

## **SOME POSSIBLE REQUIREMENTS TO BUILD UP AND DEVELOP HAI PHONG TO BE A NORTHERN COASTAL REGIONAL SCIENCE AND TECHNOLOGY CENTRE**

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### **Abstract:**

*The Decision No. 865/QĐ-TTg issued by the Prime Minister dated on 10<sup>th</sup> July 2008 on the approval on the Northern Coastal Development Planning toward 2025 and vision to 2050 has identified the objective as “to develop the Northern Coastal to become an integrated economic zone (with industries, tourism and services...), which has an important role in socio-economic development of the country, especially to the marine economic development strategy of Vietnam. To promote the role of the Northern sea gateway of Vietnam, on the basis of the development of regional extensive technical infrastructure system, creating favorable conditions for economic development and environmental protection, combined economic development and defensive security, ensuring sustainable development of the whole region”. Located at the centre of the northern coastal zone, Hai Phong City has played a very important role in the socio-economic development of the whole region. In the new emerging context of development, the task assigned for Hai Phong science and technology (S&T) is to rise up to become a S&T centre of the region. In this article, we focused on some practical requirements for Hai Phong in the process of building and developing as to be the S&T centre of the Northern Coastal region.*

**Keywords:** *Regional S&T centre; Hai Phong.*

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### **Introduction**

Hai Phong is one of the five cities under the central authority and in the northern key economic zone. Hai Phong owns a fairly well synchronous transportation network, including roads, railways, waterways and airports, which are like the main blood vessels bonding the comprehensive relations of Hai Phong with other provinces in the country and overseas. Located in the centre of the northern coastal region with a very important role in economic development, politics, security and defense, the development of Hai Phong would drive the development of the entire region. Apart from the potentials on economic development, Hai Phong also has quite strong potentials on S&T in the northern coastal region. The total factor of

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productivity of the City was improved and contributed fairly well to Hai Phong's GDP with an average of 27% in the period of 2011-2015. In order to achieve this goal, there are a number of theoretic and practical issues that need to be researched and dealt with as to establish a solid basis of rationales for the development of the Project that aims to leverage Hai Phong to be a S&T centre of the northern coastal region.

### **1. The concept of a regional science and technology centre**

Based on common understandings, the concept of "a centre" is often understood relatively specifically as "a model". Currently, there are no such specified regulations to admit a local (a city/province under central authority) to be "a S&T centre", and no such quantitative criteria to identify "a regional S&T centre"; therefore almost of the "S&T centres" have only been recognized based on "subjective evaluation". Therefore, there is a need for ongoing researches to solve relevant issues involved with the identification of "a S&T centre" in order to build up insight understandings on this concept<sup>2</sup>.

In practice, some provinces have carried out the development of "S&T centres" in various levels. For example, Hue City has approved the Project to "Develop Hue City to be one of the S&T centres of the country" (Decision No. 898/QD-UBND dated on 13<sup>rd</sup> May 2013). Nghe An City has approved the Project to "Develop Nghe An City to be a S&T centre of the Northern Central Region in the period of 2015-2020" (Decision No. 7343/QD-UBND dated on 25<sup>th</sup> December 2014), which has currently been implemented as scheduled.

In our opinion, "a regional S&T" should not be understood as an administrative unit; but, in a deeper insight, it implies the operational capacity that could meet regional requirements on S&T. On the other hand, the "regional S&T centre" must be located in a well developed socio-economic area (rather than a "medium-level" of development); that means "a S&T centre" has to directly contribute to the economic growth of the region (via TFP indicator contributing to GDP). Instead of "being named" without any differences contributed for economic development, the centre should be "a direct driving force" for the economic development. The establishment of the S&T centre carries its own important meanings, which allows the development of the regional potentials and advantages, as well as, the improvement in investment efficiency of state budget for S&T if these centres are built in some special economic zones.

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<sup>2</sup> Based on the opinion of MSc. Tran Van Quan, Deputy Chief of Department, The Department of Local S&T Development, MOST.

