

## **Review of Science, Technology and Innovation in Vietnam**

### **Executive summary**

#### **Viet Nam's achievements and new challenges**

- Viet Nam's economic and social development has been impressive. High economic performance has translated into a rise in per-capita income and reduction of poverty. This has meant better lives for many.
- Viet Nam is approaching a crossroads, nevertheless. GDP growth has been slowing in a less buoyant international environment. Previous sources of growth are diminishing in power, raising the threat of a "middle-income trap". Viet Nam will have to rely more on productivity gains driven by innovation. This will require considerable improvements in domestic innovation capabilities.
- Viet Nam has expanded and diversified its exports but structural change towards "high technology", and eventually more sophisticated goods and tradable services of high knowledge content has been rather slow. Lock-in in low value-added activities limits the scope for technological learning and improving innovation capabilities.

#### **Viet Nam's innovation imperative: Time for effective action**

- Current science, technology and innovation (STI) capabilities are weak and the national innovation system is in a nascent, fragmented state. Research and development (R&D) is still a peripheral activity, both in the business and the public sector.
- Increased competition in globalising markets mean that it is more important than ever to invest early in advanced technological capabilities, including R&D. Stronger innovation capabilities are essential for enterprises to position themselves better in global value chains.
- To prepare for the future, a significant increase in investment on STI is required to strengthen and at the same time streamline and rebalance the innovation system by putting enterprises at the centre.

## **Improve public governance of the innovation system**

- Governments play a key role in providing long-term orientation on social and economic priorities, ensuring that resources for innovation are adequate, public actors perform well, and the various components of the innovation system link up and form a coherent whole. Innovation system governance in Viet Nam has been beset by a number of shortcomings which can be related to a lack of effective commitment, co-ordination and implementation of government policies.
- Visionary leadership and political commitment to STI can contribute to raise the profile of STI within government, among stakeholders and the wider public. Effective innovation policy should aim at ambitious but realistic and operational targets.
- It also needs improved co-ordination between ministries and agencies, and involvement of representatives of enterprises in the formulation of strategies and policies. Formal high level co-ordination mechanisms should be complemented by informal networking and include collaboration of agencies involved in the policy implementation.
- Viet Nam has advanced the legal basis for STI and established several new institutions engaged in steering and funding R&D. But progress in building a modern institutional framework has to continue in a timely manner. Professionalised government agencies with a sufficient degree of operational autonomy and larger portfolios can help enhance policy implementation. The example of East Asian countries highlights that implementation capacity is a major factor of success.
- There is an urgent need to strengthen the information base for STI policy, indicators and evaluation practices. R&D statistics and other relevant information are often fragmentary, out of date or not internationally comparable.
- Evaluation needs to be pragmatic, timely, transparent and actionable. Results of evaluations should help improve policymaking, showcase the tangible economic and social benefits of STI, while high-profile awards may help mobilise the general public's interest in STI.

## **Strengthen the human resource base for innovation**

- Human resources are the key to innovation. A nation's innovation capacity depends crucially on the quality of education and training for scientists, technologists and a wide range of professionals and on the inclusiveness of the education system. Viet Nam has made a substantial effort on education and skills. The results of the 2012 OECD PISA assessment of the performance of secondary students bode well.

- However, there is still scope for increasing the quantity and improving the quality of human resources, particularly at the tertiary and secondary vocational levels. Funding of tertiary education has been insufficient to cope with the increase in technical and research students.
- The skills supplied through formal education and training are often out of date or too theoretical and do not meet the demands of the labour market. In addition to financing constraints, the governance of higher education suffers from weaknesses in terms of information about skills needs and incentives for alignment.
- The accumulation of innovation capabilities within businesses depends on the availability of specialised professionals. Broadening options for professional specialisation in upper secondary education and enhancing the standing of vocational training seem necessary.
- It is also important to provide more opportunities for upgrading the skills of those already in the workforce and to improve the effectiveness of short-term training. An expansion of part-time tertiary education and other lifelong learning opportunities could help address gaps in “soft” skills.
- Public-private partnerships (PPPs) could be used to encourage businesses to take greater part in the national effort on human resource development. Firms, especially SOEs and MNEs, should be encouraged to increase their training investments, to fund demand-tailored aspects of formal education and to partake in decisions over curricula and programme design.
- Skills constraints in the public sector are a major constraint to the effective delivery of public functions. Meeting the government’s ambitious targets to remove skills constraints in the public sector by 2020 should be a priority.

**Strengthen innovation in the enterprise sector: Put business enterprises at the heart of the innovation system**

- Business enterprises that thrive on innovation – and leverage R&D done in universities and PROs – are at the centre of all national innovation systems that drive growth and development.
- Viet Nam’s business sector still accounts for a very small share of R&D expenditure. Few firms perform R&D, the level of innovation activity is overall low and links to public research are weak. Improving in-house innovation capabilities – which require skills to engage in design, engineering, marketing, information technology and R&D – in a broad range of enterprises should be an overarching priority.

- Innovation requires conducive and stable framework conditions. Viet Nam has made progress but there remains much scope for improvement, including through continuing regulatory and SOE reforms, stimulating competition, facilitating access to finance etc. Frequent regulatory changes lead to a proliferation of red tape.
- In addition, Viet Nam could benefit from increased funding of promising support schemes for business R&D and innovation, provided that their design and delivery is brought up to good practice standards. A comprehensive inventory (covering direct support instruments and tax incentives) and successive evaluations should inform the streamlining and re-orientation of support.
- Additional measures should be taken to attract knowledge-intensive foreign direct investment and facilitate spillovers from foreign-invested to domestic firms. A suitably adapted public-private partnership (PPP) pilot programme for R&D and innovation could help focus and leverage resources, and improve co-operation between public research and business actors, including foreign firms.

### **Strengthen the contribution of universities and public research institutes**

- Viet Nam's public research sector has undergone profound changes since *doi moi*, but problems persist. These include a large number of often overlapping labs and R&D units, many of which are of sub-optimal scale, a lack of resources (funding, qualified personnel, research infrastructure) and distance from potential end-users.

Tackling these issues effectively requires a clear, strategic view on the desired division of labour between universities and PROs and the balance between the main functions of PROs.

- A profound restructuring of the governance of PROs and research universities should be a precondition for the necessary increase in their funding. The process of corporatisation of PROs and towards institutional autonomy should continue, while the remaining non-corporatised PROs be restructured into fewer, better performing organisations. They should be aligned with socioeconomic priorities by clear missions and funding criteria, including performance-based ones set at the appropriate level.
- The co-ordinating role of MoST at the strategic level should be enhanced while, at the operational level, a limited number of agencies – such as NAFOSTED – could play a constructive role in streamlining the portfolio of PROs.