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FINLAND



COUNTRY PROFILE



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INTRODUCTION - 2002 COUNTRY PROFILES SERIES

Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, underscored the important role that States play in the implementation of the Agenda at the national level. It recommended that States consider preparing national reports and communicating the information therein to the Commission on Sustainable Development (CSD) including, activities they undertake to implement Agenda 21, the obstacles and challenges they confront, and other environment and development issues they find relevant.

As a result, in 1993 governments began preparing national reports for submission to the CSD. After two years of following this practice, the CSD decided that a summarized version of national reports submitted thus far would be useful. Subsequently, the CSD Secretariat published the first Country Profiles series in 1997 on the occasion of the five-year review of the Earth Summit (Rio + 5). The series summarized, on a country-by-country basis, all the national reports submitted between 1994 and 1996. Each Profile covered the status of all Agenda 21 chapters.

The purpose of Country Profiles is to:

- Help countries monitor their own progress;
- Share experiences and information with others; and,
- Serve as institutional memory to track and record national actions undertaken to implement Agenda 21.

A second series of Country Profiles is being published on the occasion of the World Summit on Sustainable Development being held in Johannesburg from August 26 to September 4, 2002. Each profile covers all 40 chapters of Agenda 21, as well as those issues that have been separately addressed by the CSD since 1997, including trade, energy, transport, sustainable tourism and industry.

The 2002 Country Profiles series provides the most comprehensive overview to date of the status of implementation of Agenda 21 at the national level. Each Country Profile is based on information updated from that contained in the national reports submitted annually by governments.

Preparing national reports is often a challenging exercise. It can also be a productive and rewarding one in terms of taking stock of what has been achieved and by increasing communication, coordination and cooperation among a range of national agencies, institutions and groups. Hopefully, the information contained in this series of Country Profiles will serve as a useful tool for learning from the experience and knowledge gained by each country in its pursuit of sustainable development.

NOTE TO READERS

The 2002 Country Profiles Series provides information on the implementation of Agenda 21 on a country-by-country and chapter-by-chapter basis (with the exception of chapters 1 and 23, which are preambles). Since Rio 1992, the Commission on Sustainable Development has specifically addressed other topics not included as separate chapters in Agenda 21. These issues of trade, industry, energy, transport and sustainable tourism are, therefore, treated as distinct sections in the Country Profiles. In instances where several Agenda 21 chapters are closely related, for example, chapters 20 to 22 which cover environmentally sound management of hazardous, solid and radioactive wastes, and chapters 24 to 32 which refer to strengthening of major groups, the information appears under a single heading in the Country Profile Series. Lastly, chapters 16 and 34, which deal with environmentally sound management of biotechnology, and transfer of environmentally sound technology, cooperation, capacity-building respectively, are presented together under one heading in those Country Profiles where information is relatively scarce.

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LIST OF COMMONLY USED ACRONYMS

ACS	Association of Caribbean States
AMCEN	Africa Ministerial Conference on the Environment
AMU	Arab Maghreb Union
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CARICOM	The Caribbean Community and Common Market
CBD	Convention on Biological Diversity
CIS	Commonwealth of Independent States
CGIAR	Consultative Group on International Agricultural Research
CILSS	Permanent Inter-State Committee for Drought Control in the Sahel
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COMESA	Common Market for Eastern and Southern Africa
CSD	Commission on Sustainable Development of the United Nations
DESA	Department for Economic and Social Affairs
ECA	Economic Commission for Africa
ECCAS	Economic Community for Central African States
ECE	Economic Commission for Europe
ECLAC	Economic Commission for Latin America and the Caribbean
ECOWAS	Economic Community of West African States
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ESCAP	Economic and Social Commission for Asia and the Pacific
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FIDA	Foundation for International Development Assistance
GATT	General Agreement on Tariffs and Trade
GAW	Global Atmosphere Watch (WMO)
GEF	Global Environment Facility
GEMS	Global Environmental Monitoring System (UNEP)
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GLOBE	Global Legislators Organisation for a Balanced Environment
GOS	Global Observing System (WMO/WWW)
GRID	Global Resource Information Database
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IAEA	International Atomic Energy Agency
ICSC	International Civil Service Commission
ICSU	International Council of Scientific Unions
ICT	Information and Communication Technology
ICTSD	International Centre for Trade and Sustainable Development
IEEA	Integrated Environmental and Economic Accounting
IFAD	International Fund for Agricultural Development

IFCS	Intergovernmental Forum on Chemical Safety
IGADD	Intergovernmental Authority on Drought and Development
ILO	International Labour Organisation
IMF	International Monetary Fund
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCS	International Programme on Chemical Safety
IPM	Integrated Pest Management
IRPTC	International Register of Potentially Toxic Chemicals
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature and Natural Resources
LA21	Local Agenda 21
LDCs	Least Developed Countries
MARPOL	International Convention for the Prevention of Pollution from Ships
MEAs	Multilateral Environmental Agreements
NEAP	National Environmental Action Plan
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organizations
NSDS	National Sustainable Development Strategies
OAS	Organization of American States
OAU	Organization for African Unity
ODA	Official Development Assistance/Overseas Development Assistance
OECD	Organisation for Economic Co-operation and Development
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Papers
SACEP	South Asian Cooperative Environment Programme
SADC	Southern African Development Community
SARD	Sustainable Agriculture and Rural Development
SIDS	Small Island Developing States
SPREP	South Pacific Regional Environment Programme
UN	United Nations
UNAIDS	United Nations Programme on HIV/AIDS
UNCED	United Nations Conference on Environment and Development
UNCCD	United Nations Convention to Combat Desertification
UNCHS	United Nations Centre for Human Settlements (Habitat)
UNCLOS	United Nations Convention on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNDRO	Office of the United Nations Disaster Relief Coordinator
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UNFPA	United Nations Population Fund

UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNIFEM	United Nations Development Fund for Women
UNU	United Nations University
WFC	World Food Council
WHO	World Health Organization
WMO	World Meteorological Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization
WWF	World Wildlife Fund
WWW	World Weather Watch (WMO)

CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES

Decision-Making: The Ministry of Foreign Affairs, the Political Department, the Division of International Environmental Affairs and the Department for Development Co-operation as well as other departments and the Ministry of Environment and other substance Ministries are responsible for designing and implementing policies and programmes on sustainable development. The overall objective of the Ministry for Foreign Affairs is to promote universal goals such as poverty alleviation, democracy, respect for human rights and sustainable development with respect to the environment, natural resources and economy, through international co-operation. The Ministry also has a coordinating role in relation to other Ministries. In environmental related issues the Ministries of Environment, Agriculture and Forestry and Trade and Industry are important partners. It is a tradition in Finland that all administrative levels participate in the field of their respective excellence in the international relations. In relation to cooperation for sustainable development the following national legislation have been implemented: the Environmental Permit Procedures Act and- Decree, the Act on Environmental Impact Assessment Procedure and the Act and Decree on Waste. The relevant EC legislation is also implemented in Finland. The Finnish development co-operation is involved in institutional, human resource development and technology transfer through bilateral and regional agreements. In addition development funding is also secured through International organizations and Conventions promoting sustainable development on their respective areas. Regional integration and sustainable development are managed through the Finnish EU membership and to some extent through Nordic cooperation.

Programmes and Projects: Finland has been involved in the following bilateral programmes: Reconstruction after Hurricane Mitch; Reconstruction of Western Balkan; Support to Habitat Balkans Task Force; Reconstruction in Kosovo; Reconstruction of Western Balkans; Support to reconstruction in Kosovo; Developing alternatives to drug production in Peru. Of the bilateral cooperation programmes mentioned above the allocation of funds by areas covered was approximately: Natural resource protection 17 %; Poverty eradication 63%; Capacity building 51%; Policy formulation, planning, governance 12%. Finland has also been involved in major technical assistance programming. Some of these programmes are: Peoples Millennium Assembly in Mtwara and Lindi Districts in Tanzania which supports sustainable livelihoods, through strengthened rural institutions / Preparedness to climate variability and global change in small island developing states, Haiphong Water Supply in Vietnam for water and sanitation development / The production of tested approaches for Malawian Government in order to delegate the usage and Providing modern equipment for Quinhuangdao District in China for central heating / Management of the forest to rural communities and private sector / The strengthening of the capacities of national meteorological services in the Caribbean Region. As a member of the European Union, Finland has actively participated in creating and operationalizing EU's trading programmes and schemes. This also applies to EU's GSP-scheme (Council Regulation 2820/98), which includes an incentive system for developing countries to apply basic labor standards (ILO conventions) and environmental standards (ITTO convention) for reduced GSP-duties.

Status: The Department of International Development Co-operation of the Ministry of Foreign affairs has started under the leadership of the Minister of Development Co-operation an analysis of countries and organizations for the future prioritization of the future development co-operation. Poverty eradication is a central objective and priority in Finland's bilateral and multilateral policies. However, Finland believes that economic development alone does not suffice in the eradication of poverty. Development of democratic political systems that ensure equitable distribution of income and social security for all, good governance and promotion and protection of all human rights and fundamental freedoms are other central objectives in the Finnish foreign policy in general and in our development co-operation policy in particular. In addition Finland considers education, especially education of girls important.

Capacity-Building, Education, Training and Awareness-Raising: Dissemination of information on sustainable development is an integral part of information work of the Information Unit of the Department for International

Development Cooperation. The objective is to distribute public information on Finland's development policies in order to increase interest in and favourable attitudes towards development cooperation in Finland, thus enabling the public to participate in the debate. The funding for development cooperation comes from Finnish tax revenues, which is why transparency must be one of the cornerstones of all operations. Apart from the general public, the primary target groups are media, NGOs and companies participating in development cooperation and political and economic decision-makers. Teachers, students and schoolchildren are also important targets. The Internet is becoming an increasingly important channel for information on development cooperation. The home page is <http://global.finland.fi>. The Information Unit answers annually thousands of requests for information and material received via the Internet or by telephone. Training of young Finnish professionals for the international tasks in sustainable development, is being developed especially the possibilities to gain practical experience. The Department of International Development Cooperation promotes now-a-days "junior professional" posts in its development projects. Also the participation of young professionals to the Finnish delegations of International Environmental Convention negotiations is promoted.

Information: Information and data on development co-operation are made available by various means. The Department for International Development Co-operation publishes leaflets, books and brochures on Finnish development assistance that contain the data in question. Detailed statistical data are also provided in a book on Finnish development co-operation statistics published every other year. On the NGO sector the most prominent actor in Finland is KEPA - a network for about 300 Finnish NGO's promoting co-operation with developing country NGO's and International NGO's. <http://www.kepa.fi/kielet/english>. In addition the Internet is becoming an increasingly important channel for information on development cooperation. The home page is <http://global.finland.fi>. The Information Unit answers annually thousands of requests for information and material received via the Internet or by telephone. Dozens of student and pupil groups visit the department. Development cooperation is presented at various events for the public, including a number of fairs and seminars. The supply of statistical data on the Internet is to be further increased and improved.

Research and Technologies: Since 1995, the Academy of Finland received FIM 5 million annually from the development cooperation budget for development research for 1996-1998. The Ministry for Foreign Affairs has recently begun to coordinate research activities and has increasingly targeted the development research funds according to a sectoral research model by the Ministry. The Unit for Planning and Coordination at the Department has begun to commission studies on the following three themes in 1997: Culture, Environment and Human rights and democracy. In recent years Finland has paid increased attention to the environmental quality of technological development co-operation. Moreover renewable energy sources (like wind and solar systems) constitute an increased share of the technological development projects. Finland has also worked on making technological projects economically sound, like municipal central heating systems. Finally the environmental management capacity of recipients has also been enhanced. In bilateral development co-operation technological projects are monitored according to the guidelines for programme design, monitoring and evaluation of the Department of International Development Co-operation of Ministry of Foreign Affairs. The promotion of environmentally sound technologies is slow because Finland's bilateral projects and programmes are initiated on request by the recipient country. These countries tend to favour "old style" technologies because developing renewable energy or environmental management of technology is not at the top of their priority list.

The Ministry for Foreign Affairs participates in the Biodiversity and Global Programmes of the Academy of Finland and also funds development research via the Academy. Several research projects dealing with the questions of sustainable development and developing countries are included in these programmes and research teams consist of researchers from Finland and developing countries. Development research funded by the Ministry is mainly implemented by Finnish research institutions. These institutions have their own contacts and networks with the researchers in developing countries and also development research institutions in other countries. The research institutions find their development country partners without any help from the Ministry.

