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** Annexes can be consulted in the files of the Secretariat.

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B. Right to enjoyment of scientific progress

537. Under the Federal Constitution, scientific, artistic, and technological creations form part of the Brazilian cultural assets and the State is responsible for promoting scientific development, research, and technological training (Federal Constitution, Arts. 216 and 218). Accordingly, basic scientific research should be a State priority, with a view to the people's welfare and scientific progress.

538. In the wake of the right to the enjoyment of scientific progress and its applications, in conformity with the International Covenant on Economic, Social, and Cultural Rights, the obligation to provide the means of access to culture, education, and science is equally incumbent on the federal Government, the states, the Federal District, and the municipalities. At the federal level, the Ministry of Science and Technology-MCT has a salient role in the conservation, development, and dissemination of science.

539. It is incumbent on the Brazilian State, through all its federative units, to respect the freedom that is essential to scientific research and creative work. Compliance with the Convention's provisions may be ensured through supervision of the private sector and the promotion of research.

540. The Federal Constitution does not assign to the Government the monopoly of technological research and creation. It establishes that the Government may support and encourage enterprises that make appropriate investments in this area. The domestic market must be encouraged so as to ensure the feasibility of the country's technological autonomy (Federal Constitution, Art. 219).

541. On the other hand, the Government can provide funding for research and incentives to researchers. At the federal level, the *National Council on Scientific and Technological Development* (CNPq) under the Ministry of Science and Technology, and the *Coordinating Office for the Improvement of Higher-Level Personnel* (CAPES) have invested on the training of thousands of researchers nationwide. As shown in Table 67 (Annexes), the number of scholarships granted to post-graduate students has risen. That governmental initiative has been crucial in raising the number of MSc's and PhD's trained at home and abroad (Annexes, Table 68).

542. Thanks to the State's funding of research, Brazil has increased its share of worldwide scientific production. Between 1981 and 2002, Brazil's share of scientific production has trebled, as shown in Table 65 (Annexes), which was sufficient to rank Brazil as 17th in the world (Annexes, Table 66). Moreover, in absolute figures, the number of articles published by Brazilians between 1997 and 2002 places Brazil in the 7th position in the world (Annexes, Table 67), which points to the fast growth of the national scientific output.

543. The Federal Constitution allows the states and the Federal District to allocate part of their budgetary receipts to a research institution. In this connection, mention should be made of the research-backing foundations in the major Brazilian states, which are public entities devoted to fomenting teaching and scientific and technological research.

544. In respect of the development and dissemination of science, as a follow-up to the initiatives mentioned in the first Brazilian Report to the Committee, the Ministry of Science and Technology set up a *Department for the Popularization and Dissemination of Science and Technology-DEPDI* in July 2003. DEPDI's objectives are to widen the access of a larger segment of the population to scientific and technological knowledge, to contribute to improved scientific training at all educational levels, and to encourage the use of science and technology in initiatives aimed at social inclusion and the reduction of inequalities. It is important that every Brazilian citizen have the right to acquire basic knowledge of science and of how it functions, to help him understand his environment, to increase his opportunities on the labor market, and to encourage him to engage in political action. Scientific and technological dissemination through instruments such as science centers and museums, public events, the media and university extension programs. contributes to society's general scientific and technological qualification. The priority areas adopted by DEPDI for the popularization of science and technology (2004-2006) include support for the establishment and maintenance of science centers and museums and traveling scientific exhibits. Also included are initiatives aimed at ensuring a more specific presentation of science and technology by the media, and particularly by newspapers, radio, and television. Another priority has been the improvement of science

teaching in schools through support to the production of didactic materials, science fairs, science Olympic competitions, and particularly the Public School Mathematics Olympics, in which 10.5 million students participated in 2005.

545. As regards the democratization of science, some initiatives deserve mentioning. One has to do with the establishment of *Technological Vocational Centers*, which are teaching and vocational training units aimed at widening the access to scientific and technological knowledge. These Centers provide technological training to the population and are thus basic vocational training units, which also provide specialized services, in conformity with the regional character of each center. This program has supported various units since its introduction in 2003. In the first three years, nearly R$58 million were spent to support the implementation of 150 *Technological Vocational Centers* in several states.

