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Geneva, 24–26 January 2005

**REPORT OF THE EXPERT MEETING ON THE IMPACT OF FDI ON
DEVELOPMENT**

Held at the Palais des Nations, Geneva,
from 24 to 26 January 2005

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Chapter I

CHAIRPERSON'S SUMMARY

1. In accordance with its agenda, the Expert Meeting on the Impact of FDI on Development discussed the globalization of research and development (R&D) by transnational corporations (TNCs) and its implications for developing countries. The topic reflected a growing recognition in developing countries of the role played by innovation and R&D in development. Innovation and R&D are essential for upgrading technologies, moving up the development ladder, and catching up with developed countries. In technology generation, transfer and diffusion, developing countries are involving TNCs that are major players in global R&D.

2. In his opening address, the Chairperson of the Expert Meeting stressed the timeliness of linking the topics of R&D and TNCs. He noted not only that selected developing countries now receive more FDI in R&D but also that the nature of this FDI is changing in that it is no longer intended only for local market adaptation. The critical question is whether this phenomenon will spread in the future to a larger number of countries and, if so, under what conditions. (None of this is to deny that there are other key actors in many countries engaged in R&D, namely the public sector and the local private sector). The related practical question is what countries can do to harness the activities of TNCs to their own development objectives. Related to that point, he asked if R&D is a luxury only to be enjoyed by relatively rich societies, and suggested that its relevance to developing countries in general depends on their aspirations and policies.

3. Experts discussed the definitions of critical terms in the subject matter. Some stressed the importance of broadening the discussion from R&D to knowledge creation and innovation. Other experts highlighted the importance of looking at cases of R&D in service industries, not just in manufacturing, given that the bulk of world GDP these days is produced by service industries, and R&D is itself a service activity.

4. Several experts stressed that TNCs are only one player in national innovation systems alongside universities, research centres, domestic firms and other government institutions. TNCs do not generally conduct basic research, and perhaps it is not even desirable to push them into that area. In the interaction of TNCs with other players, the main question is how developing countries can get more actively involved in the process of global knowledge generation and diffusion by leveraging the activities of TNCs in a way that complements domestic efforts.

5. R&D and innovative activities have generally been confined to the home countries of TNCs much more than manufacturing activities have been. The standard explanation refers to the complexity of R&D activities and the need for geographical proximity. Still, in recent years R&D activities have become more internationally mobile, and developing countries are starting to become nodes in global innovation networks. In fact, examples of highly complex R&D-related work – such as chip design – were highlighted by some experts to indicate that

complexity may no longer constitute a barrier to the internationalization of innovation. It was also noted that the markets for knowledge workers and technology are becoming increasingly international as well.

6. Some experts stressed the importance of distinguishing between different phases in the internationalization of R&D. Until the 1960s, R&D tended to be very “sticky” and stayed in home countries. Starting in the 1960s, the *first* wave of R&D internationalization involved mainly asset-exploiting R&D aimed at adaptation of products for local markets. The *second* wave began in the 1970s, and was primarily directed towards adapting specific new products to particular local markets. In the *third* wave – starting in the 1980s – R&D internationalization was driven by the need for firms to find complementary expertise abroad, notably in other developed countries. This trend was intensified from the 1990s onwards, and in the *fourth* wave there was increasing demand for scientific expertise of a scale and scope that could not be easily met without expanding internationally. In this phase, “asset-augmenting” R&D has also grown in importance.

7. While most R&D activities remain in developed countries, experts concluded that developing countries are becoming more important as both host and home countries of FDI in R&D. In recent years, China and India have become the leaders of the developing world in FDI in R&D, partly because of their large and fast-growing markets and their large supply of low-cost engineers and scientists. While noting that important examples of R&D by foreign affiliates could be identified in all parts of the developing world, the experts indicated that these two countries have been particularly successful in attracting “asset-augmenting” R&D conducted with a view to developing processes and products for global markets.

