

## SUMMARY OF WORKING GROUP DISCUSSIONS

The deliberations in Seoul were very rich and fruitful, and the participants demonstrated their support for the overall framework presented in this report. Most of the recommendations made here were endorsed by the experts in attendance, who elaborated on them and also made additional recommendations.

### CONTEXT, MECHANISMS AND STRATEGIES

His Excellency Chief Arthur C.I. Mbanefo set the tone for the discussions in saying that he was confident that the outcome of the Forum would constitute a valuable input to the preparatory process of the South Summit to be held in April 2000 in Havana. He confirmed that the Group of 77 attaches great significance to the critical contribution of science and technology to the development of the South, which is faced with new and formidable challenges to shape their destinies in a balanced partnership with the rest of the international community.

The Group of 77 decided that the first G-77 Summit in April 2000 would focus on the issues of knowledge and technology and South-South co-operation, and would aim to launch new initiatives in the field of South-South co-operation in science and technology<sup>1</sup>. He saw the South Summit as an opportune time for formulating a new platform and defining the common interests of the South around the key development challenges and issues. He believed that efforts by the developing countries towards achieving sustainable development can only be effective with simultaneous effort towards promotion of science and technology.

He concluded that during the last decade, the process of globalisation has created increased benefits from science and technology advancement, but the South remained marginalised in this process. Science and technology for development should remain one of the priority issues on the agenda of the United Nations, and the UNDP, particularly its TCDC Unit, should play a central role in the promotion of co-operation in science and technology.

The participants agreed that the Forum should:

- Many of the participants noted that the globe cannot support billions more people who would all adopt Northern consumption patterns, as the environmental space available does not allow for such levels of consumption. We must remember that the capacity to create innovative solutions exists in the poor, and what is needed is the enabling conditions and technological support to help them to carry out those solutions.
- Key obstacles to South-South co-operation in science and technology are: lack of financial resources; lack of focus; lack of political will; and lack of vision.
- The vision for the G77 should be to promote the participation of all peoples and countries.

### **Priorities:**

Minister Ng'wandu said that the key priorities for African countries are water, food and health. The environment was also noted as an area of urgent social concern to the South. Professor Tom Odhiambo noted that these major needs may provide good starting points for S&T priorities.

Dr. Lydia Makhubu said that education must be given priority, and illiteracy is unacceptable. Cooperation in education and training opportunities is thus clearly important. The group agreed that human resource development should be a key focus for development.

There were several concerns related to the "brain drain" from developing countries. The participants agreed that the first priority is the development of an enabling environment for the better use of the knowledge resources which exist in the South. Professor Odhiambo stated that enabling conditions require political will, and that the most damaging view is that one is too poor to be able to achieve anything.

Development, both social and economic, is the goal, and science and technology are the tools for achieving that goal.

### **Strategies:**

Ultimately national efforts must form the first basis for cooperation with others, since cooperation requires two or more willing and *able* partners. Each government must have a clear commitment to science and technology. It is essential to begin in a modest way in order to initiate a gradual build-up of South-South cooperative efforts and undertakings in the field of S&T.

Dr. Carlota Perez said that the developing countries need to pay attention to becoming internationally competitive in certain sectors and participating in frontier technologies, while dealing at the other extreme with poverty and the need to guarantee a decent standard of living for the poor. She also noted that all countries have their own regions of LLDC.

A four dimensional model to technology applications was presented by both Dr. Perez and Mr. Ashok Parthasarathi, with minor variations between their models. The four key dimensions are: frontier, internationally competitive, export oriented technology packages; S&T as a knowledge pool; enabling technologies, engineering, development, very specific requirements for specific needs; and technologies for communities and basic needs and for quality of life.

Science and technology inputs must be demand driven. The older emphasis on increased supply of science must be modified to one that is more need-driven. Other complementary inputs and activities, such as the Development part of R&D as well as engineering applications, must also be given adequate emphasis.

The participants agreed that concrete programmes with clear, shareable benefits to the countries of the South should be given priority and mechanisms for co-operation in these areas should then be developed. Priority areas should include those with clear importance as “niche” areas, like natural product development, or areas of strategic importance for development such as information and communication technology. Other possible priority areas include: agriculture and food; solar and other renewable energies; and malaria and other tropical diseases.