Financing: The proportion of GNP spent on ODA is 0.34% both in 2000 and 2001. The target is to reach 0.7% in the long term - the specific schedule when and how to reach the target is to be prepared. In 2001 roughly one third

is allocated to bilateral cooperation and one third to multilateral cooperation. About 10% of the total budget is allocated to NGO support and a similar proportion to humanitarian assistance. Implementation of the development policy is underway - country specific allocations as well as directions for the cooperation with the multilateral institutions for the near future are to be decided based on the outcome of the analysis.

Cooperation: From the beginning Finland has seen Global Environment Facility (GEF) as the main channel for contributing for institutional capacity building of various environmental conventions. Finland also supports UNEP and UNCHS with sizeable voluntary contributions for core-funding of these organizations. Finland actively promotes a coordinated and integrated implementation of the “UN global agenda” by incorporating the principles of Agenda 21 in most of the projects established by Finnish ODA. However, no special project promoting Agenda 21 at the sub-regional, regional and international levels has been taken. All that has been agreed at the different UN conferences is been taken into consideration in a coherent manner in governance processes as well as in practical work whether it be bilateral development aid or the UN system development aid. Our own national policies are of course taken into consideration as well.

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CHAPTER 2: INTERNATIONAL COOPERATION TO ACCELERATE SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES AND RELATED DOMESTIC POLICIES - TRADE

Decision-Making: As Finland is a member of The European Union many decisions concerning environmental aspects of international trade policies and trade aspects of international environmental policies are established at the EU level. In the EU, Finland has supported the objective of integrating the principles of sustainable development and environmental concerns into all relevant fields of policy-making, including trade policy. These objectives are also addressed also in the Treaty of Amsterdam and in the conclusions of the Cardiff European Council. Furthermore, Finland has participated in the Nordic trade and environment cooperation. In June 1998, the Council of State issued guidelines for the assessment of economic and environmental impacts of Government Bills. According to these guidelines each Ministry is responsible for the economic and environmental impact assessment of Government Bills under its competence. Furthermore Finland enhances integration of trade, investment, development, and environmental and other policies on an institutional basis through cross-sector consultation procedures. On the international level Finland has made a national environmental review of the Multilateral Agreement on Investment (MAI), which was being negotiated under the OECD. A summary of this basically judicial review, which identified existing and potential discrepancies between the Finnish environmental legislation and the draft text of the MAI, was presented to the MAI Negotiation Group in OECD in February 1998. The inter-linkages of different policy areas are discussed and addressed by various governmental committees and working groups established, for instance, to discuss, to co-ordinate and to prepare Finnish positions on these issues for international fora, i.e. for coordinating and preparing Finnish positions on issues concerning EU external trade policy and environmental policy. In a number of these bodies also the interested non-governmental parties are represented, or are consulted.

Programmes and Projects: No information available.

Status: In the WTO framework, Finland attaches great importance to further liberalization and rule making in all areas relevant to world trade as a vehicle for both national and global economic growth. Tackling remaining obstacles to trade and strengthening WTO rules in the fields of agriculture, services, non-agricultural tariffs, investment, competition, trade facilitation, and trade and environment can also contribute significantly to enhance global sustainable development. An important objective of government policy is to increase the export of energy technology. The objective is part of Finland's' general aim to diversify away from export of primary products towards more high-tech, high value added exports that help the development of sustainable production in a globalizing world.

Capacity Building, Education, Training and Awareness-Raising: Studies and reviews have been commissioned in order to assess and develop means for addressing the inter-linkages of trade, investments, environment and development. For instance, the Department for International Development Co-operation of the Ministry for Foreign Affairs has in 1998 commissioned an unpublished "International Trade and the Environment" -report on ways by which development co-operation could enhance the mutual supportiveness of trade and environment, as well as a study "Environmental Assessment in Public Promotion of Exports and Investments to Developing Countries". According to this study, there is still work to be done in the integration of environmental aspects into the public promotion of exports and investments. The Ministry of the Environment has published in 1999 a study on economic globalisation and the environment. Trade and environment issues have also been taken up in some other recent publications of the Ministry, including a study on greening the government procurement and a study on sustainable product and consumption policy. The integration of trade and environmental policies is discussed i.e. in an Advisory Expert Working Group, led by the Ministry for Foreign Affairs, where both governmental and non-governmental parties are represented. The group participates in the preparations of Finnish positions on issues included in the agendas of e.g. WTO, UNCTAD and the OECD. The working groups also serve as channels for distributing information and documentation. Transparency and consultation are enhanced also by seminars and by

the circulation of draft proposals and draft decisions to various authorities and non-governmental interest groups for their written comments or statement.

Information: In 1996 and in 1998 Finland submitted a national report to the OECD on the implementation of the four OECD Procedural Guidelines on Trade and Environment. Finland is currently reporting to OECD on the actions taken by the Finnish government by August 1999 to implement the 44 measures proposed by the OECD in its environmental performance review of Finland carried out in 1996-1997 (publication “OECD Environmental Performance Review: Finland's Progress Report” not yet available). Parts of this report also relate to trade and investment. Information related to trade, investment, environment and economic growth is made available to potential users via various media of which the Internet is one of the fastest. Information can be accessed on the following websites: The Ministry of Trade and Industry web-site, www.vn.fi/ktm/ / The Ministry for the Environment web-site, www.vyh.fi/ / The Ministry for Foreign Affairs web-site, www.virtual.finland.fi/ / Tekes, the National Technology Agency is the main financing organization for applied and industrial R&D in Finland and its web-site, www.tekes.fi/ / Finpro (The Finnish Foreign Trade Association) is Finland's foreign trade promotion organization and its website, www.finpro.fi/

Research and Technologies: No information available.

Financing: No information available.

Cooperation: Supported by the other Nordic countries, Finland made a proposal that led to considering trade and environment issues permanently by the UNCTAD Trade and Development Board. In the OECD framework, Finland is participating actively in the work of the Joint Working Party on Trade and Environment, and making efforts to pursue the objectives stated in the Procedural Guidelines on Trade and Environment adopted by the OECD Ministerial Council in 1993. Finland has also been participating in the negotiations of major environmental agreements, some of which contain also trade-related aspects. Finland's trade policy and legal measures are guided by their membership in the EU and the WTO. The GSP-system of the EU gives preference to the developing countries and to countries in transition. Furthermore Finland has a broad and constantly developing network of investment protection agreements which is aimed at promoting private sector partnerships. For example in Zambia is currently under planning a 40-million FIM programme where the main objective is enhancing private sector involvement in agricultural and rural development interventions, mainly in Luapula province.

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CHAPTER 3: COMBATING POVERTY

Decision-Making: The importance of labour administration has increased with the sharp rise in unemployment. In the past few years, decision-making power for labour has been delegated to the regional and particularly to the local levels, making it possible to take better into account the special features of the different regions and client groups. The State and Municipalities are jointly responsible for arranging the universal social and health services, backed up by the stipulations of the constitution and sectoral legislation. Sufficient social and health care services and income-security are ensured. The Social Welfare Act and the Statute on Social Welfare, both of which have been reviewed since UNCED, cover legislation related to the issue of poverty. The State and Municipalities are jointly responsible for arranging the universal social and health services. The municipal boards widely cooperate with specialized voluntary organizations. Differences in health between population groups are linked to the risk of social polarization. The starting point in the Finnish health policy is the WHO strategy “Health for All by the Year 2000”, accordingly paying special attention to services needed by risk groups. Measures and policies have been developed in order to eliminate poverty among the disabled and to provide them with equal opportunities. In 1995, a long-term plan of action on disability policy was drafted, based on the standard rules approved by the UN in 1993. The major group receiving public assistance is the unemployed. Clients have the opportunity to participate in and influence the planning and execution of social welfare and the assistance provided through social welfare units. The aim in preventive social and health policy is to support activities, which can affect the processes that cause social exclusion. The most important target groups are the long-term unemployed people and other risk groups, like vulnerable children, those who suffer mental health problems and substance abusers. The need for new approaches in social work has become more and more evident.

Programmes and Projects: No information available.

Status: The unemployment rate in Finland has been exceptionally high for the past few years, around 15 percent, which has led to a substantial reduction of living standards in some sectors of the society. Social, educational and labour policy measures have been taken to redress the problem. Access to primary health care, clean water and sanitation, and primary education has been, and still is, excellent. The Government has committed itself to halve the unemployment rate by the end of the century. This will be the most demanding objective of the Government policy. A particular problem is the long-term unemployment of the ageing employees. Changes in the unemployment security system may increase the poverty rate and enlarge the gap between the rich and the poor in Finland. In Finland, the greatest part of income security for citizens is arranged in the form of general, statutory insurance. Health care, hospital care, social care services and welfare for children, the elderly and the disabled as well as opportunities for education are equally available for all social groups in all parts of the country. All citizens are guaranteed basic social security. This is an effective way of combating and preventing widespread poverty and social exclusion. Good quality day-care for children is widely available. Both sexes and language groups have the same rights to education, social protection and public services. The last-resort living-allowance is granted on the basis of individual means-testing when a person or family cannot get sufficient income in another way. Among the gainfully employed, poverty measured in terms of income is very rare. The relative poverty rate declined in the 1980s both in terms of income and consumption. In 1994, poor households were only 2.6 % of all households. Although this number has not significantly increased, the deep recession has strongly increased the number of the recipients of the last-resort income security. In 1990, living allowances were paid to 63 persons/1,000 inhabitants, and in 1994, to 113/1,000, i.e. to 12.3 % of the households. More than half of the recipients are unemployed. The clients are younger than before. Many of the poor are single persons and single-parent households. The typical recipient is a single man. While unemployment has struck both sexes equally severely, 70% of all women are gainfully employed (1995). Thus poverty has not been feminised in Finland. The share of pensioner households among the poor has stayed very low. Disability is not a significant risk factor. The welfare and rights of minorities (the Sami people, the Romany people) are protected. Having several children and being a single parent are still risk factors. The phenomenon of urban poverty has reappeared, but spatial accumulation of poverty and deprivation in suburbs is not widespread due to the mixed composition of housing (ownership, low and high-rise houses) and

population groups living in the area. The extent of homelessness has been reduced by 50 % in the last ten years, although the number, at around 10,000 single persons and some hundreds of families, is still unacceptable.

Capacity-Building, Education, Training and Awareness-Raising: According to the employment programme, vocational training will be extended so that all young people without vocational skills could be offered a place to study at secondary level education. The aim is to create an education guarantee system that would offer an opportunity for further studies to all young people who have completed the compulsory education. The exclusion caused by polarization with regard to knowledge can be reduced by supporting a citizen's information society.

Information: No information available.

Research and Technologies: No information available.

Financing: Provision of social welfare in communities is subsidized by the State.

Cooperation: Financing from the EU Social Fund has been used to complement the national labor policy. Due to continuous sizable budgetary deficits, the ODA appropriations for 1994 approved by the Parliament were 12.4 percent lower than in 1993. Membership in the European Union binds Finland to participate in the financing of the EU development cooperation through EU's statutory budget and the European Development Fund. Finland is a member of the major international financial institutions and regards them as central sources of finance for development, policy advice and coordination of assistance to developing countries.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS

Decision-Making: The Ministry of Trade and Industry and the Ministry of the Environment as well as other ministries and government agencies (e.g. Finnish Environment Institute) are responsible for dealing with aspects of sustainable consumption and production patterns. In addition, the Finnish National Commission on Sustainable Development has a subcommittee on consumption and production, finance and transfer of technology. The National Consumer Administration supervises the municipalities in arranging consumer advice, produces supporting materials and trains consumer advisors. According to law every municipality in Finland must offer its residents consumer-advice services. There are several laws and regulations in areas related to sustainable consumption and production patterns, such as the Waste Act (which came into force 1 January 1994); Acts on chemicals, energy efficiency norms and standards etc.

