

The Application of Foresight in Vietnam: Initial Results and Orientations for Coming Years

Dr.Le Dinh Tien and MA. Nguyen Manh Quan

NISTPASS, MOST, Vietnam.

1. Renovations in S&T Policy

Since the beginning of the renovation (“doi moi”) process in 1986 namely the shift from a centrally-planned economy to a socialism-oriented market one, there have been important changes also in the S&T system. The renovation in S&T policy over the 1990s which has been constituted in the Law on S&T, approved by the National Assembly in June 2000 includes:

- Confirmation of the importance of S&T development as a first-rank national policy, playing the leading role in the work of building and protecting the nation, and serving as the foundation and motive force for industrialization, modernization and sustainable development of the country.
- The State ensures conditions and increased budget for S&T development in priority areas (since 2001 the share of S&T state expenditures has increased from 1,4% up to 2% of total state budget expenditures); at the same time creates favorable environment to encourage enterprises to invest in technology innovation; and encourages organizations, individuals to carry out research and application of S&T achievements into production, business and life.
- Reform of research and financial management for state research programmes by introducing a new mechanism for selection of organizations and individuals to carry out S&T research projects based on competitiveness with an open, fair, democratic and objective approach, opening equal access to financial sources for all organizations and individuals based on competitiveness; and setting up a National Foundation for S&T Development.
- Creation of the legal basis for developing a technology market in terms of protecting intellectual property right; granting S&T organizations and individuals the right to sign S&T contracts with industries; allowing universities and R&D institutions to set up spin-off enterprises and companies based on the application of research results.
- Expansion of the autonomy of state-owned S&T organizations with regard to R&D activities, labour and financial management, and international relations.
- Renovation in international S&T cooperation, namely application of an open-door policy and focus on S&T advanced countries in the world.

- Reform of S&T state management to be more decentralized; elimination of state monopoly in S&T activities in terms of adopting the right of all organizations and individuals to carry out R&D activities and to set up non-state R&D units¹.

Thanks to the innovation in S&T system over the last decade, S&T activities have been better geared to the needs of socio-economic development of the country. In agriculture, for example due to the application of new varieties, chemical fertilizers, post-harvest technology, and new policy in development management, Vietnam from a country of food shortage has become one of biggest rice-exporters in the world. In industry, with S&T workforce well-trained in the past they are now in a better position to absorb and master certain up-to-date technologies imported from outside. The reform in S&T state management towards market orientation has created closer linkages between R&D institutions and enterprises, where by more R&D outcomes have been applied to production, business and social life, bringing about higher effectiveness in various economic sectors. Social sciences have initially been able to provide scientific cogent arguments for innovation and development policies of the Government.

However, Vietnam is still a poor country with weak S&T potentials; the investment in S&T development is still very limited as compared to other countries in the region; qualified scientists, researchers, technicians and skilled labour are lacking for the country's industrialization and modernization. The reform in S&T policy over the last decade has met the need for the transition, but for the long term of S&T development it should be requested for new approach of innovation. For this purpose foresight is seemed to be the one of appropriate tools.

2. NISTPASS's S&T Foresight Unit and its first activities

2.1. Setting up a S&T foresight unit in 1999

In 1999, with the strong support from Vietnamese agencies, Ministry of Science, Technology and Environment (MOSTE) built up the first unit of foresight study in the country within National Institute for S&T Policy and Strategy Studies (NISTPASS). The unit is charging for studying and applying foresight approach in identifying S&T priorities to be serving for preparing S&T strategy options, submitting to the Government. The setting up of the unit has created favorable condition for Vietnam to speed up the process of capacity building in studying and applying foresight .

And now, S&T foresight unit under NISTPASS has officially become member of the APEC network of foresight studies and has working relations with many international foresight institutions, especially with the Science & Technology Foresight Center, NISTEP, Japan.

¹ In year 2000 there were about 900 R&D institutions, in which 263 non-government institutions; and 167 higher education schools (universities and technical colleagues), in which 19 non-government ones.

2.2. Training activities

2.2.1. Training of staffs

For building up capabilities of the new foresight unit, in May 2000 NISTPASS sent 2 staffs to APEC Center for Technology Foresight (CTF) in Bangkok, Thailand, to learn and study approaches, activities, projects as well as to find out the possibility the Center could assist Vietnam in developing foresight techniques. In the year 2001, NISTPASS sent 2 staffs to STFC, NISTEP, Japan to learn and study about Japanese experiences in Delphi surveys and the application of foresight approach in making S&T policy. With the support of APEC CTF and STFC of NISTEP in training of staffs, NISTPASS started with initial activities in foresight study and application.