In order to become a S&T centre of the Northern coastal region, the orientation of S&T activities in Hai Phong should pursue the following criteria:

- Hai Phong should be a leading city of S&T applications, especially high technology, with a number of application-oriented researches, which maintain industrial linkage and spillover effects within the region. S&T should contribute more on the City and region's economic growth;
- The city should be a hub of S&T organizations, regional S&T service units and research and development centres, with sufficient resources, including S&T human resources, to meet the increasing demand on research and applications of advanced S&T and high technology in production, resulting in practically socio-economic effectiveness in the Northern coastal region;
- The city should own some national and international - standard universities and colleges with a cohesive linkage between training, research and practical business and production. The human resources trained from these schools could fairly well meet the rising demand needed for the socio-economic development and business production activities of the region.

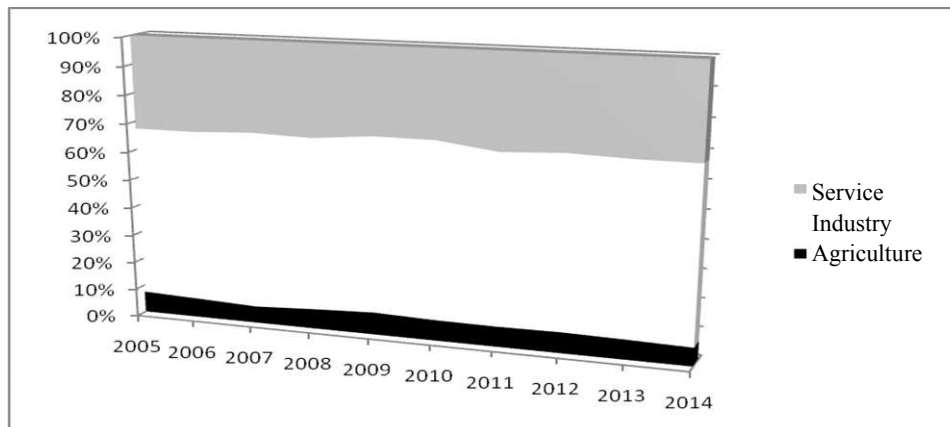
## **2. Potentials, advantages, opportunities and challenges for Hai Phong to become the regional S&T centre**

### ***2.1. Socio-economic potentials***

Regarding to the potentials on geographic location, Hai Phong is in the heart of the northern coastal region with the largest port of the North, that is the important traffic node linked to the transportation systems of waterways, roads, railways, inland and oversea airlines; is the main entrance to the sea of Hanoi capital and northern provinces; is the important transport node of northern key economic zone with two neighboring corridors and one economic cooperation belt zone between Vietnam and China.

Regarding to economic development, Hai Phong has huge advantages for the marine economic development and become an important economic pole in the northern key economic zone with the main services on seaport, tourism, aquaculture and other maritime economic services. The average economic growth of Hai Phong was higher than the country's average. GDP on 2015 was 1.52 times of those in 2010. The city's economic structure has shifted towards a decline in agricultural sector's proportion combined with an increase in industrial and services sector's proportion, in which the

proportion of service sector reached the highest (of 53.95% in 2013). However, the shift on economic structure of Hai Phong is quite reluctant with a merely negligible increase in industrial and service's proportion since 2005 (Figure 1) without any significant breakthrough in the area of industry and services. In its development process, Hai Phong has identified investment priorities on facilitating infrastructure, including seaports, airports, roads and railways that connect the City to Hanoi and other regional large economic zones. In fact, until now, a number of vast investment projects have been carried out, such as Hanoi-Hai Phong highway, Cat Bi International Airport, Lach Huyen deep-sea port...



Source: General Statistics Office of Vietnam, 2015

**Figure 1:** Hai Phong economic structural shift in the period of 2005-2014

With a number of potentials and maritime economic advantages, with the traditions of being an industrial city with S&T human resources, located nearby Hanoi capital, which is a hub of national reputed S&T organizations, Hai Phong owns a number of important prerequisite to become an S&T centre of the northern coastal region.