Co-operation activities should focus on human resource development through training and education. This should begin by improving the regional institutions already in place.

Of special importance is the raising of funds needed for implementation. Such monies should come primarily from governments of the South, but other sources, including multilateral ones as well as the private sector should also be tapped. The old model of government-driven programs looking for international donor funds should be replaced.

The need for a continuation of the dialogue and involvement of people and institutions of the kind that is taking place in Seoul was highlighted. Such discussion should become a regular practice, which should be built on and developed in the period to come.

Appropriate multilateral models need to be developed for cooperation among the countries of the South. The larger and more advanced countries, such as the Republic

of Korea, should help the least developed by taking the initiative in launching co-operative programmes and contributing funding.

Emphasis must be placed on wider diffusion of experiences. In most countries of the South, there are many examples of creative solutions which are not being used widely enough within the country to have the desired impact. Carlota Perez cited an example of work in Venezuela where 400 different types of pastures were investigated. The project selected types and management practices which are increasing output by 28 times, reducing a number of negative impacts. However, even within the country this work remains isolated and not widely diffused and adapted, let alone wider transfer to other countries.

Mechanisms for monitoring and evaluating the follow-up action and work are essential if the process of implementation is to be energized. Otherwise, the danger is that recommendations will remain on paper, as has been the case in the past. Cooperative programs on S&T need to be better monitored and managed, and the results must be fed back to policymakers, beneficiaries and other stakeholders.

### **Recommendations:**

A generally agreed idea is to promote South Centres of Excellence for training and research. Steps should be taken to secure adequate funds to maintain and improve existing Centers of Excellence in developing countries.

Priority areas should be identified where the introduction of technology can have an impact on national and global industrial and trade competitiveness.

Special attention should be devoted to raising funds, and for channeling these to activities which have a catalytic and multiplier effect. Venture funds might be established in appropriate cases where there are market opportunities. Countries should promote and develop the Venture Capital mechanism to set up a system to commercialize innovation.

UNDP should spearhead efforts to generate seed funding for South-South cooperation in science and technology through committing a reasonable proportion of the allocation for UNDP country programs for South-South co-operation and assisting in approaching bilateral donors, the private sector, foundations and other organizations to make specific contributions for specific purposes and activities in priority areas.

An overview should be prepared of what is being done by the UN family of organizations in support of S&T in the South, in order to derive policy conclusions and recommendations for the Group of 77.

The Group of 77 should organize and hold a periodic conference on S&T.

Issues of TRIPS and intellectual property rights should be paid special attention.

Forum participants were encouraged to do their homework, lobby their S&T leaders, Finance officials, and heads of governments/states in preparation for the Havana Summit, so that they would be prepared to declare their commitments to South-South cooperation.

## **RESEARCH & DEVELOPMENT**

Among the criteria to be taken into account when choosing areas of research for co-operation, the following were mentioned: number of countries affected or concerned; improved quality of life as an objective; feasibility in terms of resources available and institutional support; shared interest among countries of the South.

On many problems which are of interest to the countries of the South, especially those that have to do with the specific character of tropical and sub-tropical regions, no basic research is being done in the North. Such research, which is a prerequisite for applied research and development, needs to be done in the South, and should be pursued by pooling the resources available.

Creating a "virtual community" of South scientists, including those living in the North, is an important and feasible way of giving rise to interaction, cooperation and information flow. This is of special importance in view of many parallel efforts and activities taking place, and which could benefit from mutual exchange and cooperation. UNDP's efforts to build up WIDE were noted, as a way of enabling the scientists and institutions from the South to inform others about their work, and to find out about the work of others.

## **TRAINING AND EDUCATION**

Education is a lifelong endeavor. Education means acquiring the capacity to participate meaningfully in society. Thinking and doing must be integrated in the individual.

Existing training centers, education networks, information resource centers and similar entities should be strengthened and transformed into regional centers. If necessary, more such centres should be established.

Through national actions, countries of the South must create the enabling environment and build the critical minimum of literacy.

Existing models of S&T cooperation in the area of education and training can be referred to, such as the ASEAN University Network and ASEAN S&T HRD Programme. The financing mechanisms of such programmes should be studied.