546. In addition, a 2004 presidential decree established the National Science and Technology seek as a mechanism of mobilization on behalf of science and technology, approximation between the population and research institutions, and dissemination of science, aimed particularly at school-age children and young people. In its first year, the October 18-24 week comprised 2,000 activities nationwide, involving every state and approximately 260 municipalities. In its second year, the number jumped to 6,700 activities held in 332 municipalities and involved the participation of 850 educational and research institutions.

547. Art. 218, paragraph 2 of the Federal Constitution establishes that technological research shall be aimed at solving Brazil's problems and at developing the national and regional productive systems. It was precisely with this intent that the Ministry of Science and Technology established a *Social Technology Network-RTS* in 2005, to disseminate and apply, on a large scale, technologies conducive to the sustainable development of the Semiarid and Legal Amazon regions and of the outlying areas of large cities and metropolitan areas. The RTS work involves the dissemination of technologies developed by institutions that form part of the network with funding from maintaining entities. As a collective organization for the democratization of technological solutions conducive to social inclusion, RTS invested R$14 million in 2005-2006 on job- and income-generating projects in needy municipalities. RTS consists of government representatives, universities, private sector entities, and about 300 civil society entities. For its first years, RTS adopted as its priority (1) the application of resources in undertakings such as waste recycling and crafts; (2) support of systems of production associated with water ollection (organic vegetable gardening, productive backyards, caprine livestock, etc.); (3) incentive to collective initiatives, such as cashew nut processing, native fruit production, meliponiculture; and (4) cultivation of medicinal plans, and agroextractivist processes (açaí , andiroba, and babassu palms, etc.).

548. Among these technologies, it is worth mentioning the one used in cashew nut miniplants in the Northeast, which allows a 50-percent increase in the production of whole nuts. On the average, work in these plants earn the producer families an additional monthly income of R$450. The energy projects based on renewable sources - biomass and solar and eolian sources - in the states of Alagoas, Pernambuco, Ceará, and Bahia

deserve emphasizing, as they have helped several communities to lift themselves up out of poverty and to increase their family income from less than one minimum salary to about three times the minimum salary.

549. Taking into account the across-the-board character of scientific progress, one can notice the Government's efforts aimed at technological progress.

550. The Ministry of Communications's *Governo Eletrônico Serviço de Atendimento ao Cidadão* (GESAC) [Electronic Government-Citizen Attention Service] provides permanent access to the Internet in areas where commercial service is not feasible or which lack the requisite infrastructure. The program was introduced in 2002 and currently serves 3,200 communities. It stresses the use of free software and provides technical support through the 0800 telephone number and social agents that assist the communities in preparing their projects, provide training to multiplier agents, and do preventive maintenance, among other tasks.

551. It is incumbent upon the Unified Health Service to foster scientific and technological development in its specific area (Federal Constitution, Art. 200, V). To ensure access to all technological advances, in 2003 the Ministry of Health established a *Science, Technology, and Strategic Inputs Secretariat*, whose main tasks are as follows: (1) to formulate, implement, and evaluate the *National Policy on Science and Technology* in the area of health; (2) to coordinate Ministry of Health initiatives with those of governmental and non-governmental organizations, with a view to ensuring scientific and technological progress in the area of health; (3) to formulate, implement, and evaluate the *National Policies on Pharmaceutical and Drugs Assistance*, including blood products, vaccines, immunological drugs, and other related inputs; (4) to devise methods and mechanisms for assessing the economic and sanitary feasibility of undertakings in the area of health; (5) to formulate, promote, carry out, and evaluate studies and projects; and (6) to participate in the formulation and implementation of initiatives aimed at regulating the market to improve the National Health Policy.

552. Among other measures adopted for widening the access to drugs and other inputs are: (1) establishment of the *Drug Market Regulatory Chamber* (CMED), which regulates the market and establishes price setting and adjustment criteria, in addition to the establishment of an ombudsman office to receive consumer complaints of undue price adjustments; (2) a draft bill submitted to the National Congress on the establishment of a blood products plant, to make the country self-sufficient in this respect; (3) establishment of the *Brazilian Contraceptive Plant* in Xapuri, AC to supply the STD/AIDS Program; (4) participation in the *Negotiating Group on Antiretroviral Drugs-GIP* and in patenting discussions; (5) incentive to the modernization of official Brazilian laboratories, to the expansion of their productive capacity, and to the rationalization of public production; (6) coordination of the *Access, Government Procurement, and Social Inclusion Group at the Forum on Competitiveness in the Pharmaceutical Productive Chain*; and (7) establishment of *PROFARMA*, a special credit line for medicine production, incentive to research and to the reorganization, acquisition, and merge of enterprises so as to reduce

the commercial deficit of the productive chain and increase the production and quality of medicinal drugs.