## 2.2. Potentials on science and technology

Hai Phong has quite strong potentials in S&T in the Northern coastal region. Up to date, based on incomplete sources on statistics, there are approximately 70 organizations carrying on S&T activities in Hai Phong (including 08 local-based central governmental organizations) and about 20 universities and colleges, with the number of S&T staffs of about 4,900 people, in which PhD degree: 248 people, Master degree: 1,706 and Bachelor degree: 2,946. Majority of these people currently work at universities/colleges (78.13%), followed by those work for local S&T

organizations (14.16%) and those work in central governmental S&T organizations (7.71%). The city's S&T staffs are rejuvenated with the number of people under 40 years olds accounted for the highest percentage (71.02%), seconded by those in the age of 40-50 years old (15.88%), of 50-55 years old (7.21%) and of 55-60 years old (4.08%). These S&T human resources have actively and effectively participated in consultancy, argument provision, research and resolving out a number of major issues on local S&T and socio-economic development such as S&T, primary survey on environmental protection, social sciences and humanities, education and training,...

Hai Phong is also the province with higher advantages on marine research and human resource training on marine economic development than any other provinces. There are a number of S&T organizations on this field, such as Vietnam Maritime University, Research Institute for Marine Fisheries, Institute of Marine Environment and Resources, Vietnam National Institute of Maritime Medicine, Maritime Research Institute, Center of Training and Consultant on S&T Marine Environmental Protection, Maritime Construction Technology Consultant and Development Center, National Agro-Forestry-Fisheries Quality Assurance Department-Branch 1 and Center for Irrigation, Coastal Environment and Islands. All of these organizations have formed a chain of research units that complement each other in the field of marine S&T. This could be the highest advantage of Hai Phong, not only in the Northern coastal region, but also in Red River delta.

Annual local budget of S&T continued to be increased. State budget gradually met the local S&T development demand, in spite of the quite huge distance to the target 2% of the total budget as expected in governmental and local policies. The data on local budget for S&T has shown that the average annual budget for S&T activities increased by 10-20%, however, the average S&T budget of five years (2011-2015) merely accounted for 0.951% of the total local budget. The rate of increase in budget for S&T activities was 5.84% for the period of 2011-2015. The total expenditure that local enterprises invested in technology innovation and S&T advanced applications was around 10 billion VND/year<sup>3</sup>.

The local technological market initially met increasing demands of technological supply and demand, promoting the inputs for local technological innovation process. Hai Phong has focused on mechanisms

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<sup>3</sup> From the Report on the Results of S&T activities in Hai Phong City in the period of 2011-2015, towards 2016-2020.

and policies to enhance the technological market development. The rate of technological innovation of Hai Phong in 2013 was 10.22%; 11.32% in 2014 and 12.11% in 2015. The proportion of high-tech products and high-tech-applied products' value over the total industrial value was 21.25% in 2013, increased to 23.51% in 2014 and to 26.34% in 2015. The proportion of high-tech products' value contributed to the GDP was 26.93% in 2013; 29.78% in 2014 and 33.38% in 2015.

The average level of technology in production was increased, contributing to improve the major products' value and competitiveness. Many important targeted indicators which highly influenced the local technological level was improved and higher than the national average. The portion of local enterprises' capital investment for production expansion and technology innovation has increased rapidly. The share of advanced technology and equipments in the total investment accounted for over 60% and up to 90% in some sectors. Many technologies and equipments were primarily imported from developed countries with an increase in the bulk of automatically and semi-automatically devices. The local targeted indicator on total factor of productivity was improved and fairly well contributed to the city's GDP with an average of 27% in the period of 2011-2015.