8. Experts noted that, in Latin America and the Caribbean, R&D activities of TNCs are relatively limited, especially when compared to Asia. One of the reasons for this is that in most Latin American and Caribbean countries, FDI policies focus on attracting large quantities of FDI and do not pay much attention to the nature of FDI. R&D-related FDI in the region is of an adaptive type, with some degree of new product development for local or regional conditions. More recently, however, some countries such as Brazil have begun to attract increasing FDI in R&D oriented towards global applications (for instance in the case of R&D in automobile components).

9. Experts also observed that Africa attracts low levels of FDI in general and negligible R&D-related activities. The few R&D activities to be found are restricted to the application of existing knowledge rather than the development and application of new ideas. This was attributed to three main reasons: first, the mismatch between science and FDI policies (in many African countries, science, technology and innovation have not been mainstreamed in development strategies); second, a lack of linkages between investment promotion policies and research policies – indeed most FDI policies focus on financial capital rather than knowledge accumulation and human capital (investment promotion agencies (IPAs), for instance, focus more on turnkey projects); and third, the lack of a culture of public-private partnerships. The need to develop proper technology and innovation policies was stressed. In

this respect NEPAD was urged to make efforts to improve infrastructure in Africa and enhance the development of science, technology and innovation policies in the region.

10. The issue of the size of host countries was mentioned by various experts as a factor in attracting R&D-related FDI. The situation of the least developed countries (LDCs) was singled out since they usually have a very small R&D base. It was indicated, however, that there are areas where R&D-related FDI could develop. In Nepal, for example, opportunities exist in the agricultural sector (tea gardening and herbal medicine). It was recognized that LDCs deserve special attention and assistance to help them face the problems they encounter in this area.

11. A number of drivers of the current internationalization of R&D were identified. One key driver is the increased competitive pressure created by liberalization and technological progress (not least in the area of information and communication technologies), which forces firms to spend more on R&D and speed up the innovation process, while seeking to reduce costs and find the necessary skills. For some developing countries, this has opened new avenues to link up with global innovation networks. Various supply and demand factors, along with policies, were identified as important explanations to why, and in what locations, the globalization of R&D takes place. They include the desire to supply large and fast-growing markets; physical proximity to global manufacturing bases; and the search for lower-cost overseas R&D personnel and for new ideas and innovative capabilities. Dramatic changes in design methodology and organization on the supply side have also contributed to a greater need to globalize R&D work. In India, the existence of reputed national research institutes and the management style of local companies, for example, were also mentioned as specific factors attracting FDI in R&D. The presence of Indian nationals in the R&D centres in developed countries could also influence the choices of TNCs in locating their overseas laboratories in India.

12. Experts noted that TNCs from developed countries are no longer the only source of R&D-related FDI. There is also growing FDI in R&D (from a low level) by developing-country TNCs, e.g. from the Republic of Korea, China and India. Overall, motivations for such FDI tend to be similar to those for R&D-related FDI from developed-country TNCs (for example to support local sales abroad, to be near global manufacturing bases, and to hire foreign experts). However, while in developing locations the main purpose appears to be to exploit existing knowledge, which is generally second-generation technology, in developed locations the main motivation is to enhance innovative capability by acquiring local knowledge and technology. Some experts concluded that cost advantages are of relatively low importance as a driver for developing-country TNCs' R&D investments abroad. Experts agreed that more research is required on R&D-related FDI from developing countries in order to develop a better understanding of this relatively recent phenomenon.

13. A number of positive and negative potential impacts on host economies were identified. Key direct positive impacts mentioned included the creation of well paid employment for scientists and engineers; better use of locally available materials; technology transfer (new equipment, laboratories, etc.); and the design of consumer products better suited to domestic

needs. Indirect positive effects include spillovers to local firms; the inculcation of an R&D culture in local firms; the development of new disciplines and specializations at local universities; the development of R&D clusters; and spin-offs of by-products that TNCs do not want to develop themselves.

14. As for negative impacts of FDI inflows in R&D, experts mentioned the risk of crowding out in the labour market, making it more difficult for local firms to attract talent; the risk of crowding out local research units; limited linkages between foreign affiliates and local firms and institutions; and the risk of domestic R&D activities being closed down as a result of foreign entry, notably through acquisition. The net impact on a host economy depends on the nature of the R&D undertaken and the specific circumstances of the host economy. It was noted that the development of domestic skills and innovation capabilities is essential not only to attract FDI in R&D but also to benefit from such investment.