2.2.2. Training courses on foresight approach

APEC Symposium: "Technology Foresight for Development"

With the sponsor from MOSTE, and APEC Secretariat, NISTPASS cooperated with APEC CTF to organize the APEC Symposium: "Technology Foresight for Development" within the framework of 20th APEC ISTWG meeting in Hanoi, April 2001. The aim of the Symposium is to introduce to Vietnamese audience technology foresight approach as new supporting tool for identifying S&T priorities in both developed and developing countries. Content of the Symposium, that was presented by experts from APEC CTF consists of methodology and situation of foresight studies in the world [Prof G.Tegart], This foresight experience in agriculture project [Dr.Sutat, Thailand], Science and Technology Policy and Technology Foresight in Japan [Dr.Kuwahara, Japan], Expected benefits of the application of Technology Foresight [Dr.Chatri Sripaipan, Thailand].

As the result, at this Symposium, for the first time a large Vietnamese audience, including policy-makers, managers and S&T community had an excellent opportunity to hear about foresight methodology as well as experiences of APEC member economies with respect to foresight application in decision-making process for selecting alternative development strategy at various levels. The nature, actual and expected benefit of foresight approach and application had also been introduced to the audience. Among others the most important outcome of this Symposium is that the MOSTE's commitment to support NISTPASS financially to organise two more training workshops for Vietnamese experts on foresight.

Training workshop on the application of foresight in food processing

In conjunction with APEC Center for Technology Foresight, NISTPASS organized the training course on scenario technique for Vietnamese experts on food processing in October 2001.

The aim of the workshop was to introduce and practice scenario procedure with the view to select S&T priorities in food processing sector in Vietnam. The workshop was guided by Prof.Tegart and Dr.Chatri from APEC CTF during 5 days in a beautiful beach in the North of Vietnam.

The content of the workshop covered a wide range of problems, from situation of food processing in Vietnam and in the world to steps in scenario procedure such as: identification of key issues, key drivers, uncertainties, construction of scenarios, refinement of scenarios, analysis of scenarios and identification of priority areas and actions.

Participants of the workshop constructed three different scenarios: Vegetarian Foods for Peace; Vietnamese Non- GM Food for the World and World Pond. From logics and content of three these scenarios, some S&T areas were identified as priorities for Vietnamese Food Processing until the year of 2020 such as: biotechnology for producing new varieties with high quality, environment-friendly technologies for packaging, information technologies for management and training marketing skills for producers of foods.

Training workshop on the application of foresight in Vietnam's tea industry

For the training course conducted for tea industry, there were about 90 participants, with over 60 people from the tea industry; state-run Tea Corporation and its subsidiaries of tea companies as well as Vietnam Tea Association. Most participants were senior executives. The rest of about 30 people were from ministries such as: Ministry of Trade, Ministry of Agriculture and Rural Development, Ministry of Health, Ministry of Science and Technology and many universities.

The training workshop aimed to provide to Vietnamese participants with technique of scenario, serving for identifying development strategy of Vietnam Tea Industry up to the year of 2020. Once more again, Prof.Tegart and Dr.Witaya from APEC CTF came to guide the workshop. For three days of conducting, participants were introduced and practiced with steps and components of scenario procedure. Visions as well as concerns of participants were presented and discussed openly.

Key issues identified for tea industry's development:

1. Major issue is quality - range across production, post-harvest and processing
2. Quality is related to customer demands:
 - nutritional needs, safety, presentation
3. How to improve quality - some suggestions:
 - better management across food chain
 - more training and development of human resources
 - better seed
 - better technology and equipment in processing
 - new product development (i.e. organic teas)
4. Role of government important in assisting industry with export markets, developing policy for activating the roles of private sectors & SOEs.

Identified key drivers of change influencing key issues:

1. Increased awareness of environmental problems creates demand for ‘clean’ tea grown with organic fertilizers in Vietnam.
2. Rising incomes of population creates demand for high quality teas in Vietnam.
3. Population increase raises demand for all qualities of tea.
4. Application of biotechnology in Vietnam leads to new varieties of tea which open new markets.
5. Development of long term storage (up to 24 months) for tea enables better production planning.
6. Application of genetic manipulation in Vietnam produces better seeds with improvement in production.
7. Installation of improved tea processing equipment leads to higher productivity and lower production costs.
8. Improved management techniques enable better integration of tea production system in Vietnam.
9. Increased international competition forces major changes to meet market demands.
10. Downturns in demand in major markets, e.g. Britain and Russia, lead to improved marketing expertise to develop new markets.
11. Reforestation in highlands using tea planting opens up new production areas with implications for labor, transport, and processing.
12. Possible development of new hydroelectric schemes e.g. Son La open up possibilities for new irrigated production areas.
13. Continuing climate change due to manmade emissions leads to water shortages, necessitating new technologies for water control and management in tea plantation.
14. Integration of Vietnam into world trading blocs opens new markets for tea but increases competition on domestic market.
15. Successful privatisation (equitisation) of Vietnamese tea SOEs leads to increased efficiency but with social problems in labor force.
16. Government policy is to maintain SOEs but to increase funding to enable competition with private sector.
17. Research breakthrough in Vietnam produces new alcoholic beverage based on tea, with its anti-aging properties opening new markets in Europe and Japan.
18. Increase of demand for high quality green tea will lead to increasing demand of importing new varieties.
19. Market mechanism leads to change of proportion of labor to service sector with its implication to HRD.
20. Development of production line for instant tea with natural fragrance and mixed flavors opens up new market.