Programmes and Projects: The Finnish Government Programme for Sustainable Development (Council of State Decision-in-Principle on Promotion of Ecological Sustainability, June 4 1998) includes a framework policy and a chapter on production and consumption. In the framework policy the Government states that it will, e.g. promote changes in production and consumption patterns as well as minimize the exploitation of non-renewable resources; promote voluntary, market-driven instruments and improve consumers' opportunities for selecting eco-friendly products and promote more diverse commercial utilization of renewable resources. In addition, there is a separate chapter on products, production and consumption. The objectives are to improve Finland's overall eco-competitiveness, to steer production and consumption in the direction of products with a minimum environmental impact during their life cycle, to improve prospects for production methods and consumer choices which support sustainable development and to emphasize a life-cycle approach in the construction sector (a Decision-in-Principle on ecological construction is currently under preparation). There are many programmes, plans and strategies, which include elements relevant to sustainable consumption and production they include: Ministry of Trade and Industry Consumer Policy for the years 1997 / Council of State's report on Trade and Industry Policy (1996) / National Information Society Strategy. In order to speed up the implementation of the Government Programme for Sustainable Development, the Ministry of the Environment has launched or will in the near future launch several projects, which support changes in especially consumption. They include development of environmental management systems for the commercial sectors (in the first phase development of environment management system for the Association of Finnish Technical Traders); production of life-cycle information on environmental impact of ecological construction criteria and products especially using the internet as a media; development of environmental management systems for the public administration in co-operation with other Nordic countries and local authorities (in the first phase a report on the current situation of using green criteria in public procurement and a related national seminar); collecting good examples and practices on eco-efficiency to be published and distributed e.g. through the internet; promoting the use of voluntary agreement on the use of organic farming products; comparison of life-cycle effects of organic and conventional farming.

Status: Due to its natural resources base, Finland's industrial production has traditionally been raw material-intensive and energy-intensive and, moreover, relatively dependent on the import of raw materials and energy. However, during recent years, the production structure has rapidly become more diversified (e.g. electronics and other high-tech industries). By the same token, Finland boasts a high standard of expertise in environmental technology. Finland is also actively participating in international cooperation (e.g. Nordic countries, OECD) on eco-efficiency. Environmental protection standards in industry stand up well to international comparison also with respect to efficiency in use of raw materials as well as reduction in emissions. Water and air pollution have been reduced substantially both by improvements in processing techniques and by cleaning emissions. Meanwhile, carbon dioxide emissions from energy production have grown in volume. The greatest challenge Finland faces is to combat climate change by reducing greenhouse gases. In addition to quantitative targets, targets in the programmes and strategies are often qualitative. Specific norms are set by more detailed action plans, legislation and regulations.

Capacity-Building, Education, Training and Awareness-Raising: Environmental education and training of the whole personnel is seen important in companies, in order to get environmental responsibility as an essential skill. In

many companies environmental education has been carried out in connection with the building and introduction of environmental management systems. In some companies environmental education and training has been extended to main contractors and suppliers, too. As an example, significant efforts have been focused in pulp and paper industry on those responsible for forest harvesting. In chemical industry, a special project on environmental, health and safety education in companies is going on as a part of the Responsible Care Program. A co-operation project between environmental authorities, schools and industry at local and regional levels is going on, in order to increase knowledge on industry-related environmental issues among young people. The Nordic eco-labelling system helps to raise awareness of sustainable consumption patterns. The Finnish Standards Association SFS runs the Finnish ecolabelling body that is part of the joint Nordic environmental labelling program. An Environmental Labelling Board has been established to decide the criteria for issuing the Swan Label. The members of the board represent consumer and environmental authorities, trade and industry, and organizations on consumer and environmental protection. SFS also administers the European Union eco label system in Finland. The roles of different Ministries and other governmental bodies in education and training for sustainable consumption can be described in the following way: *Ministry of the Environment and the Finnish Environment Institute*; formulate environmental policy / promote integration of sustainable development into education and consumption sectors / produce environmental information for education activities / contribute to the availability of information for consumers / support other authorities in environmental awareness activities. *Regional Environment Centres*; produce regional environmental information / co-operate with local and municipal authorities, schools and NGOs. *Ministry of Education and the National Board of Education*; formulates education policy / promotes integration of sustainable development into the curricula and teaching at all levels and for all types of education / develops the steering mechanisms: national core curricula, qualification requirements, evaluation, range of supporting / measures (materials, further training of teachers and staff) / participates in co-operation projects. *Ministry of Trade and Industry and the National Consumer Administration*; formulates consumer policy / provides information about environmental impacts of consumption patterns and products / encourages consumer advisers to take part in environmental education activities / Energy Information Centre MOTIVA / supports energy saving activities and the use of renewable energy sources by distributing information, developing and marketing energy audits and other energy management procedures.

Many actors in Finland provide waste advisory services: environmental authorities, municipalities, waste management companies and a few NGOs. The Finnish Environment Institute provides the following waste-related support services: Information material about waste regulations (examples: a guide on the Waste Act, brochures about Council of State decisions on building waste, packages and landfills); Handbook on waste advice and other information sources (as a part of a larger environmental information collection) Education of waste advisers (mostly from regional environment centres) National waste advisory campaigns (for example, a campaign to reduce the environmental impacts of batteries in conjunction with different actors) The National Consumer Administration uses the following ways to heighten environmental awareness: Consumer magazine (8 times/year, circulation 18 000); in every issue there is a two-page section on environmental Issues / brochures on different topics, for example, for car buyers, on detergents and on staining wood / the Internet; there is a web site with a great Eco-buyer's Guide which presents about 1000 different eco-products available. NGOs have also been active in this field. The most active has been the Finnish Association for Nature Conservation, which has started a project called Responsible Consumption, including a fair Sustainable Finland. For the project they have produced several brochures: Responsible Consumption- Ecoefficiently and Moderately and Choose Organic. Other NGOs (Friends of the Earth, The Finnish Consumers' Association, Agriculture and Household Women, Traffic Association, Dodo, and GAP) also have environment-related consumer campaigns. There are many magazines and programmes on environmental issues in Finland. For example, the Ministry of the Environment publishes a monthly magazine. The Finnish national broadcasting company YLE has two weekly environmental television programmes, which are quite popular. The other is Environment News, a programme on current environmental news and issues and the other The Ecoist, a programme specifically geared towards sustainable consumption and life-style issues. The Environment News was initially financially supported by the Ministry of the Environment.

Information: Information is made available through various media. Ministries and other agencies have information and advisory services there are public awareness campaigns in the mass media etc. Relevant material is also

directly distributed to relevant users. The use of internet has become more and more popular. Useful starting point addresses are e.g.: (Ministry of Trade and Industry) (Environmental Administration) (Council of State, links to all the ministries etc.) The National Consumer Administration produces information on the quality, price, safety, environmental effects and other important characteristics of products as well as consumers' rights, obligations and position on the market. The National Consumer Administration publishes Kuluttaja, a magazine that appears eight times a year. The magazine is available at libraries and is on sale at newsstands. Other materials are generally provided free of charge. They are usually available in Finnish and Swedish. Materials are also distributed by municipal consumer advisors. In the autumn of 1997, the Ministry of the Environment set up an inter-ministerial working group with a mandate to prepare a proposal for Finnish indicators for sustainable development and to test the United Nations CAD indicators for sustainable development (ISD) developed at the pilot phase of the CAD work programme on ISDs. The aim of indicators is to describe progress on the key sectors of sustainable development. They will include several indicators specifically on consumption and production or with clear relevance to these issues. A total of 57 indicators were chosen for testing and of those 52 were reported on at the end of 1997. The progress report is available via Internet <http://www.vyh.fi/poltavo/keke/indikaat/wwwcsdtx.htm>

Research and Technologies: The Ministry of Trade and Industry has research programmes on energy technology, such as NEMO 2 on new forms of energy and energy technology. Relatively comprehensive and broadly based research on sustainable development is already under way in Finland, particularly in natural sciences, engineering, agriculture, forestry and health. Virtually all research fields include aspects on production and consumption. A research programme was launched in spring 1998 with the aim of advancing environmentally sound technology and strengthening the Finnish environmental cluster. The programme includes a number of research projects, which aim at efficient raw material and energy recovery. In fact, the basic aim of the whole cluster research programme is to reduce environmental damage and create new jobs by increasing the level of ecological efficiency in various branches of industry. The program will be implemented in 1997 - 2000. The projects considered eligible at the first stage will concentrate on increasing the knowledge base of eco-efficiency. The primary tools will be life cycle analysis and assessment of material flows. This will help to expand the environmental responsibility for production and consumption from the acquisition of raw materials and energy to the entire life cycle of the product, including manufacturing, use and disposal. The program will address the overall exploitation of natural resources and the possibilities to reduce it at the level of the national economy. The life cycle approach will be applied to agriculture, forestry, basic metal industry, electronics industry, and water management. The ways to manage environmental issues and to develop competencies into products will be promoted in projects focusing on integrated prevention and control of emissions, reduction and re-use of waste flows and prevention of eutrophication. Environmentally friendly infrastructures will be developed in projects focusing on community structure, traffic system, street construction and trade in perishables. Sustainable development is also well to the fore in research funded by the Technology Development Centre of Finland (TEKES) as well as other technology-related research projects.

Financing: The Finnish Government has augmented its research budget for 1997-1999 by one-quarter. The research budget for 1999 alone is FIM 7.5 billion. Combined with supplementary funding from private investors and allocations made under earlier Government decisions, the total sum of research funding will rise to 2.9% of GDP. This extra funding will provide an invaluable boost to research activities and it will enable Finland to make a pioneering contribution to environmental technology and sustainable development.

Cooperation: There are many fora in which Finland cooperates with other countries. The most important ones are the EU, OECD, Nordic cooperation, cooperation in the Baltic Sea area (e.g. sustainable development programme Baltic 21 and the Helsinki Commission), bi- and multilateral development aid, cooperation with the neighbouring areas (especially with the Baltic countries and Russia) and various UN bodies.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS- ENERGY

Decision-Making: Finland has signed the Kyoto Protocol and, under the burden-sharing agreement of the EU, aims at reaching the 1990 level in its GHG emissions by 2008–12. For this purpose, the Government's National Climate Strategy (NCS) was prepared and presented to Parliament in March 2001. The work is based on sectoral reports prepared by different ministries in co-operation with relevant organisations for climate change mitigation. The NCS includes a number of policy options for reaching the Kyoto obligation for the years 1990–2020¹. The scenarios indicate that, without more efficient energy use and less CO₂-intensive energy production, GHG emissions will exceed the target level for 2008–12. To avoid this, the NCS contains suggestions for various policy measures, primarily R&D programmes, economic steering methods (mainly taxation and subsidies), decrees, acts and voluntary emissions reduction agreements as well as education and information dissemination in sectors such as energy, transportation, building and construction, land-use management, waste management and F-gases. Additional energy conservation measures and increasing the use of renewable resources are projected to account for 50% of the targeted GHG emissions reductions by 2010. However, as electricity and total energy consumption are projected to continue growing, albeit slower than in the past, and the potential for increasing hydropower is very limited, the NCS lists two main options for further GHG emission reductions: increasing the nuclear power capacity and prohibiting the use of coal in electricity production, or switching from coal to natural gas.

Programmes and Projects: Since the 1992 Rio Conference, Finland's Ministry of Trade and Industry (MTI) has promoted sustainable development in the area of energy production and consumption in the following strategies and programmes: 1997 Finnish Energy Strategy and 2001 National Climate Strategy (NCS, replacing the 1997 Strategy); 1992, 1995 and 2000 Energy Conservation Programmes (integrated into the NCS); 1993 Wind Power Programme, 1994 Programme for the Promotion of Bio-energy and 1999 Action Plan for Renewable Energy Sources (integrated into the NCS). In November 1997, the Ministry signed new framework agreements with industry and employers associations, energy producers, energy distributors and the Association of Finnish Local Authorities. The framework agreements commit the sectoral organizations to promote energy conservation. Companies joining an agreement must have an energy audit, appoint an energy manager and make an energy conservation plan. Then, they must implement the measures identified in the plan and report annually to the sectoral association. The agreements will remain effective until 2005. There is not yet any overall target of improvement for the set of agreements.

Ministry of Trade and Industry subsidized audits within the Energy Audit Programme since 1992, with a new implementation phase starting in 1996. The objective of the programme is to cover 80% of all buildings of public and private service sectors as well as buildings and processes of the industrial sector by the year 2010. The resulting annual savings in energy consumption have been estimated to be 80 Ktoe in 2000. Consulting companies mainly carries out the audits. The Ministry of Trade and Industry has published recommendations for energy efficiency in public procurements.