15. The extent to which developing countries could benefit from knowledge diffusion and innovation also depends on the extent to which a TNC is embedded in the wider network of research operations, including domestic firms and the public sector. The mode of these interactions is also important, e.g. through non-equity or equity forms; with suppliers, customers, competitors and universities; through outsourcing and offshoring; and through the establishment of research consortia.

16. There was general agreement among experts that active policies by Governments could play a leading role in creating and facilitating the right conditions to attract and benefit from FDI in R&D. Key instruments mentioned by experts related to science, innovation and technology policies, as well as FDI policy. Many experts emphasized that, in light of the shift towards more knowledge-based activities and increased internationalization of innovation activities, policy-making aimed at attracting and benefiting from FDI in R&D needs to treat the two policy areas in a holistic and coherent way. Several experts noted that in many countries there is a lack of coherence between FDI policies and science and technology policies.

17. Among general policy instruments, some experts mentioned FDI liberalization and the strengthening of the national science and technology base, including research institutions. Specific policy instruments that can be considered include incentives, performance requirements, investment targeting, and the provision of public goods (notably low-cost and high-quality infrastructure). One expert noted that, in some developing countries, high tariffs on imported R&D-related inputs hamper those countries' efforts to create or develop R&D capabilities. The importance of policies in the area of education and skills development and efforts to strengthen the national innovation system was stressed by various experts. There is also a need to secure an appropriate division of responsibility between central and local governments.

18. In this context, special attention was paid to the role of IPAs. In many developing countries, IPAs do not pay adequate attention to the potential for attracting FDI that could contribute to knowledge accumulation but focus rather on capital accumulation in tangible

assets. It was argued that an IPA needs to be well embedded in the overall system of national innovation and that promotion activities should be aligned with a country's overall development and innovation strategy. In the case of the Czech Republic, for example, the IPA has a mandate to promote R&D in both foreign and domestic companies; to attract FDI, as well as advocate improvements in the country's technological infrastructure; to work with both existing and new investors to encourage new R&D-related investment; and to promote closer linkages between R&D conducted by foreign affiliates, on the one hand, and that conducted by domestic firms and universities, on the other.

19. An important function of policies is to promote closer integration between TNCs and other R&D players, including domestic firms, universities, and other agencies, in order for host countries to capture more of the benefits of knowledge creation and diffusion. Without good linkages between all these actors, knowledge will not be diffused and innovation promoted. Some experts were of the opinion that developing countries in general could benefit from the globalization of R&D but could not use it directly to upgrade the competitiveness of their science and technology capabilities. To do that, they have to complement FDI in R&D with efforts by local public institutions and the private sector. This point was raised, for instance, in the case of China and some African countries. A number of experts emphasized the importance of building a balanced partnership between the public and private sectors.

20. Small developing countries may find it more difficult to successfully engineer strategies to attract FDI in R&D, as they have weak bargaining power and small markets. In this context, a key policy challenge is to set priorities and focus on niches where they could have a comparative or competitive advantage. The development of local capabilities and skills is also essential for such countries to take advantage of opportunities that may be created by the increased mobility of knowledge. Developing such skills and capabilities (particularly in engineering) and building a national strategy to take advantage of opportunities is a long-term process that could take 20 or 30 years, but the rewards of success could be high. Some experts pointed out that it has been done before, showing that small size is not an absolute constraint. Even small developing countries can find a niche for themselves and target specialized R&D activities to match their strengths. A number of experts stressed the need for the prioritization of government goals in related areas. Some argued that regional cooperation may offer opportunities for smaller countries to make themselves more attractive. Others suggested that the building of cooperation and partnership with other countries could go beyond the borders of given regions. International cooperation and the sharing of experience with other countries could also help smaller economies to develop their ability to design and implement appropriate policies.