553. In addition to the credit line extended to private sector enterprises, the *Oswaldo Cruz* Foundation (FIOCRUZ) has rendered a major contribution to research, information, and communication in the areas of health, and product quality control, as well as to the manufacturing of vaccines, drugs, reagents, and diagnostics kits.[59] Worth mentioning is FIOCRUZ`s Far-Manguinhos Laboratory, a reference in drug research, technology, and production in the country,[60] which produces the main antiretroviral drugs, drugs against hypertension and diabetes, antiparasitic drugs, antibiotics, and other products essential to the Unified Health System. Its target is the production of 10 billion pharmaceutical units by 2008. Drugs production is accompanied by an investment of R$182 million to expand the production capacity of all official laboratories.

554. The Federal Constitution requires that the Brazilian agricultural policy include incentives to research and technology (Art. 187, III CF). The *Brazilian Agricultural and Livestock Research Enterprise-EMBRAPA*, under the Ministry of Agriculture, Livestock, and Supply-MAPA, carries out research nationwide, adapting crops to the different biomes. Since its establishment in 1973, grain output (rice, beans, maize, wheat, coffee, etc.) has quadrupled. This resulted in higher production and productivity in bovine, swine, caprine, ovine, and poultry livestock. The supply of milk, hides, meat products, cheeses and eggs followed the same pattern, as did the supply of vegetables, fruit, flowers, fibers, and forest essences. EMBRAPA has proven that investment on research fields benefits to society, by making possible the production of a greater variety of less expensive, higher-quality foodstuffs and fibers.[61]

555. Moreover, to ensure the effective realization of the right to an ecologically balanced environment, the Federal Constitution lays on the Government the responsibility for preserving the country’s genetic assets and supervising genetic material research and handling (Art. 225, paragraph 1, II). The Biosecurity Law (Law 11.105/2005) sets up an important normative framework in connection with genetic assets: it establishes security norms and mechanisms for the supervision of activities that involve genetically modified organisms (GMOs) and their byproducts; (2) it establishes the National Biosecurity Council and revamps the National Biosecurity Technical Commission; and (3) it provides for a National Biosecurity Policy.

556. As regards genetically modified organisms, it is incumbent on the *National Biosecurity Technical Commission-CNTBio* to supervise and approve research on and production of transgenics appropriate for human consumption. In compliance with the requirement of information in consumer relations, it is incumbent on the Ministry of Justice to verify product labeling. In addition to information on genetically modified organisms on the ingredients list, labels must have a standard Ministry of Justice logo (a “T” inside a yellow triangle).

557. In issuing its opinion on the release of genetically modified products and their byproducts for human or animal consumption, CTNBio evaluates their safeness so as to minimize any risks to consumers’ health. Studies are carried out by experts in various

areas, with special attention to food safety. By June 2006, only two genetically modified products had been studied and approved for human consumption: soybean resistant to glyphosate and BT cotton resistant to insects.

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[59] http://www.fiocruz.br/cgi/cgilua.exe/sys/start.htmsid=3, accessed on June 28, 2006.
[60] http://www.friocruz.br/historico.htm, accessed on June 28, 2006.
[61] ttp://www.embrapa.br/a_embrapa/unidades_centrais/acs/eventos/Embrapa33anos/ides_html/mostra_documento, accessed on June 28, 2006. Embrapa's main products and services include the following: (1) Brazil in Relief: this service provides accurate altimetry data of the entire territory, including previously inaccessible geographical accidents; (2) Agrotempo: Agrometeorological Monitoring provides users, via Internet, with weather and agrometeorological information on several municipalities and states. In addition to current climatic conditions, the system provides the National Agrometeorology, Ministry of Agriculture, Livestock, and Supply with basic information used in agricultural zoning; and (3) the *Prosa Rural* [Rural Chat] radio program broadcast to young people and family farmers in the Semiarid Region, in the Jequitinhonha Valley, and in the North and the Center-West, using plain, accessible language, about issues related to the development of agribusiness, with emphasis on Embrapa research.