in the rural areas. Yet, we are one of the major export country, so we have to remain competitive as well in terms of competition for exports of our products. There are some examples of some of the projects, but that most likely I will not get to.

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Looking at sustainable development I mentioned this depends on the context of our society. Nevertheless, I think an acceptable definition is that “this is the common future of us, which meets the needs of the present generation without compromising the ability of the future generations to meet their own needs”. And this goes beyond the boundary of countries.

So the cases where resources are being utilized in one area more than another, compromising factors come from outside of your own society. And this is one of the key

development factors challenging us all in this context. So sustainability should therefore be carefully balanced social economy. And one nations capital and gain not of one given nation, but must totally look at it as a global perspective.

For Thailand this is a very difficult case in point indeed. We are one of the worst ??? oil user of the world. Our oil consumption per GDP is among the highest, not letting away the fact that we import 95% of fossil fuel into the country because we have small amount of natural gas.

Another sustainability factor is Thailand is in the area with the world's highest biodiversity per area. We contain about 7-10% of the world biodiversity within our boundaries, which is only the size of France or the size of California, a little smaller than Texas. Because we are at the junction of Himalaya and Malay Peninsula, but we have a lot of forest, and therefore a lot of diversity as well. Recently, it has been much better than the last decade or so, nevertheless, this is another key factor to maintain the world heritage, the biodiversity in the area, and the development stress on forest area by development is another key issue.

Putting all that together, with the fact that most of Thai population still live in the rural areas, and that the top 20% of our population are doing pretty well while the bottom 20% are having much difficulties, socioeconomic metaphor and national goals have to be met.

In this respect, dual strategy for development, trying to balance economic goals with peace and harmonious society, because we don't want to separate the society too badly. We have enough problem of separating our society to the political differences at the moment. We don't want to do it to the economic divide. So, as I mentioned, social cohesion plus globalization. It seems that the key for sustainable growth, happiness society and the good development. So, GDP alone is not the answer.

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The 10th National Economic Social Development Plan starts next year. And within it again sustainable growth, green and happiness society is the key from the 10th National Economic Social Development Plan. And within that, growth of economy, restructuring strong communities are again mostly rural-based communities at the moment, and sustainable utilization of natural resources, environmental protection are also the key. All this has to be done under very good governance.

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So, the key factors to achieve this we have to use sufficient knowledge within the country. That's why S&T comes in. We realize we not yet have sufficient S&T infrastructure, more

physical infrastructure and policy and regulations. We have by far too few laboratories, too few researchers, and still weak university research. So, all this cannot be resolved without sufficient S&T manpower with good quality and quantity. This can only be done through creating public awareness of the importance of S&T. So, those are the key factors that we use to try to promote a good plan for S&T impact on future sustainable development of the country.

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So, look at the national S&T strategy plan. We are in the second year of this nine-year plan. The core technology is, like everywhere else in the world, ICT, biotechnology, material technology, nanotechnology. We look at sustainable competitiveness all the way through community economy, learning society and quality of life and environment, which means trying to create good balance society. In order to create what we call KBS (**K**nowledge-**b**ased **S**ociety), we are trying to set up national innovation system by using clustering approach. By using clustering approach, we are trying to develop S&T infrastructure to core technologies and environment and at the same time the key is in human resource development.

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Within national-size technology development plan, balance economy will come in. We have five major programs. One is to develop cluster and strengthen community economy and quality of life, which means we do clustering approach from food industry, automobile industry, both of which we are strong in. Textile industry is losing some strength but still important. Health industry, agriculture and biodiversity program. “OTOP” is “one village, one product” type of development to try to strengthen our rural economy and make sure they do not lose out in the use of S&T development. So, the second one is to develop S&T human resources as I mentioned. It’s clear and I don’t have to explain it. Develop S&T infrastructure and institutions, and other programs are also obvious enough and no further explanation will be needed. Within this, the dual-track is: enhancement of competitiveness; improve productivity; innovation; reserve fundamental issues; the difficulty in overcoming widening genial cohesion in the reduction of poverty, which does not mean self sufficiency economy; under His Majesty the King’ leadership conservation of environment and taking care of biodiversity. We have put forward policy to use renewable energy to replace the fossil fuels. The use of renewable energy is still less than 1%, but planned to be raised to 10%.

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So, these are all done within the context, trying to S&T infrastructure, and innovative clusters and S&T personnel, create sufficient critical mass in order to develop each cluster, which is both industrial and social within the country competitiveness and social wellbeing.

The plan is covering a decade from 2004 to 2013.