21. Experts discussed the role of performance requirements in maximizing the benefits of R&D-related FDI in developing countries. While there was no consensus on the usefulness of performance requirements, several experts noted the importance of distinguishing between mandatory and voluntary performance requirements. The use of mandatory requirements related to R&D and technology transfer is not prohibited by the WTO Agreement on Trade-related Investment Measures, but has become increasingly restricted in various bilateral trade

and investment agreements. However, when linked to the provision of incentives (or other advantages), such requirements are still generally permitted. One expert mentioned the importance of offsetting agreements to encourage R&D-related FDI in large infrastructure industries.

22. Experts also discussed the role of incentives in attracting R&D-related FDI. Some found them useful in attracting investment in R&D in a host country by pioneer firms, who would later be followed by their competitors. Others questioned the usefulness of R&D incentives, arguing that TNCs tend to base their investment decisions in this area more on other factors, such as access to skills. The point was made that countries need to weigh carefully the costs and benefits involved. In this context, some experts noted that benefits to the company receiving an incentive should be assessed against the benefits accruing to the host economy, notably through spillover effects. The R&D work of foreign affiliates has been found in some countries to catalyse domestic R&D activities, help universities to identify new areas where skills development is needed, and attract more interest in technological fields from prospective students.

23. The issue of intellectual property rights (IPRs) was raised by various experts. It was noted that high levels of intellectual property protection are often sought by TNCs locating R&D in developing countries, but that the empirical evidence on the impact of IPRs on FDI in R&D is mixed. Referring to the discussion and work undertaken at the WTO in the context of the TRIPS Agreement, one expert recalled that the protection and enforcement of IPRs should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, as stated in Article 7 of the Agreement.

24. One expert noted that there is a general lack of awareness in developing countries that intellectual property represents assets that can be registered and used to generate income, and that the utilization of intellectual property as assets is important for development in an increasingly knowledge-intensive economy.

25. Some experts argued that developing countries should develop better intellectual property strategies covering the creation, ownership and commercial leveraging of locally developed research. This would involve, among other things, helping individual researchers and scientists to better understand the importance and value of intellectual property, as well as creating the appropriate incentive structures for them to protect new innovations. It was argued that, by becoming better at using their IPR regimes, developing countries would also become more interesting as partners to TNCs. One expert raised the issue of applying IPR concepts to indigenous knowledge.

26. The need to develop public research institutions in the early phases of development was stressed by some experts. Such initiatives could help to foster the development of skills and raise a country's absorptive capacity. It was noted, for example, that Cameroon has established a publicly funded institute for agricultural research around which the Government hopes to create public-private partnerships.

27. The role of home-country policies in encouraging TNCs to invest in R&D in developing countries and thus bringing benefits to these countries was also addressed. Some experts mentioned the potentially positive role of home countries in promoting FDI in R&D in developing countries, for instance by reducing the risks faced by TNCs when conducting R&D activities in foreign developing countries. The European Union, for example, has contributed to the innovation systems of developing countries by encouraging an exchange of scientists and closer interaction between universities in developing countries and EU member countries. On the other hand, an expert noted the concern of some developing countries that developed countries are not fully meeting their transfer of technology obligations in terms of providing incentives to their enterprises to transfer technology to LDCs, as stipulated in the TRIPS agreement (Article 66.2), although no specific example was given in the course of the discussion on this issue.

28. Some experts called for more bilateral cooperation between relevant institutions in developing and developed countries with a view to fostering policy formulation and stronger innovation systems in countries concerned. An example of mutually beneficial cooperation between developed home countries of TNCs and developing host countries exists between France and universities in China. This cooperation has resulted in the training of highly qualified researchers who could find employment both in local institutes and firms and in affiliates of French TNCs.

29. In light of the importance of innovation and R&D for economic development, and to build on the São Paulo Consensus highlighting the economic development dimension of corporate social responsibility, a suggestion was made to create a list of indicators to assess and measure the contributions of TNCs to transfer of technology to developing countries. Such a list would be a new contribution to the analysis of the globalization of R&D in the context of assessing what could now be called the “corporate developmental responsibility” of firms.

30. Some experts regretted that, among the Millennium Development Goals of the United Nations, there is no specific goal on science, technology and innovation. The need to explore the possibilities for the international community to support the strengthening of developing countries’ national innovation systems, including enhancing opportunities for developing countries to benefit from the internationalization of R&D activities by TNCs, was highlighted. Such support could include both technical and financial assistance.

