

International S&T Cooperation for Sustainable Development

Some thoughts on European experience over almost the last 20 years

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Introduction

There is a general recognition that knowledge and investment into human capital are the most critical factors for sustainable development for any human society, industrialised or developing. As Jeffrey Sachs points out, specific investment into development challenges with emphasis on human resources and research is indispensable.

The following highlights relate to the almost 20 years of experience with collaborative research between teams from the European Union and from developing and emerging economies. Successive Framework Programmes (FP) for Science and Technology of the European Community since its third edition have harboured specific programmes of scientific and technological cooperation with developing and emerging economies (DCs).

Principles

Back in 1979, the UN Conference for Research and Technology for Development identified key aspects of these needs. In the event, developing countries insisted that simple technology transfer was neither socially neutral nor adequate to their needs. In response to the demand for more scientific cooperation instead, the European Commission established, in 1983, an international S&T programme with developing countries for sustainable development.

This programme has been continuously developed in successive European Science and Technology Framework Programmes in a learning-by-doing mode. It initially focused on the joint development of appropriate technologies. However, since the nineties, in the climate surrounding the Rio Earth Summit and European commitments to support the transition towards sustainability, systems and policy research have been introduced in recognition of the need to tackle existing complexities in a qualitatively different way not ensured sufficiently by the earlier emphasis on technology alone.

Today the European Commission finances RTD projects focussing on development problems, as part of Action II 'International Cooperation' (INCO) of the FP. The INCO-

DEV Programme is open specifically to collaboration of European research teams with those of developing and emerging economies. It is based on three basic principles:

- A thematic approach open to all DCs;
- Partnership based on Europe-DC dialogue;
- Regional differentiation among DCs.

Unlike aid programmes brought in to solve selective local problems and delivered from donors to recipients, the European Commission has given a new dimension to North-South scientific relations through this programme, which

- Favours equitable partnerships, which aim at making a major impact on sustainable improvements of living standards in DCs;
- Stimulates researchers from the EU and DCs to work alongside each other and promotes exchange of researchers and advanced training linked to research collaborations;
- Chooses projects addressing current problems for their scientific excellence and their relevance to development matters through an external review process;
- Finances projects proposed by researchers and managed by them in scientific institutions;
- Capitalises on investments made by other national and international agencies and institutions (shared cost research) and as such is exceptionally cost-effective.

Examples

In the last 20 years, and not counting collaborations under the current 5th Framework Programme, which are still getting underway right now, 3,088 European and 2,695 DC teams have been mobilised in funded projects. But at the proposal stage usually thousands of teams have been mobilised per year. The geographical distribution of teams from developing and emerging economies comprises 1,203 teams from Africa, the Caribbean and the Pacific (ACP), 646 from Latin America, 562 from Asia and 284 from southern and eastern Mediterranean countries. These figures do not even take into account collaboration with Eastern European and NIS countries, which have been given specific access through geographically focussed programmes. About one billion Euros have been allocated to the range of research collaborations with all of these countries so far.

Two principal factors determine the effectiveness of scientific knowledge in bridging the gap from 'ideas to implementation' in relation to development:

- Policies in DCs, which encourage scientific pro-activeness, transparency, cooperation and exchange based on mutual interest and respect; and
- A local base, which allows appropriation of existing and generation of new knowledge, its appropriation and sharing in a knowledge and innovation system able

to address the specifics of each national, regional or thematic context, as a condition for sustainable development.

The perceptions about the relevance and priorities of the problems vary according to the stage of socio-economic development. For instance, the preservation of a given tropical forest may be a priority for industrialised countries, but surely using its resources for (socio-)economic development is the main priority for the DC, where the forest happens to be located. Is not the sustainable use of the forest for societal benefits the objective? This might constitute a compromise for both sides, provided there is scientific knowledge to underscore the guarantee of sustainability and the governance structure and technology needed to manage the resource accordingly for societal gains .

This is why the current INCO programme takes up the challenge and is open to collaborative research addressing specific adjustment problems faced by emerging and developing economies as a result of rapid changes taking place as a result of global trends. It adopts a problem-solving approach requiring different layers of research:

- Policy research;
- Systems research; and
- Technological research.

The thematic priorities of research for development focus on the most important knowledge gaps, namely in relation to natural resource systems and sustainable food and non-food production, food security, the environment, energy and healthy societies. For all thematic areas except energy, all three levels of investigation are sponsored: policy research, systems research and technology research.

Finally, a generic bracket of policy research invites proposals for research into knowledge and learning policies, which should address such questions as how to create an enabling environment for using scientific and other knowledge in building up societal wealth, lifelong learning, using information technologies for reaching out under conditions prevailing in developing countries etc. (www.cordis.lu/inco2/home.html).

Considerations for possible governance for international S&T cooperation for the transition towards sustainability

Given the multitude of situations across different societies, cultures, production systems, markets and emerging problems and opportunities, the range of perceptions of different players invites approaches, which can cater for such diversity and the evolving nature of relationships. The complexity at hand also warrants mobilisation of interdisciplinary teams and approaches in order to avoid the overly reductionist methodologies, which have sometimes thwarted development ambitions in the past.

