



**United Nations  
Conference  
on Trade and  
Development**

Distr.  
GENERAL

TD/B/COM.2/69  
5 January 2006

Original: ENGLISH

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TRADE AND DEVELOPMENT BOARD

Commission on Investment, Technology and Related Financial Issues

Tenth session

Geneva, 6–10 March 2006

Item 5 of the provisional agenda

**SUMMARY OF DELIBERATIONS ON THE SCIENCE, TECHNOLOGY  
AND INNOVATION POLICY REVIEW OF THE ISLAMIC REPUBLIC  
OF IRAN\***

**Executive Summary**

UNCTAD undertakes Science, Technology and Innovation Policy Reviews (STIPs), in order to assist interested member States strengthen their productive capacity and improve international competitiveness through more effective science and technology-related policies and institutions. The country-specific analysis and recommendations contained in each STIP review represent policy options to strengthen national technological capabilities, and provide a blueprint for a national innovation strategy.

In addition to presentation at the national level, STIP reviews are also considered within UNCTAD as part of intergovernmental discussions at the Commission of Science and Technology for Development (CSTD). This document contains a summary of the deliberations on the Islamic Republic of Iran.

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\* This document was submitted on the above-mentioned date as a result of processing delays.

1. The Science, Technology and Innovation Policy (STIP) Review of the Islamic Republic of Iran was presented to, and discussed at, the eighth session of the Commission on Science and Technology for Development (CSTD) held in Geneva between 23 to 27 May 2005. Mr. Mostafa Eghbal, Deputy Minister of Technology, Ministry of Science, Research and Technology of the Government of Iran and Mr. Hojjatollah Hajihoseini-Sefideh, Vice President for Technology Planning, Iranian Research Organization for Science and Technology, Institute of Biotechnology attended the session. Discussants in the deliberations were the Minister of Science and Technology of Pakistan; the Director of the Department of International Cooperation of the Ministry of Science and Technology of China; the Senior Advisor on Science and Technology to the Prime Minister of Jamaica; and the presiding chair of the Commission on Science and Technology for Development from Austria. Interventions were also made by the representatives of Angola, India, Greece, Morocco, Peru and Sierra Leone.

2. Describing Iran's technological status and economic prospects, the UNCTAD secretariat qualified its development strategy of self-reliance as fairly successful. Endowed with abundant oil and natural gas resources, Iran has invested its oil revenues into importing technology to upgrade its industrial base and strengthen its productive capacity. At present, Iran is a middle-income developing country, with a relatively advanced industrial base, a functioning science and technology infrastructure and a trained human resource capital.

3. The STIP Review identifies the following recommendations for the government to consider:

- *An innovation strategy* with focus on learning and linkages;
- *Measures to promote transparency and accountability* for monitoring and evaluating policies and programmes;
- *Sector-level innovation strategies* with specific measurable objectives to be achieved within a given sector within a specified time with detailed action plans. Priority should be given to important sectors such as the biopharmaceutical and the oil, gas and petrochemical sectors;
- *Joint ventures and licensing agreements as source of learning* to shift from production to innovation as the core of the development process;
- *User-producer links* as the core of a dynamic innovation system;
- *Development of small and medium enterprises (SMEs)*, in view of their role in adding flexibility to the adjustment processes, creating employment, strengthening local economies and in providing innovation leadership; and
- *Upgrading of the supplier industry*, particularly SMEs to develop and produce the inputs/components needed by the large state-owned enterprise. Building up the capacity of the support industries will engender innovation and consequently, improve national export capacity.

4. In order to achieve a better recovery rate from its oil wells, and to build a competitive petrochemical industry that produces high value products, the STIP review recommends the government to consider:

- *Establishing a public service organization* entrusted with resource management function even while policy-making should remain with government, i.e. a public service organization that operates under governmental regulations to optimise the exploitation of oil and gas resources;
- *Revising buy-back arrangements* to optimize learning, technology development and improved recovery from the oil reservoirs over time; and
- *Selection criteria for R&D*, incorporating both short- and long-term goals, and including elements such as linkages with user industries.