16 uncertainty items were identified:

- a) Wars
 - External:
 - 1) Sri Lanka
 - 2) Iraq

- 3) Civil war in China
- Internal:
 - 4) Independence for highlands
- b) Health:
 - 5) Coffee out - tea in
 - 6) People change drinking habit
- c) Environment:
 - 7) Droughts in Kenya
 - 8) Severe El Nino
 - 9) Disease of tea in Vietnam
 - 10) acid rain destroys tea plantation
 - 11) over-exploitation of forests leads to land degradation
- d) Economics:
 - 12) Russia/China - new markets
 - 13) import restriction in Vietnamese tea
 - 14) Exports down due to poor quality
 - 15) Glut of tea - industry collapses
 - 16) Economic recession reduces demand

As the result, four scenarios were constructed such as: Vietnam-the tea super-power; Vietnam tea-integrated part of the contemporary life; Vietnam tea-Attractive of life and gray picture of Vietnam tea.

From four these scenarios, some critical strategic areas identified for Vietnam tea industry up to the year of 2020 as follows:

1. Quality:
 - improve yield
 - Strengthen research capability
 - strengthen processing and packaging
2. Marketing:
 - Advertising and brand name building
 - understanding competition - benchmarking
 - understanding market needs
 - identifying new markets
 - developing new products
3. Management:
 - training technology people
 - training in trade and economics
4. Policy:
 - Funding of new equipment
 - Government support of industry in trade negotiations
 - clear policy on land use and development

2.3. Pilot projects on foresight in Vietnam

Project 01: *Study theoretical and practical bases of foresight approach and capability of application for selecting S&T priorities in Vietnam.*

The project, funded by MOSTE was undertaken to answer three questions:

First: is the foresight approach an suitable one that could be replaced for traditional forecasting methodology to upgrade the quality of the process of prioritizing S&T development in complying with new context?

Second: what are the implications, Vietnam could draw from the experience of foresight projects and studies in the world?

Third: in the case of answer is yes, so how Vietnam should organize the application of this kind of technique in coming years?

Based on results from studying and analyzing theory and experience of forerunner countries, as the results, the project team came to some conclusions:

First: given the dynamic and unforeseeable context of the world in terms of both economic and S&T trends, society and environment, foresight approach could be used as an effective tool to support for selecting S&T priorities in particular and economic development in general. This is the case for all economies regardless the level of development, demographic scale and political regime.

Second, the issues for further study and application are by which way, Vietnam could apply the approach to select S&T priorities and policies that suitable with specific conditions of the country in terms of culture, the level of S&T development; how to combine foresight and traditional forecasting and how to involve the government agencies and other stack-holders in planning process. These issues were served as starting points for formulating a practical project as bellow.

Project 02: *Application of foresight approach to identify S&T priorities in Vietnam: the case of Tea industry.*

The project concentrates on identifying and selecting methods and procedures of applying foresight approach, especially scenario technique in some areas.

In the case of Vietnam tea industry, scenario procedures supplied a new approach to plan the sector's development. When the development of tea industry is looked at from future and from various points of view, stakeholders involved can learn each other and interact between demands and possibility of supplying solutions for foreseen problems (see also the training workshop on the application of foresight in Vietnam's tea industry mentioned above).

3. Some orientations for coming years

The study and application of foresight in Vietnam are on first steps. It is necessary to carry out following actions:

- To publicize knowledge and practical experience on foresight over different communities in Vietnam: policy-makers, researchers, entrepreneurs, and professional associations.
- To expand more test projects of foresight application over some other industries, products and sectors in the economy.
- To apply modeling and S&T trends analysis techniques as supplements for scenario procedure. National Innovation System and the participatory approach will also be used for designing framework for future foresight projects.
- To set up a network of experts in some selected areas.
- To cooperate with other R&D institutes in the country and with foresight institutions in the Region and in the world.