A minimum target of 5000 fellowships/scholarships should be made for South-South co-operation and supported by the G77.

## **BIO-RESOURCES AND BIOTECHNOLOGIES**

Protection of its rich biodiversity is very important for all of the South, since it can provide common benefits and is an area of common threats. Cooperation in this area is thus important. The South needs to develop its own capacities in biotechnology without its resources being pirated by the North. There is a strong need for bio-piracy legislation in the South.

There is a high priority for research which clarifies the implications of different developments in biotechnology and GMOs. Some developments will represent threats to the South and others will represent opportunities.

ICTs are often touted as the key area of technological importance for the South, but biotechnology is just as crucial to the very survival of the South as ICT.

## **HEALTH**

Little work is being done on malaria vaccines in the North, which presents a real opportunity for companies and research institutions in developing countries.

The South must take ownership of this problem rather than going back to the international agencies. For example, Thailand has started a self-funded R&D program on tropical diseases. At the same time, the development of vaccines is a very complex problem, and even the most advanced laboratories in the world have difficulty finding solutions. The South should be *driving* the process, but not going it alone; this has not been happening in the past.

The required solution must be both effective and cheap – *if the solution is not cheap then it cannot be applied* – which complicates matters substantially.

There is a need for government-guided private sector involvement that recognizes the ability of the private sector to bring in investment and get value out of what they do. Government should be the facilitator, invoking the private sector to pick up on key areas.

## ICTs

ICTs have potential application in governance, health, education and food security.

ICTs should be analyzed and understood to see how different countries have shared local problems and applications.

In many countries, there is little access to computers.

### Recommendations:

- Setting up a technology innovation strategy with a strong component on ICTs.
- South-South cooperation on the changing legal framework to accommodate IT development and entrepreneurs activities. Countries should share how to make enabling regulations (eg. Telecom regulatory authority).
- Co-operation in IT education: Create a program of education and training at all levels to develop hardware and cheap technologies relevant to South-South needs. We need to identify countries with strong capacities in ICTs that could provide other countries with training in hardware and software. Exchange of students and faculty in these areas should be promoted. An IT Resource Center should be established with the purpose of training at advanced levels and sharing experiences of Southern countries in improving governance, health and education, along with social legal framework.
- South-South partnership in developing and maintaining ITC to rural area where ISP's may not find it profitable to do this.
- Support technologies that promote cheap connectivity and bandwidth management
- Sharing of experiences in ITC implementation and distance learning
- Allocate concrete budget support to ICT development.
- Use of ICTs to promote South-South co-operation: Creation of joint web sites; Facilitate connectivity and linking.

## POLICIES FOR S&T / S&T FOR POLICY

The participants reinforced the Vienna recommendations for each country to: have/update a S&T policy; establish a S&T management system; and provide the adequate funding.

An intelligent summary of each South country's S&T policy should be put in a shared knowledge base for the perusal of other South countries. A link should be included to the officer in each country able to provide more information, and possibly requested technical cooperation. The site should desirably include a description of the process

used to establish/update the S&T policy, and, if available, the results of monitoring its implementation and evaluating its impacts.

South countries' S&T policies should have an openness to South-South cooperation. S&T policy should not be limited to national borders, but should include policies regarding common needs of the countries of the South.

The participants recommended that a minimum level of 1% of each country's GDP be devoted to S&T. A number of national mechanisms for funding S&T activities were discussed, including: a portion of the income from privatisations; mandatory contributions from companies requesting authorization to operate in industries such as telecommunications; and tax incentives for company expenses in R&D.

Best practices on policy, innovation and action should be shared more regularly and included in technology agreements between South and North countries.

## **IPR ISSUES**

Many governments and agencies in developing countries are beginning to take intellectual properties seriously, i.e. protecting the IPR from their research results. The group does not see this trend necessarily as conflicting with sharing of knowledge among developing countries.

Greater study of various implications of TRIPS and intellectual property rights needs to be paid special attention by the countries of the South.

It was noted that within the North there was no single position on a number of issues such as patents on lifeforms, plants, and in other emerging areas. It is important for the South to examine these different options more carefully and promote and adopt those that are most favorable for innovation and equity.