With these S&T potentials, in many recent years, S&T activities have been contributed significantly to the city's socio-economic development. Research on social sciences and humanities has contributed to the city's planning, policies and development strategies by providing scientific and practical basis and proposing possible pilots and solutions that supported the aims to develop, innovate and improve the effectiveness of policy implementation at various administrative levels and sectors. Research on S&T has been strongly linked to the production and daily life with the main focus on research applications and some key areas in order to gradually contribute to the improvement of productivity and production quality and efficiency, especially in the field of agriculture, aquaculture, health care and environmental protection.

### ***2.3. Opportunities and challenges***

There are a number of intertwined opportunities and challenges in the process of building and developing Hai Phong to be a S&T centre of the Northern coastal region.

#### *a) Opportunities:*

*First*, with the favorable advantages in economic development status and geographic location as the gateway to the sea of the northern region, Hai Phong received a special attention of the Party and the Government. The

Conclusion No. 72/KL-TW of the Politburo dated on 10<sup>th</sup> October 2013 has been clearly indicated to "...Concentrate on the development of the economic sectors that are of the local strengths and breakthrough, which include seaport services, airport, tourism, maritime economy and transportation, logistics, finance, export-import,... To focus on the development of key industrial sectors which are high value-added, efficient and S&T intensive, clean technological-oriented and friendly environmental. To increase the rate of product localization, gradually shift from simply assembling to manufacturing and designing. To prioritize to develop the local products that enable to participate in the global value chains and to gradually decline the rough processed products that are resource intensive. To develop eco-agriculture with clean, high valued products; to facilitate the reformed rural development process. To take good care of the local social and cultural development which takes Hai Phong's own identity into the consideration".

These important legal-based rationales would also be excellent opportunities for Hai Phong to gain economic breakthrough and become the economic and S&T leader in the key economic zone of the North and of the Northern coastal region.

*Second*, with favorable conditions on geographic location, economic development status and human resources, Hai Phong has great potentials to be the key economic pole in the Red River delta; to be the important traffic node linked to the transportation systems of waterways, roads, railways, inland and oversea airlines; to be the main entrance to the sea of Hanoi and other northern provinces; to be the important transportation node of the northern key economic zone with two neighboring corridors and one economic cooperation belt zone between Vietnam and China.

*Third*, the comprehensive and extensive process of integration has created opportunities for Hai Phong to exploit its favorable advantages as to accelerate its developmental process. Vietnam has been signed in series of decisive trade agreements that would drive the country's development in the future, such as: Vietnam-EU Bilateral Trade Agreement (EVFTA); TPP; ASEAN Economic Community since 31<sup>st</sup> December 2015. In these agreements, Vietnam was considered as the most attractive country for investment, creating waves of investment on high technology in Vietnam, including Hai Phong City. Some ongoing projects on high technology have contributed on the change in local technology level and structure. This would be great opportunities that Hai Phong could grasp for local technological innovation.

*Fourth*, the infrastructure network system has been more and more improved and completed, creating good conditions for Hai Phong to booster up in its socio-economic development process and emphasizing the city's leading role on marine economic development of the Northern coastal region. The ongoing infrastructure projects such as the Hanoi-Hai Phong Highway Project, the Project on the extension of Cat Bi International Airport, Lach Huyen Deep-sea Port... have created necessary conditions on infrastructure both for enhancing the local economic development and for networking Hai Phong to other northern and neighboring provinces, making the target that Haiphong becomes the regional economic and S&T centre into practice.

*b) Challenges:*

Besides of the opportunities as mentioned above, there are a number of challenges in the process of developing Hai Phong to be the Northern coastal region's S&T centre, including both inside and outside challenges.

*First*, currently, the greatest challenge would be the contradiction between the huge emerging demand and the limited resources in both financial and human resources, which have not met the emerging requirements of the new context. Especially, the economic growth model that Hai Phong has pursued in recent years was extensive-prone one. The S&T factor which was aimed to contribute to the local economic growth has not reached its targets (the total factor of productivity was targeted to contribute up to 30% of GDP).

