Science, technology & innovation

WHY IS INTERNATIONAL CO-OPERATION IMPORTANT FOR DEVELOPMENT?

Science, technology, and innovation (STI) are crucial for sustainable long-term economic growth, both in developed and developing countries, even more so in the aftermath of the economic crisis. STI also has a major part to play in addressing the global challenges which are discussed in the following sections, including adaptation to climate change; food, water, and energy security; and health.

Action needs to be taken by governments at national and regional levels to help promote innovation, research, and development in both the private and public sectors, including putting in place the necessary 'framework conditions' such as openness to international trade and investment, a healthy financial system, and a supportive tax climate, and developing capacity to absorb and effectively use technology. This requires co-ordination across a wide range of government ministries and with the private sector.

At the same time, international co-operation is necessary given the global nature of these challenges. No single country can address them on its own. The uncoordinated efforts of countries acting separately are likely to be more costly and less effective than countries acting together.

Key areas for international co-operation are:

- facilitating technology transfer by making the benefits of new technologies widely and rapidly available, in particular in areas related to the MDGs, such as food security and the eradication of disease;

- promoting research and innovation to meet global and social challenges to better harness science, technology, and innovation for achieving the MDGs and bridge development gaps;

- strengthening global co-operation and improving international governance, including enhanced co-operation between developed and developing countries.

Engaging in joint research and development activities which lead to joint intellectual property such as patents would potentially constitute an extremely powerful source of technology transfer and learning for emerging and developing countries. Evidence on co-patenting shows, however, that more than 90% of international co-patenting does not involve non-OECD economies: this proportion was still close to 98% in the mid-1990s, hence pointing to some progression in the insertion of developing countries in global knowledge networks since then.

WHERE ARE WE NOW AND WHAT NEEDS TO HAPPEN NEXT?

(i) Facilitating technology transfer

The internationalisation of technology is an important characteristic of globalisation. Technology flows between countries have grown. There is in parallel a well-established system for the protection of intellectual property rights (IPRs), which aim at encouraging innovation and investment. The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) in-

troduced intellectual property rules into the multilateral trading system in 1994, through establishing minimum levels of trade-related intellectual property protection in all signatory states. There is, however, also recognition that the protection of knowledge needs to be combined with policies and mechanisms that facilitate access and transfer. WTO members thus agreed in 2003 on legal changes that make it easier for poorer countries to import cheaper generics made under compulsory licensing. There is ongoing policy and legal debate within the WTO about the scope and effect of these flexibilities. A number of features and flexibilities have been built into the TRIPS agreement to support development-related objectives, in particular related to medicines. Under the TRIPS Agreement, least developed countries benefit from a transition period up to 2013. This transition period is extended until 2016 for patents related to pharmaceuticals. Moreover, an amendment to TRIPS was adopted in 2005 to facilitate access to generics for countries without pharmaceutical production capacities. This amendment is a step toward policy coherence for development, but still needs to be ratified by several WTO members to come into effect.

Innovation and Development

Framework conditions
- Openness to trade and investment
- Healthy financial system
- Supportive tax climate
- Capacity to absorb and effectively use technology

Key areas for international co-operation
- Facilitation technology transfer
- Promoting research and innovation to meet global and social challenge
- Strengthening global cooperations and improving International governance

Key development benefits
- Sustainable long-term economic growth
- Tackling climate change
- Improving food security
- Improving water security
- Improving energy security
- Improving health

Source: OECD staff.

The next steps include:

- removing trade barriers that limit technology transfer;

- in cases of market failure, using other channels such as export credit targeted at developing countries;

- developing mechanisms such as patent clearinghouses and patent pools that provide developing countries access to health technologies and free user rights of unutilised patents for developmental purposes;

- re-examining the operation of current rules for intellectual property rights, including the flexibilities provided, in order to ensure that these strike the right balance between incentives for innovation and the public benefit that flows from the dissemination of patented knowledge into the marketplace.

(ii) Promoting research and innovation to meet global and social challenges

The landscape for technology and knowledge has become increasingly global, with a handful of non-OECD economies accounting for a growing share of the world's research and development. Innovation in some areas, such as climate change mitigation technologies, is accelerating. At the same time, for many current global and social challenges market failures, including the simple absence of a market, limit investment and the development and deployment of innovations.

A variety of 'push and pull' mechanisms are being used, for instance, to bring new health technologies onto the market, such as public-private partnerships and advance market commitment, complementing traditional development programmes. As well, philanthropic foundations are playing an increasingly important role in this area.

The next steps include:

- using economic incentives, such as the pricing of carbon emissions, tax policies or other economic instruments, and the removal of environmentally harmful subsidies, to get prices right and trigger the development and diffusion of green technologies and innovations;

- developing innovative approaches based on inter-firm collaboration, access to and use of intellectual property, and new financing mechanisms to promote research and innovation in health;

- developing appropriate international platforms, bringing together firms and national governments, to mobilise innovation for global challenges.

(iii) Strengthening global co-operation and improving international governance

Current co-operation strategies include joint investment in basic and collaborative research in international networks, such as the Consultative Group on International Agricultural Research (CGIAR). However, current global challenges require more concerted and inclusive approaches. The existing policy frameworks and governance mechanisms for international co-operation in STI were created for different purposes and in different settings in the past, often with very limited participation by developing countries and with a focus mainly on science. They also fall short of adequately supporting broad-based collaborative action at the scale and intensity required to tackle today's global challenges.

The next steps include:

• increased collaboration/research partnerships with developing countries, including joint basic research; open access to research data from public funding; and capacity building, including exchanges of researchers;

• development of new mechanisms for the governance of international co-operation on STI, which will help to strengthen collective efforts to find solutions to global challenges, to strengthen innovation for development, and to improve international knowledge and technology flows.

HOW CAN THE OECD, WORKING WITH OTHER INTERNATIONAL ORGANISATIONS, HELP TO ACHIEVE THIS?

The OECD assesses how policies on STI can contribute to sustainable economic growth and meeting global development objectives. The OECD Innovation Strategy, published in May 2010, draws together five key priorities for national and collective action, including addressing global and social challenges. The OECD also promotes co-operation in STI, identifies areas where it would be useful to foster commonly accepted best practices or rules of the game in order to avoid international friction, and helps in formulating them. It also conducts country reviews of innovation policy, provides policy advice on coping with the challenges arising from developments in new science-based industries (notably biotechnology), and undertakes a wide range of activities on Information and Communication Technologies (ICT). The OECD is increasingly engaging with developing countries in all these areas of work. Co-operation with other international organisations on STI and development is also being strengthened. The OECD will contribute to taking forward the above priorities by:

(i) Facilitating technology transfer

The OECD initiative on the governance of international co-operation on STI will address access arrangements and intellectual property, capacity building, and technology transfer, especially in the context of global challenges. The OECD can also contribute to the international debate on this issue that is now taking place in other international fora;

(ii) Promoting research and innovation to meet global and social challenges

The OECD Global Science Forum examines how to promote true research partnerships between developed and developing countries with a balanced flow in both directions of resources, efforts, and benefits. Promoting research and innovation is also part of the iniative described under (ii).

(iii) Strengthening global co-operation and improving international governance

As a follow-up to the Innovation Strategy, the OECD has launched an initiative to examine the working and limitations of existing governance mechanisms for international co-operation on STI, and to propose new principles that will help to meet development and global challenges. Issues covered (in addition to those mentioned previously) include agenda and priority setting, funding arrangements, and delivering benefits. To achieve tangible results beyond OECD Member countries, partner countries have been fully involved in the initiative from its inception. It is planned that new governance principles will be launched in 2013.

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