Status: Between 1990 and 2000, total energy consumption in Finland increased by 15% to 31.2 Mtoe. The growth was led by wood-based fuels, natural gas and nuclear energy. The use of renewable energy sources increased both in absolute and relative terms. Biomass utilization, constituting 21% of the energy balance, is the highest among the OECD countries.

TABLE 1. TOTAL AND RENEWABLE ENERGY CONSUMPTION IN FINLAND IN 1990, 1995 AND 2000, MTOE

Year	Total	Renewable	
	Mtoe	Mtoe	%
1990	27.2	4.9	18
1995	28.5	6.1	21
2000	31.2	7.8	25

¹ The base-line assumptions include, i.e., the growth rates of GDP, industrial production and population as well as the prospects for technological innovation and electricity imports.

Final energy consumption increased most rapidly in industry, and energy efficiency remained high. Energy efficient technologies are applied not only in industry but also in district heating, which accounts for 49% of the energy for space heating, and combined heat and power (CHP), which currently supplies 32% of the electricity.

CO₂ emissions from fossil fuels combustion were in 2000 at the 1990 level, 54 Mt. The emissions rose during the first half of the 1990s, but since 1996 they have steadily declined. This is explained mostly by the increased use of wood-based fuels, natural gas and nuclear energy as well as electricity imports. The resulting emissions reductions are estimated at 15.4 Mt CO₂. Drawing on the successful implementation of the 1985 International Sulphur Protocol, under which Finland had committed itself to reducing its sulphur emissions by 30% from the 1980 level (584,000 tonnes) by 1993, the Government set, in 1991, a new goal of reducing sulphur emissions by 80% from the 1980 level by 2001. Finland committed itself to the same goal by signing the second sulphur protocol in Oslo in 1994. The target was achieved in 1994, and in 2000 the emissions were 86% below the 1980 level. The reduction was achieved by changes in the structure of energy production, the reduced use of heavy fuel oil, the fall in the sulphur content of fuels together with improvements in process technology. As regards nitrogen oxides, Finland successfully implemented the Sofia Protocol, signed in 1988, to stabilize emissions to the 1987 level (288,000 tonnes) by the year 1994. By 1999, the total nitrogen oxide emissions had fallen by 16% since 1980. At the same time, emissions from energy sector fell by 39%, even though energy consumption increased by the same 39%. Particle emissions from energy production and consumption and from industrial processes fell by 42% between 1990 and 1999. Radioactive emissions from nuclear power plants have remained well below the strict annual release limits.

Capacity-Building, Education, Training and Awareness-Raising: Motiva, the Energy Information Centre for Energy Efficiency and Renewable Energy Sources, is an independent, non-profit agency mainly funded by the Ministry of Trade and Industry. Its principal objective is the implementation of the *Government's Energy Conservation Programme*. In practice, Motiva disseminates information (e.g. through fairs, exhibitions, seminars, publications, the Motiva Express newsletter, www.motiva.fi and the National Energy Awareness Week), develops and markets energy audits as well as other energy management procedures, and promotes energy efficient technologies.

Research and Technologies: The Ministry of Trade and Industry has launched 27 energy technology programmes since 1993. They focus on non-nuclear energy options, renewable energy sources, energy conservation, greater industrial efficiency and limiting the harmful environmental effects of energy economy. Research and development activities for sustainable paper and steel and base metal production aim at achieving the world's lowest specific consumption of energy through the development of processes. The 1997 Energy Strategy and, subsequently, the 2001 Climate Strategy call for research and development aimed at efficient use of energy to continue as well as to bring new technologies to the market. R&D is focused on the commercial utilization of research and on promoting industrial competitiveness.

Information: No information available.

Financing: State funding for the above-mentioned technology programmes totals EUR 30–50 million. Total funding of the National Climate Strategy through state budget and energy tax system in 2002–2010 is estimated at 180 million 1999 EUR per year. This would be a substantial increase from the 1999 level of EUR 130 million. Total revenues in 2002 from the excise taxes on energy products are estimated at EUR 2 665 million. For more on energy taxation see reporting on chapter. The Government provides funding for the energy audits and for the investments of companies participating in the agreements. Energy audits are subsidized by 40% in the private sector.

Cooperation: See under **Decision-Making**.

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CHAPTER 4: CHANGING CONSUMPTION PATTERNS - TRANSPORT

Decision-Making: In Finland, the Ministry of Transport and Communications bears the main responsibility for transport policy. There are also seven Government departments and agencies (e.g. Finnish National Road Administration, Finnish Maritime Administration, Vehicle Administration and Finnish Rail Administration), one state-owned enterprise (Finnish Civil Aviation Administration) and seven state-owned companies (e.g. VR Group Ltd, Finnair Plc) operating within the purview of the Ministry. The Central Organization for Traffic Safety in Finland (Liikenneturva) is also supervised by the Ministry of Transport and Communications. The Ministry of Finance bears the main responsibility for economic management, and land use planning that is closely connected with transport system planning is the responsibility of the Ministry of the Environment. Finnish municipalities have the right to decide to a quite large extent their matters related to the planning and implementation of land use and street networks as well as public and non-motorized transport. Cooperation within the administrative sector is quite close. The Ministry monitors the work of its departments and agencies through annual result goals and various forms of cooperation groups. Unincorporated state enterprises and state-owned companies that are themselves responsible for their financing also take part in cooperation, but naturally with no profit responsibility. The environmental policy of transport and cooperation in environmental issues are based on the administrative sector's environmental management system of the ISO 14 001 type. The goals of result management are endeavoured to be adjusted in the best possible way to the goals defined in the environmental programme. Cooperation between administrative sectors includes not only working groups but also various commenting practices.

In environmental issues, the Ministry's closest partner is the Ministry of the Environment. With a view to the whole administration, the most important means to integrate transport planning and urban structure is the amended Land Use and Building Act from 1999. The objective of the act is to improve land-use planning and direct urban structure, placement of operations and use of the environment towards sustainable direction. Environmental issues are viewed with the help of a specific environmental management system. The Environmental Management System (EMS) of the Ministry of Transport and Communications integrates environmental issues with planning, development, implementation and monitoring of the transport sector activities in every level of the administration. It follows the same principles and standards as the leading edge business organisations apply in their EMS. There are no other corresponding systems operational in our national administration and - according to our knowledge - not in any other European countries either. The reports "Guidelines for Transport Operations until 2020" from 1997 and "Finland's Transportation System 2020" outline the long-term operating strategies of the Ministry. According to these reports, the development of the transport system is based on the operating principles of the Ministry: "The Ministry of Transport and Communication promotes national well being and the efficient operation of society by guaranteeing citizens and industry access to safe and reasonably priced high-quality transport and telecommunications connections. The Ministry also furthers the competitiveness of the transport and the telecommunications industries."

Programmes and Projects: The document "Environmental Guidelines for the Transport Sector" is a solid foundation for developing the different transport mode agencies and companies' own EMSs within the next five years. These guidelines incorporate long-term targets with respective actions, deadlines, responsible actors and co-operation partners. The document also serves as a proposal for joint action for a wide range of related organisations. It has been prepared in close co-operation with all responsible transport mode agencies under the Ministry of Transport and Communications. EMS is used within the transport sector for putting the requirements set in the Finnish Government Programme for Sustainable Development into concrete action. The new guidelines document was prepared to continue the action programme, drawn up in 1994, and its follow-up reports. The new guidelines are also going to be part of a continuous improvement process and a means to extend our environmental co-operation further across administrative borders. Since 1998, projects under the title "II wave of public transport experiments" have been implemented in the Ministry of Transport and Communications. With the help of these projects the Ministry aims to make public transport in cities more attractive. In practice, measures have included public transport interchanges, advanced payment systems and combined transport (for example transport of the

elderly and school children). Promotion of pedestrian and bicycle transport is being discussed in a separate management group, which will complete its work by the end of 2000.

Status: The use of leaded gasoline was prohibited in the beginning of 2000. However, all types of gasoline sold in Finland have been unleaded since 1994, and already before that the use of leaded gasoline had considerably been reduced. Emissions and energy consumption of all traffic modes in Finland are estimated by a calculation system “LIPASTO” (see: www.vtt.fi/yki/lipasto). The emissions that cause problems the most are carbon dioxides, nitrogen oxides and particle emissions. It will require additional measures during the next few years to turn that trend into a clearly positive direction. The most immediate attention is needed in road transport. For example, it accounts for over 70% of carbon dioxide emissions and for 20% of all carbon dioxide emissions in Finland. In Finland, there are long distances and sparse population compared to the country’s whole area. Sparse population impacts on the operational prerequisites of public transport outside built-up areas. Furthermore, the structure of industry has influence on transport operations. The transport operations of raw materials in the field of forest industry and earthworks are a typical example of transport operations not easily transferable to rail. However, according to some studies it is urban sprawl in the local level that actually increases transport even more than long distances. For example, the longest home-to-work journeys in Finland are in the most densely populated area, Southern Finland. Therefore, changes in this issue could be achieved through urban planning.

Capacity-Building, Education, Training and Awareness-Raising: In Finland, public participation in transport policy is primarily organised by EIA, Environmental Impact Assessment legislation. In an EIA process, the authority informs the public on a pending matter that has impacts on the environment, gathers opinions and statements, which are the basis for drafting further plans. The most usual cases, where the EIA process is applied, are various road or other infrastructure projects, but environmental impacts must also be evaluated in programmes and plans prepared by the authorities if their implementation may have significant impacts on the environment. The rights of citizens to get information of pending matters are also prescribed by the Act on the Openness of Government Activities and Administrative Procedure Act. In 1999, the Ministry of Transport and Communications published web pages that provide environmental information to the public and the public may directly comment the Ministry’s environmental policy. The first environmental programme by the Ministry of Transport and Communications was completed in 1994. A new programme and web pages on the environment were introduced in 1999 (see: www.mintc.fi/environment). The Ministry also cooperates with several parties in order to increase environmental awareness. These include MOTIVA (Energy Information Centre for Energy Efficiency and Renewable Energy Sources), Helsinki Metropolitan Area Council, the Finnish Meteorological Institute and the Association of the Pulmonary Disabled. The usual forms of cooperation are various campaigns, research and publishing. Civic organisations also take part in the work. Those that emphasise the contact between transport and the environment are such organisations as Enemmän rautaa (the Society for Traffic Policies - the Majority), Traffic League and Finnish Association for Nature Conservation. The guides and brochures published for bringing forward environmental connections have included e.g. choosing environmentally-friendly transport modes, idling of vehicles, energy saving and eco-driving as well as promotion of cycling. In Finland, public information and education activities are an important part of the traffic safety programmes. This mission is given to a semi-official organisation, the Central Organization for Traffic Safety in Finland, which is financed from traffic insurance premiums. The Ministry of Transport and Communications (as well as other ministries in certain cases) participates in some important nation-wide campaigns. The textbooks of environmental studies for the lower stage of primary school deal with transport and environment, for instance, from the viewpoint of congestion: Moving in cities is healthier and pleasanter if everyone does not drive there in his own car. “A child in traffic” is a special exercise material prepared for the lower stage of primary school through which children consider their own moving routes, habits and wishes concerning traffic environment.

Information: The Finnish Road Administration has the basic data on Finnish roads; the Rail Administration has the data on railways etc. Statistics Finland maintains Traffic Statistics including general data of traffic volumes, vehicles etc. A Finnish calculation system “LIPASTO” is used to collect information on emissions. “LIPASTO” covers emissions and energy consumption of all traffic modes in Finland and it is managed by VTT, the Technical Research Centre of Finland. The system comprises sub models “LIISA” for road traffic, “RAIL” for railway

traffic, “MEERI” for waterborne traffic and “ILMI” for air traffic. Data is gathered in the central unit “LIPASTO”. By means of these models traffic exhaust gas emissions in Finland can be calculated from the following compounds in the base year: carbon monoxide (CO), hydrocarbons (HC), nitrogen oxides (NO_x), particles (PM), sulphur dioxide (SO₂) and carbon dioxide (CO₂). In addition to this, the models calculate energy consumption of different traffic modes. A rough estimation of emission amounts and energy consumption has been given for the years 1980 - 2019. The “LIPASTO” system is updated every year. (See also www.vtt.fi/yki/lipasto). The Finnish Environment Institute and the Finnish National Road Administration have together compiled a register of those groundwater areas where roads are treated with de-icing salt and, thus, pose a risk of pollution to groundwater. In 1999, the Ministry of the Environment prepared a system, which helps to follow the developments of the urban structure. The system that is now being tested provides information on the number and quality of various functions in the society, efficiency of land-use, availability of the functions and traffic arrangements. In the beginning, the urban structure of 30 largest areas of employment is monitored. (www.mintc.fi/environment.)