*Secondly*, in spite of the increase in the quantity of S&T human resource, its quality might not satisfy the requirements of S&T development. The S&T level is still low with the limited number of S&T applications in production and fairly weak linkages between the S&T organizations and local enterprises. Financial resources for the development of S&T has not effectively used, hardly to attract talented people or high-qualified human resources for the development and applications of S&T. The number of staffs working in research and applications of S&T remains inadequate and deficient, especially within the business sector of Hai Phong.

*Third*, despite of being the second highest economic potential-owned province in the northern area, foreign investment projects in Hai Phong were neither more nor large-scaled; the number of high technology projects was still under expected. There were only a few foreign investment projects, whose scale and technological level reached the expectation to effectively leverage the City's level of development; and this would be one of the major challenges for the City.



*Fourth*, currently, the exploitation of marine resources and islands has not maintained sustainability due to local spontaneous exploitation; marine biodiversity and aquatic resources have been declining quite severely. Resource depletion and degradation of ecosystems, pollution of the marine environment and climate change are serious challenges, which have significantly influenced on the process of implementing sustainable development strategies of the City.

*Fifth*, The S&T organizations were small-scaled and isolated without linkages and mutual cooperation, therefore their S&T results might only serve their own demands; and any possible scope of effects of these organizations could not be large enough for the development of the whole region.

### **3. Requirements for Hai Phong to be regional S&T centre**

#### ***3.1. The role of Hai Phong to S&T of the region***

*First*, based on the vision of regional development approved by the Prime Minister, the key development zones for industries and services would be targeted in the economic corridor of Hai Phong - Ha Long - Mong Cai, in which Hai Phong and Ha Long would be the urban centres for the development of industries, seaports, services and tourism. To be specified:

- The two major urbans of Hai Phong and Ha Long would be the regional integrated marine economic service centres;
- The key regional industrial development zones would be mainly in Hai Phong and Quang Ninh;
- The centres for tourism development would be in Hai Phong, Ha Long and Ninh Binh;
- To develop focal business centres for regional goods distribution at Hai Phong, Quang Ninh and Ninh Binh;
- To build up regional high qualified healthcare centers at Hai Phong, preventing the possible overloads of leading hospitals in Ha Noi;
- To develop large-scaled training centers of the region at Hai Phong, Ha Long and Nam Dinh, in which Hai Phong would take major responsibilities for human resources for the Red River Delta and the whole country.

*Second*, Hai Phong is the province whose proportion of the total local product value over the total regional product value were the largest (32.25%), followed by Quang Ninh (26.59%). In the sector of industries

and construction, the industrial production value of Hai Phong accounted for 30.2% of the whole regions. In service sector, Hai Phong had the highest proportion of the total turnover from trades and services throughout the region (39.1%). It would be affirmed that Hai Phong has been the extremely important leading province, directing the regional economic development process in the current period.

*Third*, the labor force in the age of over 15 years older in Hai Phong accounted for about 24.1% of those of the whole region and tend to increase in the coming periods. In 2014, about 23.16% of regional trained workers were working in economic sector ; this ratio in Hai Phong was 27.6% (in which over 11.6% of this obtained Bachelor degrees and more). Also, there are 04 universities and 55 S&T organizations in Hai Phong. Therefore, Hai Phong would completely be capable of receiving and mastering of advanced S&T achievements in the region and the world, particularly in the current context of integration process and economic development.

### **3.2. Requirements for Hai Phong**

In order to build up and develop Hai Phong to be the regional S&T centre of the northern coastal region, these following main requirements should be initially focused and solved:

*First, strengthen S&T capacities to handle common S&T issues of the region*

Once Hai Phong is the regional S&T centre, the S&T activities will serve, not only for the local socio-economic development's needs, but also for the whole regions. In order to handle this task, S&T capacities initially need to be strengthened, particularly in the following aspects:

- To develop high qualified S&T staffs which are on a par with those in fairly well developed countries in the region and whose structures are in compatible of the City's planning on human resources until 2020; To ensure the transition between generations as to meet the requirements and tasks set out in the process of restructuring the economy. To develop S&T human resource development planning to 2025, with a vision to 2030; To develop mechanisms and policies to train, use, attract, remunerate and honor S&T staffs. To diversify training schemes and levels to improve the quality of S&T human resources. Based on Hai Phong's practical conditions, it needs to strengthen linkages of local S&T human resource's training with other S&T strong potential international partners, such as universities, research institutions and organizations in North American countries, the European Union,

Northeast Asia... as to train local S&T researchers and managers to provide better S&T activity services for the city;

- To rearrange the local S&T system that adjusts to its new roles. As a regional S&T center, Hai Phong should be the leading province, not only in the S&T applications, especially high technology, but also in the number of applied research studies with high level of linkages and spillover effects spread over the region. S&T should contribute more to the economic growth of the City and of the whole region. In order to do this, local S&T organizations should be restructured without overlapping in functions and tasks. Local S&T organizations should be provided sufficient in financial and human resources to meet regional needs of research and application of advanced S&T and high technology in production and daily life, which could create socio-economic benefits and serve the development needs of the whole region. The local S&T activities should focus on how to facilitate local comparative advantages on seaports and on the development of technology for the exploitation and usage of marine resources, such as technology oceanography, seaport services and logistics;
- To establish a network of S&T organizations, which are capable of international integration and closely linked to education- training and production-business. To develop the local system of S&T organizations and universities with sufficient capacities to solve key local S&T tasks, which might generate spillover effects within the key northern economic zone and in the Red river delta;
- To form technological zones of some industries that are large-scaled, high value-added and capable of participating to global value chains, especially export-oriented product industries. To be the industrial product supplier for the regional and countrywide industries.

*Second, to build up and develop the local S&T capacities to reach the advanced level in Asia*

- The local S&T capabilities should be able to master, adapt and improve the modern technologies imported from abroad in some areas of production, services, infrastructure (maritime economy, finance & banking, telecommunications, transportation, logistics) to ensure international compatibility;
- The application of S&T achievements and advanced and new technologies should become individual desires and popular demands of social communities and in all domains; To contribute to improve the quality of economic growth and competitiveness of the city; To maintain

important contributions in building a civilized modern industrial city as one of the major industrial centers of the country, owning a modern urban agriculture; to be an aquatic center, a healthcare and educational centre in the region;

- To build up and develop some key high-tech industries; To develop biotechnology and logistics industries to become high growth industries in order to meet the increasing domestic demands and exports.

*Third, to develop technological market; to upgrade the Hai Phong Technology and Equipment Exchange Market to become the Technology Exchange Market, the Center for S&T Information to become the Regional Center for S&T Information and Statistics as to undertake the tasks of the whole region.*

The S&T technological market should be served as a focal point to provide information, supports and consultancies for enterprises and industries throughout the region in the process of technological innovation; To be the focal point for transactions, promotions and commercialization of the S&T products between enterprises, S&T institutions, technological incubators and foreign suppliers; To organize meetings, supply-demand connections, relationship building for mutual cooperating, providing information, and updating on S&T products and human resources' demands that the business communities might acquire to the universities and S&T organizations.

*Fourth, strengthen domestic and international S&T cooperation.*

To strengthen the cooperation of domestic and international S&T institutions as to facilitate local S&T capacities and further develop local S&T organizations; To promulgate appropriate mechanisms and policies to promote cooperation and S&T transferring activities. To diversify collaborative activities in scientific research and technological development. To invest adequately for collaborative R&D activities. To create institutional environment and appropriate policies to attract young S&T staffs and experts in other provinces to work for the city.

## **Conclusion**

In summary, in order to build up and develop Hai Phong to be the regional S&T centre in the northern coastal region, there would be a number of issues that need to be solved out, including not only theoretical and practical ones, but also in terms of understandings, perceptions and practices.

In particular, the target that Hai Phong really becomes a regional S&T center would require specified policies that could motivate the local

developmental process and create greater breakthrough as to make S&T to be a truly driving force as expected in some written policies and strategic directions of the Party./.

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