It seems particularly relevant to insist on facilitating direct exchange between researchers, planners and decision-makers, taking advantage also of the range of modern and relatively cheap communication. The emerging communication space enables different

players to contribute their experience and knowledge and digesting those facts and analyses needed for decision-making at different levels. Creating interfaces, which cater for differentiated information needs enables maximum participation.

While facilitation is helpful for promoting such wider exchange and confrontation of experience, its form should invite some scrutiny in relation to the value it adds. Additional layers of intermediaries, which do not themselves contribute to knowledge creation or 'packaging' for better local appropriation, have not been the most cost-effective pathway from knowledge to practice.

The relationship between ideas and practice is not simply linear. The perceptions of participants in the process alluded to above are fundamental and must be respected, if local appropriation is to take place, thus enabling development.

The lessons learnt thus strongly suggest that

- Direct interaction and collaboration between research teams with backgrounds in different socio-economic development stages and between researchers and various types of decision-makers respond best to the demands for sustainable and locally appropriated development;
- The diversity of the challenges in relation to socio-economic conditions and eco-zones and their perception by people from industrialised and developing and emerging economies themselves defies highly standardised top-down analysis;
- Conversely, a bottom-up approach extracting generalisations from the great variety of regional/local situations and associated knowledge, based on recognition and participation of decentralised players, may contribute significantly to effective development.

Within the possibilities of the existing INCO programme, the European Community is contributing to direct collaboration of DC and European researchers on a range of themes. This programme is complementary to European Member States' own bilateral programmes. Moreover, the EC uses the investment in S&T relations in mutually reinforcing ways with a range of other development instruments to promote long-term relations, environment conservation and sustainable use of natural renewable resources, development and equitable socio-economic growth.

Far from being a one-way street, all partners can learn, create and share knowledge and build up the social capital so important in an ever smaller world. While the specificity of development, climate and institutional conditions justify specific programmes for scientific cooperation for development (Sachs, 1999), the basic principles apply to all research, particularly research into complex systems.

At a broader political level, such **dialogue processes** have been established meanwhile in bi-regional configurations between Europe and Latin America and the Caribbean (REALC/ALCUE), Asia (ASEM) Mediterranean (MOCO) and are in preparation in the

follow-up to the 2000 Cairo Summit with Africa. This is in recognition of the fact that enabling policies by all partners have a great potential to promote use of available research and to stimulate new types of research cooperation commensurate with the global, regional and local challenges and opportunities.

In the current dialogue between Europe and its partners in other continents as well as in the discussions within Europe and the OECD on how to lift scientific cooperation onto a higher level, it is important to find the right balance between the needs at different time horizons and not become trapped in excessive emphasis on technological fixes.

Indeed, the complexity of natural and social systems, their global interdependence and the constraints posed by traditional disciplinary approaches have led to early work towards the formulation of a new sustainability science, particularly among scientists working on climate change and its impacts. The point is made for strong interdisciplinarity as design of (climate) protection/mitigation strategies involves both work at the level of the ecosystem or the global physical system as well as of discount rates expressing time preferences of economic actors (Schellnhuber and Jaeger, pers.comm.).

Six major goals are proposed for sustainability science:

- (1) establishment of intragenerational and intergenerational equity;
- (2) preservation of humankind's natural and cultural heritage;
- (3) reduction of regional and local vulnerability to Global Change;
- (4) creation of efficient and effective institutions for global governance;
- (5) organisation of participatory procedures of decision making at all scales and levels;
and
- (6) maintenance or even enhancement of the evolutionary potential of life on Earth.

Outlook from a European perspective

The European Commission is attempting to harness a more intense S&T cooperation between different relevant actors (from academia to industry) within and between countries in Europe. Building bridges across disciplinary, sectoral and institutional borders towards a wider and deeper knowledge, learning and innovation system is one of the central concerns of the European Research Area (ERA), the new European policy for science and technology launched in 2000.

With the generalised recognition of science and learning as increasingly international endeavours and of their importance for global socio-economic development, emphasis is being put on the openness of ERA to the world and the need to lift the experience gained under previous INCO programmes onto a higher qualitative level. The European institutions (Council, Parliament, Commission) and partners active in the different dialogue fora are at present discussing the approaches, shape, content and modalities to make this happen.

Greater emphasis on **capacity building** in least developed countries, particularly through greater cross-policy coherence and greater synergies between different policies and their instruments is likely to emerge from these discussions. This requires investments into human and institutional capital and related commitments for the long-term.

Greater emphasis may also be expected on building bridges between knowledge and action. The preparatory process leading up to the Johannesburg Summit in September 2002 underscores that it is now time to **deliver** on existing insights and operationalise sustainability concepts and approaches particularly at local, national and regional levels. The crunch issues are related to long-term food security, sustainable food production, which does not undermine natural capital endowment of countries and regions, healthy societies, and equitable socio-economic development. Scientific, technological and non-scientific knowledge, contextualised in ecological zones and culturally embedded, will be critical for the ability to deliver. Long-term partnerships and cooperation will have to play an important role to meet this tall order.