Research and Technologies: Ministry of Transport and Communications has aimed to support logistic efficiency by means of various research programmes. These include “Cities and local logistics” -programme and “Programme to promote transport chains and technology”, KETJU. The Ministry of Transport and Communications and the Finnish Trucking Association have jointly initiated a research of how driving practices in different transport environments impact on fuel consumption. The results will be actively utilised in eco-driving training of the drivers of heavy vehicles. The Finnish Bus and Coach Association, the Finnish Taxi Association and driving schools have included environmentally friendly driving practices in their driver training. The Finnish Ministry of Transport and Communications, Ministry of the Environment, Ministry of Social Affairs and Health, Ministry of Trade and Industry, Association of Finnish Local Authorities, National Technology Agency, Finnish National Road Administration and Finnish Rail Administration have launched a 5-year research and development programme “LYYLI”, which primarily concerns the largest built-up areas. The purpose is to provide communities with solutions, by means of which necessary transport and travel can be operated with a minimum amount of traffic and by the environmentally friendliest transport modes available. This means solutions, which conserve energy, secure a healthy living and recreation environment for different population groups and avoid splitting natural regions. The research and development programme is primarily aimed at target city areas where such measures are regarded that can consolidate community structure, decrease the amount of passenger car traffic, foster public transport, cycling and walking, secure the viability of city centres, foster such production and service structures that take environment and different population groups into account and promote operational prerequisites of green logistics. Alternative energy sources have been examined within the research programme proMOTOR, for example. The areas it analyses include modelling and measuring of motor processes, control systems of motors and exhaust emission control. Finland Post is a pioneer in using electric cars. In bus and coach transport, in turn, gas buses have been tried, especially in the Helsinki region. A research programme LYYLI (Environmentally Friendly Urban Form and Transport System) aims at increasing efficiency in transport systems, and various logistics programmes (KETJU etc.) search for ways to improve efficiency in that area.

Financing: The fuel tax on road traffic is partly based on the emissions from vehicles. The basic tax on sulphur-free, unleaded gasoline is lower and the additional tax is based on carbon content (FIM 70 / 1000 kg CO₂). Finland was among the first countries in Europe who introduced the CO₂ tax. Most of the Railways, Waterways (excluding harbours) and national roads are funded through the national budget. Harbours are operated mainly by municipal enterprises. Aviation: CCA of Finland operates as government enterprise and is thus based on full cost recovery. In order to increase the performance efficiency of development projects, total finance and shadow toll projects have been introduced. In the total finance project, funding is ensured with a lump sum in the state budget and the work is performed with a fixed price. Thus, the final price is known all the time. In the shadow toll project, a private company builds the project at its own expense. Government, in turn, pays service payment that is bound to vehicle performance. Thus, the final project price is clear at the end of contract period but a price ceiling is defined. In addition, some EU investments have been introduced in Finland.

Cooperation: As Finland is a member of the EU, both national and EU law are in force here. The most important agreements related to transport are the following: United Nations Framework Convention on Climate Change/

Kyoto Protocol, Convention on Long-Range Transboundary Air Pollution with its protocols and Convention on Biological Diversity. Besides acting within the EU, Finland participates in transport cooperation through international organizations (ICAO, IMO) and OECD, CEMT and ECE. Nordic cooperation is carried out through the Nordic Council of Ministers, and cooperation with neighbouring areas through various projects as well as through the activities carried out by the Baltic Marine Environment Protection Commission (HELCOM). The most important acts impacting on transport and included in the national legislation are the Land Use and Building Act, Environmental Protection Act and Act on Environmental Impact Assessment Procedure.

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CHAPTER 5: DEMOGRAPHIC DYNAMICS AND SUSTAINABILITY

Decision-Making: The Ministry of Social Affairs and Health is the body most directly concerned with demographic issues. There is not yet a national policy on demographic dynamics and sustainability in Finland. There has been a national debate on the linkages between population and environmental issues both at the Parliament and Government levels. Women and the media have been included in the public debate. At the community level, seminars have been held on the issue.

Projects and Programme: No information available.

Status: The general trend in the structure of the Finnish population over the past few decades has been that of a typical Western European country. The proportion of the economically active population has increased, a characteristic Nordic feature being the high share of women in the labor force. Finland has undergone a profound social and economic transformation towards an increasingly urban society with smaller family units. Extensive social security programmes have helped families to combine working and family lives. Lapland is sparsely populated with the Sami people: slightly above 200,000 inhabitants, of whom half lives in the two largest cities in the south, and 70 % in municipalities. The number of Sami people is just short of 7,000. Road systems are well developed with an 8,000 Km network of public roads as well as a wealth of private and forestry roads. Although unemployment is higher, the standard of living equals the rest of Finland. Government assistance and development measures have an important role for the communal economy. Essential municipal infrastructure (i.e. water supply, waste treatment) and services (i.e. health care, organized waste collection) reach all population groups as well.

Capacity –Building, Education, Training and Awareness-Raising: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: HEDEC (the Health and Social Development Group) is a unit for foreign assistance providing expertise and information services pertaining to health, social welfare and population issues. The objectives of the Finnish development cooperation policy are closely interlinked with population issues, especially population growth, which Finland will continue to tackle primarily through promotion of sustainable economic and social development, human rights and the status of women in developing countries. Special efforts will be made to increase aid to population programmes, promoting reproductive health, including family planning, in response to the vast unmet demand in developing countries.

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CHAPTER 6: PROTECTING AND PROMOTING HUMAN HEALTH

Decision-Making: The Department for Environmental Health Research in the National Public Health Institute has grown to a high-level expertise unit on problems of national as well as local concern. A special agency to monitor compliance with legal stipulations on chemicals was established in 1994. The new Planning and State Subsidies Act provides a mechanism for better cooperation between social and health services at the municipal level. The Act gives local authorities increased responsibility and freedom in health policy. The Act on Patient's Rights, concerning treatment and services for patients in health care, entered into force in March 1993. Finnish legislation provides for children's rights in accordance with the UN Convention on the Rights of the Child. New legislation and resources have benefited environmental health. For instance, progress in the protection of air and freshwater as well as in waste management has decreased health risks. Legislation on health protection, chemical safety, food safety and radiation protection are, or will be, revised in accordance with the legislation of the European Union. Recent Finnish discussion has recognized new environmental hazards and risks to human health, such as depletion of the Northern ozone layer, global warming and urban pollutants and microparticles. It is also widely accepted that preventive measures should be used in a larger scale. The Finnish Constitution includes the right to a healthy environment, marking the importance given to the issue. The new Act on health protection aims at preventing, diminishing and eradicating risk factors detrimental to health in the living environment. Implementation has been delegated to the local authorities. Special emphasis has been given to safeguarding swimming and drinking water. A national plan of action on environmental health has been developed, aiming at the targets of the European Environmental Health Programme. An official Board has been established on genetic technology. Promotion of parenthood and the welfare of the child population is a major aim of Finnish welfare policy. Finland developed a Plan of Action for implementing the World Summit Declaration on the Survival, Protection and Development of Children and Plan of Action made in 1990.

Projects and Programmes: The implementation of the revised national "Health for All by the Year 2000" Programme (revised in 1992) recognizes seven fields of action: decreasing health differences among population groups, maintaining and enhancing the functional capacity of the population, promoting intersectoral cooperation in support of a preventive health policy, improving the cost-effectiveness of the health services, development of the capacities of the health personnel, management in health care, and citizen participation. A leading principle is the increase in cost-efficiency.

Status: A network of municipal health centres provides primary services equally in all parts of the country. In rural areas, the capacity of municipal health centres is greater than in cities, where complementary private services exist. The ongoing work to maintain high vaccination coverage has been successful; a major part of the UN targets and programmes on communicable diseases have been reached and are no longer relevant to Finland. A decrease in the consumption of tobacco and related health hazards has been an important issue in the Finnish health policy. Smoking has decreased, new anti-smoking legislation being instrumental in creating smoke-free working environments. Smoking is, however, alarmingly high among young people. Moreover there have been campaigns to promote individual control of drinking, focusing on the young. The economic recession in Finland has led to adjustments in health and social fields. Meeting the needs of the unemployed is an increasingly important task for health and social services as well as voluntary organizations. The economic recession has also affected white-collar groups and executives, widening the scale of social and health problems. The aim in preventive social and health policy is to support activities, which can affect the processes that cause social exclusion. The most important target groups are the long-term unemployed people and other risk groups, like vulnerable children, those who suffer mental health problems and substance abusers. The need for new approaches in social work has become more and more evident.

Human health and welfare is best protected at work and in living environments. The quality of housing, residential environments and the level of social integration are interlinked. The need for employment, income security and improvements to community facilities goes hand in hand with the need for improvements to the physical quality of the local environments. Health promotion and preventive social policy aim at early warning and preemptive

measures to combat exclusion and accumulated disadvantage at the local level. Environmental impact analysis (health impact assessment, social impact analysis) methods are being improved and employed by local authorities.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: Differences in health between population groups are linked to the risk of social polarization. The starting point in the Finnish health policy is the WHO strategy “Health for All by the Year 2000”, accordingly paying special attention to services needed by risk groups. In 1990, a special unit was formed to promote development cooperation in health and social welfare. The National Institute for Occupational Health contributes to the building of occupational health service systems in developing countries. It works as a collaborating centre of WHO/EURO to give international support to accidental environmental health problems. It also contributes to the building of a European geographical environmental health information system. Finland has given material and expertise support to the Baltic countries and regions of the Russian Federation in dealing with communicable diseases as well as nuclear and chemical risks.

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CHAPTER 7: PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT

Decision-Making: Closer linkages have been set up between the authorities responsible for natural environment and the authorities in charge of built environment. This development has taken place throughout the environmental administration, including the Ministry of the Environment, the Finnish Environment Institute, regional environment centres, and municipalities. Policy instruments have also been improved. Environmental Impact Assessment was included in the spatial planning stipulations of the Building Act (sectoral law guiding all land use planning and construction) in 1994. The ongoing review of the Act is expected to further strengthen its environmental aspects. Environmental aspects have been incorporated into master planning through guidelines and training, and efforts are being made to develop “strategic” master planning which would integrate it into other tools of urban management, including environmental management. Many local authorities have prepared or are preparing Local Agendas 21. Human settlements-related indicators are included in the ongoing project on sustainable development indicators, which the Ministry of the Environment (MOE) implements jointly with several Ministries and the Central Statistical Office.

Projects and Programmes: A programme aimed at developing and commercialising environmentally sound construction products has been implemented by the Technology Development Centre (TEKES) since 1994. Experimentation of double water supply systems and separation of “grey waters” in double sewerage networks has been initiated with the support of the MOE. The Ministry of Trade and Industries has continued the implementation of several programmes aimed at developing innovative energy supply solutions and promoting energy conservation.

Status: No information available.

Capacity-Building, Education, Training and Awareness-raising: Awareness-raising campaigns, education and training are carried out by many institutes, such as technical universities. The amount of relevant literature available in Finnish is increasing.

Information: Sustainable human settlements development has been included in a number of policy papers, including the following: The Action Programme on Reducing the Adverse Effects of Transport to the Environment by the Ministry of Transport and Communications (1994); “A Look at the Cities”, the recommendations of the MOE Urban Policy Task Force (1995); “Sustainability as a Challenge”, Finland's national report for UN's Habitat II Conference (May 1996); “Cities as Engines of Growth”, report of the Government Task Force set up to prepare proposals for the development of urban areas (June 1996); National plan of action on environmental health (currently under preparation); Government programme of action for sustainable development, including a sub-programme on human settlements and transport as one of its four components (currently under preparation).