5. Iran has an effective healthcare programme covering the entire population, including affordable medicine. Its pharmaceutical industry constitutes one of its main economic pillars. However, R&D capability to develop new products and processes is rather limited and much of the raw material used in drug manufacture is imported. With an enhanced petrochemical industry to provide raw materials and with its rich and vast variety of flora and fauna, Iran could build up a globally competitive biopharmaceutical industry. In order to achieve this, the Government might consider:

- *Building technological capacity through inputs*, extending the process already started in the biotechnology sector with the production of critical reagents needed for research. Similarly, investments could be made to build capacity for producing inputs for the pharmaceutical industry. This process could be taken in conjunction with investments being made in the petrochemical industry;
- *Facilitating the emergence of new firms*, particularly those specializing on the treatment of specific ailments and diseases. These firms will be in addition to the existing 55 pharmaceutical companies that produce drugs for common ailments;
- *Building critical mass in R&D*, both human and financial, in the field of medical biotechnology.

6. The Islamic Republic of Iran faces both opportunities and challenges during its transition from a natural resource-based to a knowledge-based economy. If the country is to succeed in this crucial undertaking, horizontal and vertical linkages among and between the economic actors need to be strengthened and the national innovation system reinforced. As in most other developing countries, SMEs need to be nurtured and new technologies promoted. A comparison of strategies used and sharing of experiences with countries that have successfully promoted SMEs and new technologies would be beneficial. Among the policy recommendations made in designing an innovation strategy was the development of downstream activities, especially in the petrochemical and biopharmaceutical industries. These two sectors represented the engines of the Iranian economy.

7. The government concurred with the premise of innovation and knowledge as drivers of competitiveness and growth. These elements are also magnets for major opportunities, even for countries not at the forefront of knowledge creation or innovation. Iran has taken steps to put innovation and knowledge at the centre stage of its development plan. While hardly mentioned in the Third Development Plan (2000-2004), innovation is given a prominent place in the Fourth Development Plan (2005-2009). Measures have been taken to foster entrepreneurship and innovative culture, such as the establishment of incubators and science parks. As an extension of university education, a preparatory stage university

entrepreneurship programme has been set up. In 2004, Iran had 409 tenant companies in seven science parks and 34 incubators, employing over 2,278 entrepreneurs. Iran intends to fortify its national innovation strategy with international cooperation and investment. Towards this end, it will also address issues related to intellectual property and venture capital.

8. With the establishment of the Supreme Council of Science, Research and Technology, headed by the President himself, science and technology has begun to permeate into the decision-making processes of government ministries and development agencies. Iran's main concerns have been threefold: how to attract new entrepreneurs, how to promote an innovation culture; and what universities could do to promote innovation and entrepreneurship. A number of STIP recommendations made by UNCTAD have been adopted in formulating a national innovation strategy, including support to SMEs and entrepreneurship.

9. The value of sharing experiences was repeatedly invoked during the discussion. Experiences may not be limited to successful practices, but also identifying factors that may hinder technological progress. The Minister of Science and Technology of Pakistan, in this regard, offered to share with interested countries the experiences of his country's Small and Medium Enterprise Development Authority (SMEDA). SMEDA offers services ranging from business planning; training and development; technical, financial and marketing services; policy planning and advocacy; as well as legal services to SMEs.

10. Taking from the STIP review on Iran's pharmaceutical sector, a suggestion was made that STIP reviews should routinely look into indigenous medicine and their sources, and consider ways where modern technology could be used to improve their effectiveness, stability, and safety. Alternatively, the review could focus on indigenous foodstuffs and agro-processing. Included in this development would be the issue of intellectual property. It was also suggested that STIP reviews be linked to the economic and development dynamics of the country, especially national priority areas such as wealth creation and poverty reduction, as well as environmental sustainability. Other factors would be the roles of the informal sector, civil society and academic, as well as that of FDIs; these entities could play a pivotal role in building up the technological base of a country. The importance of linking university and the business sector was also brought up. STIP reviews could look into strengthening the role of universities as nurturers and suppliers of "entrepreneurial brains" on the one hand, and their collaboration with incubators and science parks on the other.

11. Analysis of major industrial sectors should continue to be feature of STIP reviews, as was done with the petrochemical and pharmaceutical sectors in the case of Iran. As engines of the national growth, changes in these sectors would directly impact on the rest of the economy. Successful technological acquisition by these sectors would create ripple effect, spur competition, and encourage smaller industries to innovate.

12. The presentation of the STIP review of Iran was welcomed by the members of the Commission as a constructive and effective means of sharing experiences. The Commission urged UNCTAD to continue to undertake STIP reviews for interested countries.

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