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The innovative cluster examples are shrimp clusters: we are leading exporter of shrimp, and thanks to much of demand from the world, particularly from Japan, we are very strong in this area. Automobile and automobile parts are also the area related to Japan. Thailand is also strong in hard disc drives. Value added from this area is 15-20% at the moment, and we hope it will rise up to 60%, for instance. These and other examples will be analyzed to identify weaker links, and supportive means will be created so that every cluster will be supported. We have built 40-50 clusters so far, but I think it would be better to move forward in my presentation here without going over them.

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The key is S&T approach. The national plan places much importance on increasing researchers by strengthening higher education of S&T, through close cooperation with the Ministry of Education. We are encouraging private industries to promote their S&T investment. Through these efforts, we are trying to prepare career path for researchers. Under the national plan we are planning S&T human resource development programs, which are the programs No. 4 and 7. You can see them highlighted in this sheet now projected. These programs will be carried out by collaboration between the government and the private sector. Lets see some examples of how they work.

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First of all, our aim is to remove the barriers between business and academic communities, by creating a system that we call "Practice School". Practice School is created on the business side when industries open their facilities so that university students, graduate school students and researchers can visit and study their areas in real business or labor environment. The program is already available for chemical engineering and food engineering students and researchers. At the same time, there is another system where industrial workers are trained and educated at universities for higher skill and capacity of workers. Therefore, this is a system to develop technicians. The practice school system has been successful so far to some extent, and will continue to expand to develop more S&T experts.

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As part of the industrial-university cooperation, we have set up what we call the Center of Excellence (COE). COE contributes to strengthen the S&T infrastructure. There are already four COEs run by the government, but in the future we will need at least forty COEs. Many models of systems and programs are prepared for the industrial-university cooperation for human resource development. Human resource development programs

should be created in cooperation between industries and universities, without hastening but firmly in order to develop sufficient S&T human resources in our country. But the current technological issues should never be left untouched. Attaining sustainable development is to solve the current problems as well as to prepare human resources for future. Now that all universities in Thailand have joined the industrial-university cooperation framework, we are now seeking partnership with universities outside the country.

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We have one Science Park in Bangkok, which is very successful. We have created an excellent model of Science Park in cooperation with a network of several universities. 50-60 research companies are also involved. Five more science parks are planned in the north eastern, northern and south eastern provinces.

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A branch of NASDA uses this science park as its headquarters. NECTEC, BIOTEC, MTEC and NANOTEC are also among the tenants here.

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As for research infrastructure plan, the revised law to facilitate COE has created an environment to encourage R&D investment. Also, intellectual property management system has been enhanced.

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Promotion of public awareness is a very important factor. We have many educational TV shows that provide game shows for watchers to learn S&T on TV. A German TV show produced to for science education for young people is very popular. More of such TV programs are needed.

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Now, let me give you a quick look at some examples of major projects

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Shrimp Biotechnology Program. This is one of the factors for successful enhancement of fishery in Thailand. These are Black Tigers.

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Microelectronics Program. This program supports businesses in hard disc drive and RFID.

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Open Source Software.

Our strong promotion supports open source software, too, participating in many overseas cooperation activities.

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Biogas system. Agriculture is a major industry in Thailand. We are working on a system to convert agricultural waste into energy. This big project with fairly good progress is an example of practical application of S&T for sustainable development to energy and environment. Biodiesel program is another trial where bio fatty acid conversion technology is applied to produce biodiesel oil, which will be a replacement of diesel oil import.

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Clean technology is another technology we are promoting strongly. This will contribute to reduction of energy and material consumption by manufacturers.

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There is a program called “Technology for the Underprivileged”. This program is to provide underprivileged people with opportunities to utilize S&T. The picture here shows an example of the program applied to a rural community. Programs of this kind are also important for sustainable development. Without public awareness of T&S importance, it is difficult for the government to make S&T investment for better future of Thailand.

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This is solar cell.

That is all. Thank you very much.

Question and Answer:

Q: You mentioned “happiness society” in the presentation, which moved me deeply. Happiness can be different from country to country. What can be happiness to Thai people?

A: That is a good question. The same discussion often happens in Thailand, too. Happiness to us is to build strong local communities. In Thailand, 63 million people are living in the land with about the same area of France. Difference from France is that in Thailand, a half of its population is living in small communities in rural areas. What those local community members need are their own leadership, self sufficiency, and impression that they are working and living in coexistence with their environment. Being stressed by excessive debt or becoming desperate from greediness is what should be repelled from their life. I believe that my idea is representing most of those communities. They may be dreaming of life where they are active based on strength of their own community, sharing openly with other

communities the information and knowledge about what and why they use or do, and this sufficient knowledge protect them from excessive consumption of resources, and so on.