Research and Technologies: Since 1992, great efforts have been made in Finland to implement the notion of sustainable human settlements development and to develop tools for attaining this goal. The concept has been a topic of a number of research activities. The Technical Research Centre of Finland (VTT) has carried out, both “basic” research and practice-oriented applied research such as studies on the environmental and economic implications of various land use patterns conducted. Thanks to these studies, the priority issues have been clarified. Specific actions have been taken, including; Studies on the impact of the location of commercial services (large shopping centres, hypermarkets, etc.) and a proposal on instruments to guide their location are under preparation; Financial and other support to renovation and improvement of housing; A special Renovation Programme aimed at lengthening the life span of the existing housing stock and improving its energy efficiency and waste disposal systems; Projects aimed at integrated improvement of neighbourhood units; Projects aimed at promoting development of urban centres implemented by MOE, local authorities and the private sector; A number of pilot projects and architectural competitions on ecologically sound planning and construction; and Local actions aimed at reducing the amounts of solid wastes and improving the disposal systems, involving awareness-raising and education campaigns, recovery and recycling, separation and/or composting of household wastes at source, even in very tall buildings.

Financing: Housing finance systems and other instruments have been developed with a view of creating an enabling policy environment for systematic maintenance and renovation of the housing stock. Financing instruments are also being developed as incentives to preventing further urban sprawl and to creating a barrier-free living environment for an ageing population.

Cooperation: Finland paid great attention to the preparations of the Habitat II Conference. Most of these efforts were made through EU, but Finland represented the Western European and Others Group (WEOG) countries in the core group responsible for drafting the final document, Habitat Agenda. Throughout the process, Finland emphasized the environmental aspects of human settlements development. Finland also participates actively in human settlements-related cooperation in the Baltic Sea region, which takes place at all levels of the Government and involves all sectors of the society. Municipalities support, e.g. through twinning or other arrangements, their counterparts in Russia and Baltic countries in municipal management and improvement of environmental infrastructure. MOE, together with other agencies, provides funding for similar activities, which usually include capacity-building measures. Finland has contributed to various international R&D projects on sustainable human settlements development executed by organizations, such as EU and OECD or by networks of municipalities. A number of relevant activities are also implemented through Finnish aid in developing countries. Examples of such programmes and projects are an extensive water supply programme in Hanoi and Haiphong, Viet Nam; a water supply and sanitation programme in Western Kenya; a comprehensive urban development programme in Nacala, Mozambique; and a comprehensive social development programme in Region V, Nicaragua. In all these actions environmental, social and economic problems are addressed in an integrated way.

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CHAPTER 8: INTEGRATING ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

Decision-Making: Since 1993, the Finnish National Commission on Sustainable Development (FNCSO) has coordinated different measures on sustainable development at different levels. The political importance of sustainable development in Finland is illustrated by the fact that the FNCSO is chaired by the Prime Minister and co-chaired by the Minister of the Environment. Five other Ministers are also members of the Commission. The 55 members of the commission represent Finnish society as broadly as possible including representatives of the central and local governments, business and industry, labour unions, scientific community as well as various NGOs and interest groups. Finland's two official languages have also been taken into account as well as the Finnish indigenous people (the Sami). The FNCSO has an operational secretariat, three subcommittees and four working groups to prepare its work. Moreover, at its meeting on December 1996, the FNCSO decided to set up a new subcommittee on local aspects of sustainable development to concentrate on transport and human settlements issues and to follow-up on the implementation of Local Agendas 21 in Finland. In 1994, an Act on Environmental Impact Assessment Procedure came into force in Finland, and, in some fields, such as road planning, environmental impact assessment is already becoming an integral part of the planning process. Finland is also committed to certain international agreements concerning environmental impact assessment, including the European Union's Council Directive on Assessment of the Effects of Certain Public and Private Projects on Environment (85/377/EEC), which came into force in 1988, and the UN/ECE Convention on Environmental Impact Assessment in a Transboundary Context, which Finland has signed. Certain projects always require an environmental impact assessment procedure. These include oil refineries, nuclear power plants, pulp, paper and board mills, large harbour projects, motorways, airports intended for heavy traffic, major hazardous waste disposal facilities and projects which will permanently alter wide areas of forest, bog or wetlands.

The EIA procedure is tied to permit-granting and similar processes under twelve Acts: the Building Act; Water Act; Environmental Permit Procedures Act; Chemicals Act; Land Extraction Act; Mining Act; Electricity Act; Public Roads Act; Aviation Act; Act on the Redemption of Immovable Property and Special Rights; Act on Privately-owned Forests; and the Forest Improvement Act, as well as Amendments made thereto. Municipalities have to investigate to an appropriate extent the environmental impact of physical planning according to the Building Act. In addition to its application to projects, EIA also calls for a general assessment of policies, plans and programmes which may have a significant environmental impact once implemented, and particularly those related to taxes, finance, energy, transport, agriculture and industry. Guidelines for this general assessment are currently under preparation by the Ministry of the Environment and the Finnish Environment Institute. It is not possible to promote sustainable development (SD) through administrative and legislative instruments alone. Other instruments are needed to stimulate changes in human behavior. Above all, there is a need for economic instruments and an increase in environmental awareness. Finland already has a variety of economic instruments in use such as taxes on commodities, environmental tax subsidies and graded taxes used in different tax schemes, certain administrative and municipal fees, financial subsidies as well as deposit systems related to recycling. Deposit systems especially have been quite successful. On the other hand, it must be recognized that in all cases the regulatory effect of the economic instruments in use is not sufficiently strong.

Projects and Programmes: The FNCSO has also drawn up recommendations regarding the preparation of the various sectoral programmes on sustainable development, including the Agri-environmental Programme, Environmental Programme for Forestry, Strategy for Conservation of Forests, and an Action Programme for Reducing the Adverse Effects of Transport to the Environment, as well as for the cross-sectoral, National Environmental Policy Programme 2005 published by the Ministry of the Environment. A Government Action Programme on Sustainable Development is currently under preparation. It will concentrate on core sectors of sustainable development: human settlements development and transport; rural development; production, products and consumption, and energy, on the most important issues of environmental protection and nature conservation, on the use of economic instruments and Finland's role in international cooperation. In addition, the programme will identify research needs focusing on multidisciplinary and multisectoral aspects. Ministries responsible for the respective sectors do the drafting.

Status: A positive sign of the changes under way is the fact that customers, suppliers, consumer and environmental organizations, even banks and insurance companies, are formulating new requirements with respect to the environmental performance of products. Environmental management and eco-auditing are some of the tools for this kind of development and they should be further strengthened. There is also a need to concentrate more than previously on the socio-economic, cultural and local aspects of sustainable development. All these aspects of society and life-styles have to be considered in order achieve the necessary changes towards ecological sustainability. These aspects of SD are also priorities of the FNCSD in the future.

Capacity-Building, Education, Training and Awareness-Raising: One of FNCSD's most important undertakings has been the preparation of a comprehensive summary of measures needed to promote sustainable development, called the Finnish Action for Sustainable Development (1995) (also published in English). It includes measures that are already under way or in the pipeline for the next few years, both in Finland and through its international cooperation. The measures vary from sectoral programmes of different ministries and governmental bodies to information campaigns of NGOs. The work to engage various sectors in a more concrete way in the promotion of sustainable development has also begun: some of the most important sectors represented on the FNCSD will have drawn up their own sustainable development strategies and programmes of action by the end of March 1997.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: Sustainable development (SD) concerns almost all sectors of the society. Therefore, a broad cooperation has been generated in Finland among the government, the private sector, interest groups and NGOs, the scientific community, the education system and the media. Since 1987, Finland has strived systematically to promote sustainable development by integrating environmental considerations into sectoral policies. In the next stage, the emphasis should be on a holistic, strategic outlook and on implementing SD at various levels. Finland cooperates with the Nordic Council of Ministers, the Arctic Council/ Arctic Environmental Protection Strategy, the Barents Euro-Arctic Council, the Helsinki Commission, the Baltic Agenda 21 (years 1996-1998), the EU 5th Environment Programme, and the United Nations Commission on Sustainable Development. Since 1994, Finland has been working to produce a set of guidelines for assessing the impact on the Arctic environment under the Arctic Environmental Protection Strategy (AEPS), and it is working with the other Nordic countries to ensure that the Murmansk/Barents Sea area is made one of the model regions in the World Bank Environmental Management Technical Assistance Programme for Russia.

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CHAPTER 9: PROTECTION OF THE ATMOSPHERE

Decision-Making: The Ministry of the Environment has responsibility over general directing of air pollution control. The most important general regulations are given by the Council of Ministers, where even all other ministries are represented. The Ministry of Transport and Communications prepares the technical emission standards for vehicles, and takes environmental aspects into consideration in preparation of transport policies. The Ministry of Trade and Industries prepares energy saving programs and other energy policy elements, which affect the atmosphere. Issues related to the climate change policy are also discussed by the Climate Commission with a widely based membership (private sector, environment NGOs, researchers, trade unions etc.). The Secretary General of the Ministry chairs the committee for the Environment. There are a number of national laws that, apart from their other aims, promote the reduction of GHG emissions. The laws are related to the air protection in general, land use and building, agriculture and waste. Also Finland's Environment Protection Act (86/2000) covers substances indirectly relevant to the climate change although basically addressing other aims. In the future the Act will be complemented with regulations relating to climate change mitigation, addressing especially industrial emissions. The general goals of air pollution control have been included in the general legislation for environmental protection. Ministry of the Environment has a long tradition of using broad-based committees, such as sulphur committee, acidification committee and climate committee, in planning of long-term programs for protection of atmosphere.

Sometimes the work of such committees has led to Decisions in Principle made by the Government. Finland's climate strategy has recently mainly focused on the intensification of the ongoing programmes for reducing GHG emissions. All the main sectors, energy, building, transport, agriculture and waste management, have introduced and implemented policies and measures that have also had impacts on the GHG emission reductions. Preparation of air pollution policies has been open and broad-based committees have been utilized in that work. Scientific and technological community, local authorities, NGOs, business and industry and the trade unions have been involved in this work. Both men and women have always been in these committees. Widely based working groups (stake holder ship of NGOs and representatives of business among others) are also involved in the work related to climate issues. Government policy in the industrial and power sectors relies mainly on voluntary agreements promoting energy efficiency. The government practice of concluding energy conservation agreements with producers, distributors and consumers of energy have been developed. Agreements with industry will be extended to involve individual industrial sectors and companies. Measures related to GHG emission reductions in industry consist mainly of measures effecting energy consumption. Prevention of greenhouse gas emissions from agriculture is mainly promoted with the help of the agriculture environmental aid scheme part-financed by the EU. As a supplement to the European Community regulation (already mentioned in question 7), Finnish national legislation also regulates ozone-depleting substances. These instruments together provide a comprehensive control of ozone-depleting substances. Production, placing on the market, use and export of ozone-depleting substances or equipment containing them is forbidden, with the exception of essential and critical uses and of HCFCs used for servicing of existing refrigeration equipment until 2015.

Programmes and Projects: The first agriculture environmental programme was valid in Finland in the period 1995-1999. Moreover the National Forest Programme 2010 creates a framework for promoting the role of sinks in the climate policy in a sustainable way. The starting point is that sustainable forest management is the best approach for controlling the climate change through forestry.

Status: In 1998, Finland's GHG emissions were estimated to be 76.9 million tonnes in CO₂-equivalents. CO₂ emissions made up 83,8%, CH₄ emissions 5% and N₂O emissions 10,4 % of the total emissions. The so-called new gases amounted only up to 0.35% of the total emissions even though doubled since 1990. In 1998 the annual GHG emissions had increased by 1,5 % from 1990. The strongest rising trend can be observed in the CO₂ emissions. Anthropogenic methane emissions in Finland are declining mainly because of the measures taken in waste management. The decline in total methane emissions by 2010 is estimated to be about 20% and by 2020 nearly 30%. Anthropogenic nitrous oxide emissions show a rising trend. Finland has never produced ozone-depleting

substances and its consumption of them has been relatively small. The use has decreased from 2600 ODP-tonnes (metric tonnes multiplied by ozone-depleting potentials) in 1990 to 80 ODP-tonnes in 1998. As a consequence emissions of ozone depleting substances are also small. Finland is a sparsely populated country with a cold climate. This creates pressures for the use of energy as well as transportation of people and goods. However, there are also other structural problems not related to the geographical position of Finland. In the field of GHG emission reduction the most prominent structural problems are to relate to the use and production of energy. One of the measures guiding the choice of energy source to a less polluting direction is energy taxation. However, from Finland's point of view the issue of energy taxation should be addressed at the EU level but efforts to this effect have so far met insurmountable problems. Finland's industrial structure has changed into a less energy consuming direction in the past decades. However, the industrial structure is still very energy intensive. Great efforts have been made to make energy production more efficient. For example combined heat and power production in industry and district heating plants is one of the cornerstones of Finland's energy supply. Sink enhancement is most relevant for countries in which there has been deforestation or where forests are degraded. In Finland, forests are well stocked and afforestation potential is low due to high forest cover. The low potential is not considered a problem. The most essential strategy is protection of sinks which is considered non-problematic in Finland.