Chapter II

ORGANIZATIONAL MATTERS

A. Convening of the Expert Meeting

31. The Expert Meeting on the Impact of FDI on Development was held at the Palais des Nations, Geneva, from 24 to 26 January 2005.

B. Election of officers

(Agenda item 1)

32. At its opening meeting, the Expert Meeting elected the following officers to serve on its bureau:

Chairperson:	Mr. Enrique Manalo (Philippines)
Vice-Chairperson-cum-Rapporteur:	Mr. Luciano Barillaro (Italy)

C. Adoption of the agenda

(Agenda item 2)

33. At the same meeting, the Expert Meeting adopted the provisional agenda circulated in document TD/B/COM.2 /EM.16/1. The agenda for the Meeting was thus as follows:

1. Election of officers
2. Adoption of the agenda
3. The impact of FDI on development
4. Adoption of the report of the Meeting.

D. Documentation

34. For its consideration of the substantive agenda item, the Expert Meeting had before it a note by the UNCTAD secretariat entitled "The impact of FDI on development: Globalization of R&D by transnational corporations and implications for developing countries" (TD/B/COM.2/EM.16/2).

E. Adoption of the report of the Meeting

(Agenda item 4)

35. At its closing meeting, the Expert Meeting authorized the Rapporteur to prepare the final report of the Meeting.

Annex

ATTENDANCE*

1. Experts from the following States members of UNCTAD attended the Meeting:

Afghanistan	Maldives
Albania	Mauritania
Angola	Morocco
Argentina	Nepal
Azerbaijan	Netherlands
Cameroon	Panama
Canada	Philippines
China	Poland
Democratic Republic of the Congo	Qatar
Egypt	Russian Federation
El Salvador	Rwanda
Ethiopia	Senegal
Finland	Slovakia
France	Spain
Germany	Sri Lanka
Honduras	Suriname
Hungary	Switzerland
Italy	Thailand
Japan	Trinidad and Tobago
Jordan	United States of America
Lebanon	Yemen
Madagascar	Zambia
Malaysia	Zimbabwe

2. The following intergovernmental organizations were represented at the Meeting:

Organization for Economic Co-operation and Development
South Center

3. The following specialized agencies were represented at the Meeting:

International Monetary Fund
International Telecommunication Union
United Nations Organization for Industrial Development
World Trade Organization

4. The following non-governmental organizations were represented at the Meeting:

* For the list of participants, see document TD/B/COM.2/EM.16/INF.1.

International Confederation of Free Trade Unions
World Confederation of Labour

5. The following panelists attended the Meeting:

Globalization of R&D: From the North

Mr. Dieter Ernst, East-West Center, United States
Mr. Armin Sorg, Siemens AG, Germany
Mr. Harpreet Khuran, Columbia University, United States

Globalization of R&D: From the South

Mr. Andrea Goldstein, OECD Development Centre
Ms. Myra Abdul Mutalib, Ingenuity Solutions Berhad, Malaysia
Mr. Max Von Zedwitz, Tsinghua University, China
Prof. Yan Zhong Zhang, Chinese Academy of Engineering, Beijing

Impact of R&D activities by TNCs on developing countries: Asia

Mr. Yuan Zhou, National Research Center for S&T for Development, China
Mr. Prasada Reddy, Lund University, Sweden

Impact of corporate R&D in developing countries: Latin American and Africa

Mr. Robert Grosse, Thunderbird, Garvin School of International Management, United States
Ms. Ionara Costa, UNU-INTECH, Netherlands
Mr. John Mugabe, NEPAD, South Africa

The role of national and international policies

Mr. Thomas Andersson, Jönköping University, Sweden
Mr. Marek Tiits, Institute of Baltic Studies, Estonia
Mr. Robert Hejzák, CzechInvest, Czech Republic
Ms. Olga Spasic, WIPO, Geneva
Ms. Jayashree Watal, WTO, Geneva
Ms. Daniela Zampini, ILO, Geneva