Capacity-Building, Education, Training and Awareness-Raising: Continuous efforts have been made to communicate about the developments in the international climate process through the media. Internet is widely used by ministries, NGOs and business to promote public awareness. Primary and secondary school curricula cover climate related issues under several subjects. For example, general climate issues fall under geography. Energy vs. mitigation related issues are dealt primarily under physics. The university of Helsinki trains MSci. –level meteorologists, and the curriculum covers topics mentioned above. Recent research programmes include an extensive training component at the academic level.

Information: Finland reports commission the greenhouse gas emissions frequently to the UNFCCC and the EU. Apart from the annual report on greenhouse gas emissions submitted to the UNFCCC Finland has also prepared and published two National Communications (1995 and 1997), which provide information on national policies and measures and include projections of the future development of the greenhouse gas emissions. The third National Communication will be published next year. The www-pages of The Ministry for the Environment also include information related to the climate change problematic (in Finnish) (<http://www.vyh.fi/ympsuo/ilma/ilmastokasvihuo.htm>).

Research and Technologies: The first research projects on climate change were started in Finland in the early 1980s carried out as single projects by universities and research institutions. An interdisciplinary six-year research programme the Finnish Research Programme on Climate Change (SILMU) was initiated in 1990. It covered studies on atmospheric changes, climate scenarios, climate impacts and also some aspects of mitigation. The Finnish Global Change Research Programme (FIGARE; 1999-2002) and Finnish Technology for Climate Change Mitigation Programme (1999-2002) are examples of more recent research programmes. Moreover the principles of WMO's World Climate Programme have been followed since its foundation in 1979. The main contribution is provided in form of normal operational and research activities by the national weather service, Finnish Meteorological Institute (FMI). The number of observing stations for climatological purposes is relatively high in Finland. Presently about 100 stations make at least 3 observations per day (50 of them are synoptic with 8 observations/day). In addition, about 300 stations make daily precipitation and snow observations. The number of long-term climatic observing records is also quite comprehensive. The number of stations providing monthly CLIMAT-messages (14) and CLIMAT TEMP-messages (3) follows the WMO recommendations. Finland is the world leader in the development of biofuel incineration technology and the manufacture of fluidised bed boilers. Applications and technology for the production of solar and wind energy are being actively developed. The main products are solar power systems for consumers and special applications for use in developing countries and industry. Finland's specialized know-how is represented by fuel gas purification technology, energy metering systems, diesel power plants, and the treatment of solid fuels. Regarding fuels derived from wood harvesting Finland has made great advances in the development of technologies for utilization of wood and peat. The development of an integrated gasification combined cycle (IGCC) process has become just as important as that of

fluidised bed boilers. In the future research programmes on energy technology will focus on the use of bioenergy, the material technology of power plants and the energy economy in buildings. Research on building equipment systems explores means of optimising the chain of energy production, distribution and utilization by making use of efficient end-user solutions.

Financing: Finland uses a number of economic instruments that may have an effect on the GHG emissions. First of all fuels, electricity and heat are subject to the full 22% value added tax (VAT). VAT is also levied on the part of the commodity's price that consists of excise duty on fuels and energy sources. Second, the Finnish energy taxation system consists of taxes levied on transport and heating fuels and electricity. The basic duty on liquid fuels used in transportation is differentiated to promote environmental protection. An additional duty is levied on fossil fuels in heat generation and transportation again differentiated according to the carbon content of the fuel. Finland was the first country in the world to introduce a CO₂ tax in 1990. Reduced rates are applied for natural gas and peat. Third, to cover the costs of waste management the local authorities apply waste charges. There is also a national waste tax.

Cooperation: Finland has been active in international cooperation in order to reduce transboundary air pollution. Multilateral co-operation has been made more than 20 years according the UNECE Convention on Long-range Transboundary Air Pollution and now also within European Union. Bilateral work has been done with the Russian Federation and Estonia. The work started with flat-rate reductions of emissions but is today based on critical loads concept and differentiated emission reductions in every forum. Today Finland is acting as apart of European Union and the national regulations reflect the EU legislation. Finland became a Party to the Vienna Convention in 1986 and to the Montreal Protocol in 1988. Finland has also ratified the London and Copenhagen amendments to the Protocol. The United Nations Framework Convention on Climate Change was ratified in 1994. The EU has expressed its commitment to ratify the Kyoto Protocol by 2002. Finland is also exploring new forms for international climate-related cooperation. In 1999, Finland launched a pilot programme on joint implementation and clean development mechanism. The total funding for the programme is 6,7 million USD for years 2000-2002. Some JI projects have already been prepared together with Estonia and negotiations with other countries are under way with a view to initiating small, pilot projects in reducing GHG emissions. Under multilateral cooperation, Finland participates in the funding of the Global Environment Facility (GEF) with USD 51,9 million in 1993-2002. 40 % of the GEF budget is allocated for climate change activities. Finland also contributes to the Prototype Carbon Fund (PCF) of the World Bank with USD 10 million in 2000-2012. Furthermore, Finland contributes annually USD 1 million to the Multilateral Fund for the Protection of the Ozone Layer.

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CHAPTER 10: INTEGRATED APPROACH TO THE PLANNING AND MANAGEMENT OF LAND RESOURCES

Decision-Making: On the national level, the Land Use Department of the Ministry of the Environment is responsible for the legislation and guidelines for an integrated approach to spatial planning and the management of land resources. Therefore the Ministry has an important role in the national coordination system for sustainable development. The planning system is very decentralized. The 452 Finnish municipalities, both rural and urban, have extensive rights to decide on the control and guidance of their own spatial planning and development. The municipal councils prepare and approve their plans. The 19 Finnish regional councils have a right to prepare and approve their own land use plans and create regional development strategies. The Ministry of the Environment ratifies regional land use plans. Particular attention is given to ensuring an appropriate regional and community structure, to preserving landscape values and ecological sustainability. Regional land use plans transfer national and regional land use guidelines into the local level plans. The land ownership or tenure rights are not restricted from the Finns. However, there is one exception: in the province of Åland (25 000 inhabitants) restrictions upon the right of owning and holding real estate have been imposed with a view to preserving land in the possession of the Ålanders. It is necessary to possess Åland regional citizenship in order to own and hold real estate in Åland. In individual cases the government of Åland may grant exemptions from the rule that only possessors of Åland citizenship may own real estate. There are three levels in the land use planning system: the regional land use plan, the local master plan and the local detailed plan. Municipalities can prepare joint master plans. The Government can decide on national planning policy guidelines. On the local level, the integration and management of spatial functions takes place in this planning process. Local plans shall, according to the Land Use and Building Act, promote a well-functioning community structure, good access to services, and the conservation and maintenance of the natural and cultural heritage. The Ministry of the Environment prepares also non-binding national strategies such as for example the Finland 2017 Vision of the Spatial Structure and Land Use. Likewise, the National Environmental Policy Programme 2005 (MoE, 1995) includes measures aimed at ensuring environmentally sound land use, such as pilot projects, information dissemination, financial instruments and new forms of partnerships in planning and decision-making.

There are also special programmes on forests, shoreline management, national parks and nature reserves, cultural heritage etc. As a member state of the EU, Finland has created a Natura 2000 nature protection network. Another important European effort is the Action Plan for the European Spatial Development Perspective (ESDP). These programmes are implemented mainly by the spatial planning system. Current priorities for the development of the land use planning system are the implementation of the new Land Use and Building Act (implemented in 2000) and the preparation of national spatial planning guidelines. Of equal importance is also a better integration of spatial planning and nature protection, promoting sustainable traffic modes in spatial planning as well as integrating land use planning and other, e.g. financial, tools of urban management. The new Act makes the planning system very open to public participation. The interactive approach brings all individuals and institutions whose living and working conditions will be affected by a plan to participate in the process from the very beginning. The emphasis in Finnish urban planning is now on infill development, renovation as well as on parks and recreation areas. One of the important tasks of the planning system is the limitation of urban sprawl and the guidance of the increasing number of summer cottages built on shorelines. The two new Acts, the Nature Conservation Act and the Land Use and Building Act provide sufficient tools to handle these issues. Even though the urban sprawl and infrastructure building eats constantly the forest area in the surroundings of settlement areas, the annual change in the total forest area in Finland is very small.

Projects and Programmes: No information available

Status: Conflicting interests in the use of land for different functions are rather common. Mostly these conflicts, for example between development and nature protection, are solved in the planning process. An approved and binding land use plans, being democratically decided upon, is a genuine indication of the political will of the municipal council on how to develop their environment. According to this political decision, a land use plan can strongly

effect the social and economical conditions of the planned area. If involved parties, which can be individual citizens, organizations or NGO's, don't accept the contents of a plan, they can appeal against it through an administrative court. In environmental issues there is a standardized procedure of negotiations about local plans between the municipality and the regional environmental center, which can request for an amendment and make an appeal to the administrative court. The issue of the rights of Sami to the lands of Northern Lapland is still unresolved. The Finnish Government declared in 1990 that it was not able to ratify the 1989 ILO Convention Nr. 169 Concerning Indigenous and Tribal Peoples in Independent Countries, because Finnish legislation did not fully acknowledge, inter alia, 'the rights of ownership and possession over the lands which they traditionally occupy'. According to the Official Statement to Parliament of 11 November 1998 on the Government's Human Rights Policy, the conditions for ratification are to be studied. After having negotiated with the Sami Parliament, as provided in Section 9 of the Act on the Sami Parliament (974/1995), and with representatives of different ministries, the Ministry of Justice has appointed a rapporteur to investigate, by 30 September 1999, the usufruct in the State-owned land which is located in the Sami Homeland. The investigation is considered necessary because of differing evaluations presented over the years on the rights to land, water and natural resources, as well as to traditional natural sources of livelihood in the Sami Homeland. Removal of the obstacles for ratification of the ILO Convention underlies the investigation.

Capacity-Building, Education, Training and Awareness-Raising: The general trend during the 1990s has been to disseminate information more effectively and increase public participation. In 1990, the Building Act was amended so that consultation predominantly with landowners was shifted to broader consultation with the general public, and in 1994 regulations came into effect on environmental impact assessment in land use planning. The Building Act of 1990 defined the process of public participation in the local spatial plans to include public displays of the drafts and final plans, citizen's rights for proposals and objections. The act also allows for public hearings. In recent years many local authorities have adopted more advanced forms of cooperative consultation based on genuine interaction between the authorities and the people, instead of the traditional 'public announcements'. Participation and openness is increased by public meetings and "planning stations" where alternative solutions are on display for discussion and comment. There are also experimental projects to integrate sectoral policies and to bring physical, social and economical planning closer to each other. In several experiments weaker groups such as children, disabled and elderly people are actively encouraged to participate in the planning and making of their environments. In the new Land Use and Building Act (1999), people are given even better opportunities for participation than before, particularly in the early stages of planning. The Act calls for a special participation and assessment scheme to be drawn up when land use planning work begins. Participation is organized separately plan-by-plan in consultation with all interested parties. Interested parties include all authorities and organizations whose area of operations is touched by the plan.

The Ministry of the Environment has published guidebooks on participation and interaction in planning for the general public as well as for the experts. While participation procedures were being developed during the 1990s, special attention was given to the status of children as independent users of their environment, who can actively help to shape it. Participation is also crucial in assessing the environmental impacts of land use planning. Assessment is not a separate task, but an integral part of the whole planning process. The necessity for and extent of analysis is decided by different interest groups in cooperation and impacts are assessed at all stages of land use planning work. Preparing and comparing alternatives is an essential part of the assessment. Systematic assessment of environmental impacts has significantly altered the land use planning process and shifted the viewpoint from one centred planning structure of expert planning towards empowering the actual user of the environment.

Information: In general, information systems on land use are of good standard in Finland. The biggest gaps in the land information systems consist of the incomplete information on the real recreational areas and on the area and number of summerhouses in some parts of the country. The access to information is also on a good basis. In some data sources, however, the digitising is still in progress or due to cost or copyright reasons combining different data has not been possible. For example, because of the cost and copy right reasons the Slices database will not include land cover data. Statistical information on the information relevant to land use (e.g. vegetation cover, land capability and suitability at nation-wide scale, land area covered by human settlements and other physical

infrastructures) is sufficient in order to make sound decisions on a sustainable use of land resources. Information is widely accessible for the public and can be obtained from the internet as well as/or in a form of paper publications. The regional forest centres, for example, organize public information meetings, when new information relevant to their area is published. Land information systems, including GIS applications, are well developed in Finland. During the past few years, new indicators and systems for monitoring changes in the settlement structure in urban regions, including land use in urban centres and neighbourhoods, and the quality of built environment, have been developed. An expert group of the Ministry for the Environment has investigated the suitability of a preliminary set of indicators in a form of a pilot project in some Finnish municipalities. The final set of indicators, however, is not finished yet. In addition, indicators for municipal land use and management have been developed in the Finnish Association for Municipalities. Moreover Finland is preparing Corine Land Cover database (mainly based on satellite image processing with register data), which is a part of a nearly whole Europe covering database project based on existing GIS data on land use. The database regarding Finland will be finished by the end of year 1999 and might get updated in year 2000. Corine Land Cover database being rather undefined (smallest unit 25 ha) Finland is also preparing a “Slices” -project creating a finer land use database (10m resolution). This cross-administrational project will be finished within 2001. At the moment classification for the projects data (late 1980's to 1999) is in a development phase.

Research and Technologies: No information available.

Financing: Financial means are used protect for instance valuable nature areas against development pressures. The practice is that the state buys the land if the owner is not able to use it for reasonable economical purposes because of protection. The public sector can also give its own land in exchange with private owners.

Cooperation: Finland is active in international spatial planning cooperation. Land use planning and protection of land resources are taken into account in all relevant cooperation projects. In the nearby areas, i.e. North-western Russia, Estonia, Latvia and Lithuania, Finland supports training and finances projects mainly in regional planning, land and water resource management and environmental impact assessment (EIA). The adoption of the Action Plan of the European Spatial Development Perspective (ESDP) took place during the Finnish Presidency of the EU. Other fora of cooperation are the Vision and Strategies around the Baltic Sea 2010 (VASAB), the Sustainable Spatial Development Project of the Council of Europe, UN/ECE and HELCOM. The meeting of foreign ministers of the Council of Baltic States have adopted the Baltic 21 agenda for sustainable development in the Baltic Sea Region. One of the sectoral issues in the Baltic 21 programme is regional planning. Within the framework of bilateral development cooperation, Finland supports various programmes and projects related to the management and protection of land resources. There are also various projects to develop mapping and cartography.

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CHAPTER 11: COMBATING DEFORESTATION

Decision-Making: The Department of Forestry within the Ministry of Agriculture and Forestry is primarily responsible for forest policy and legislation concerning forestry in Finland. Other ministries and institutions actively involved in forestry matters are the Ministry of the Environment, Ministry of Trade and Industry, Ministry of Foreign Affairs, Regional Forestry Centers, the Forestry Development Center Tapio, the Forest and Park Service, the Finnish Forest Research Institute, Forest Management Associations and the Finnish Environment Institute. Finnish forest legislation has been completely reformed in the 1990s. The new forest legislation includes: (i) The Forest Act and the Nature Conservation Act (both in 1997) as part of a regulatory framework; (ii) The Act on Forestry Centers and Forestry Development Center (1996) and the Forest and Park Service Act (1994) were both finalized and approved after UNCED as examples of the development of the institutional framework; (iii) The Act on the Financing of Sustainable Forestry (1997) represents the development of financial instruments; iv. The Act on Forest Management Associations (1999); (v) Forest certification; and (vi) A huge number of tasks all the way from research projects to the practical modes of work in forests themselves has been carried out in order to develop the informational means. All forest law now focuses on promoting sustainable forestry, including the economic, social and ecological aspects. A key element of the Forest Act (1997), with regard to safeguarding biodiversity, is defining certain habitats of special importance and giving guidelines as to how these habitats may be managed.

The Act lists in all seven-habitat groups where demanding and endangered species may occur. Sites covered by the Act include, for example, minor water bodies and forest stands adjacent to them, small swamp-woods, patches of herb-rich forest, and forests under cliffs. If such a site is small with virgin forest or practically virgin forest, the forest owner may not take any actions, which might affect the site. Apart from the sites mentioned in the Forest Act the national legislation does not restrict the transfer of forestland to other uses. Reforestation in other parts of the country substitutes for the losses in the forest area in urban areas and road building. The purpose of the new Forest Act is to secure the production of timber, maintain the biological diversity of the forest nature and to take into account the multiple uses of forests. As in earlier forest legislation, the main obligations placed on the forest owner is to leave a sufficient number of trees with satisfactory growth potential in thinning and to establish new seedling stands after regeneration, felling (i.e. final harvesting). The forest owner has to make an official declaration of intent to the Regional Forest Centre prior to all commercial cuttings. This declaration is a legal tool for supervision, also with regard to securing biodiversity. The Finnish forest legislation sets the minimum quality requirements for silviculture. There is forest management recommendations for private forests, which help the forest owner in the management and utilization of her forest. Forest and environment authorities and various organizations in co-operation create the environmental recommendations for forestry. The goal of these recommendations is a silvicultural practice, which optimises the living conditions for organisms in managed forests and minimizes the negative environmental impacts caused by forestry. The silvicultural recommendations deal i.e. with the recommendable tree species for various types of sites, the appropriate time for thinning a tree stand and how much timber can be removed.

Projects and Programmes: In addition to the new obligation to safeguard biodiversity, the Forest Act also introduces the regional target programmes for forestry as a new instrument for enhancing sustainable forest management. The Forestry Centers (13) are responsible for drawing up these programmes in co-operation with environmental authorities, forestry organizations and other relevant parties. The programmes contain an overall description of forests and forestry and of the needs and objectives for development. In addition they contain a description of biological diversity of forests, needs for wood production, description of forestry enterprises and recommendations for promoting employment opportunities created by forestry. An assessment of the economic, ecological and social impacts of the implementation of the Regional Target Programme is also included in every programme. The Regional Forestry Target Programmes will be revised when necessary. An important milestone was the development of the Environmental Programme for Forestry in Finland adopted by the Ministry of Agriculture and Forestry and the Ministry of the Environment in 1994. Criteria and indicators for sustainable forest management were approved in December 1995. Transport and natural resources (including agriculture) sectors have ongoing indicator development as an integral part of their policy formulation and evaluation processes.

Finland has in its national forest policy sought long-term solutions, the most important programme being Finland's National Forest Programme 2010 (NFP). The Government approved the NFP in March 1999. This programme meets both international and national demands of sustainable development strategy. It recognizes the economic, ecological, social, and cultural aspects of the sustainable forest management. In substance the NFP more extensive than any similar programme Finland has had before. The NFP aims are directed towards securing employment and income based on forestry, assuring the diversity and health of forests and finally, allowing people the special kind of recreation and leisure that only the forests can offer. The basic idea behind the NFP is that a competitive forest cluster combined with the fact that forests are a renewable resource makes an excellent foundation for sustainable development. NFP is an on-going process. The National Forest Programme is implemented along the lines of the Regional Forestry Target Programmes, which integrates the regional objectives to the national ones. The implementation and follow-up of the National Forest Programme is carried out in the same spirit of public participation and co-operation as when the programme was made. To implement and follow the NFP a Forest Committee lead by the Minister of Agriculture and Forestry is established in which various ministries, business interests, associations, NGOs and expert organizations are represented. There are work groups dealing with international forest policy, conservation of forests in southern Finland and summer harvesting. The environmental impact assessment was commissioned from an independent group of experts. In addition to the ad-hoc work groups, the Forum for Innovation will work in close connection with the Forest Committee.

Status: Forestland covers 60% of Finland's total land area. Private citizens own 62% of forestland, while companies own 9% and the State 25%. There are more than 440,000 private forest owners and when counting the family members, about one million Finns can be estimated to be forest owners either directly or indirectly. This follows that the private forest owners play an important role in the sustainable management of Finland's forests. Forests and forestry have been the backbone of Finland's economy for decades and most of the Finns are even nowadays in a daily contact with forests and forestry. Practical forest management work and the national forest policy in Finland have been increasingly influenced by international forest policies and globalization of the forest sector. The forests are of vital importance in terms of promoting the welfare of Finland as a whole and its countryside in particular. In the present situation the poor employment situation and the depopulation of rural areas are of concern. Forestry is seen as a possibility to slow down the decrease in rural employment by helping to create new occupation for instance in value-added wood processing and wood energy production. Multiple use entrepreneurship - picking and processing natural products, tourism and various forms of recreational services - provide new opportunities for expanding and diversifying business activities. Forests give extra income for farmers and other private forest owners. The total gross income of selling wood from private forests is around 5-8 billion marks (0,9-1,4 billion US\$) yearly. Forestry, being one of the most important sectors in Finland, covered 8 percent of the GDP. In 1997, the value of forest industry exports totalled FIM 63.1 billion (US\$13.8 billion), and they accounted for 30 percent of total exports, an increase of 14 percent over the previous year.

Capacity-Building, Education, Training and Awareness-Raising: The Government started Time for Wood campaign in 1997. The campaign aims to increase the use of wood as building material, wood products and as a part of the Finnish culture. The objective of the campaign is to promote value-added wood processing and manufacturing, increase wood product export and create new jobs in the wood industry. The implementation of the new forest policy has required a lot of information, education and extension services to the forest professionals foresters and forest owners.

Information: The Ministry of the Environment has supported work on sectoral environmental programmes and indicators. Several forest related organizations publish and give out different kind of publications, brochures and magazines: Ministry of Agriculture and Forestry (<http://www.mmm.fi>), Ministry of Environment (<http://www.vyh.fi>), Forest and Park Service (<http://www.metsa.fi>), Forestry Development Center Tapio (<http://www.metsalehti.fi/tapio>), Finnish Forest Industries Federation (<http://www.forestindustries.fi>), Central Union of Agricultural Producers and Forest Owners (<http://www.mtk.fi>) and Finnish Forest Museum and Forest Information Center - Lusto (<http://www.lusto.fi>). Each of the organizations has also a communication and information unit. The Finnish Forest Association represents broadly forest-related organizations in Finland (<http://www.smy.fi>). It gives information on Finnish forests, forestry and the forest industry both in Finland and

abroad (<http://www.forest.fi>). Several research and educational institutes specialized in forestry are good sources of data and information: Finnish Forest Research Institute (<http://www.metla.fi>), The European Forest Institute (<http://www.efi.fi>), The Forest Faculties at University of Helsinki (<http://honeybee.helsinki.fi>) and Joensuu (<http://gis.joensuu.fi>). Information for private forest owners is available in regional forestry centres (<http://www.metsakeskus.fi>) and associations of private forest owners (<http://www.mhy.fi>). Updated information of Finnish certification can be found at: <http://www.smy.fi/certification>.

Research and Technologies: The Finnish forest research Institute (METLA) undertakes profound inventories of the forest resources in Finland on a continual basis. These inventories also cover other main categories of land use (agriculture and build environment and transportation). Forest inventories are made as fieldwork as well as with the help of satellite image processing. Inventories go into the very detail, consisting of i.e. vegetation mapping to support the work providing statistics for the field of biodiversity. Besides of the national level information, information is also provided for the area of each single municipality. Besides these regular inventories, inventories on the health of the forests as well as the state of biodiversity is under investigation or has been investigated recently.

Financing: The Act for Financing of Sustainable Forestry (1997) extends the public financing of forestry into the fields of maintenance of biodiversity in the forests and into forest nature care. The Act on the Financing of Sustainable Forestry guarantees State subsidies for management works in private forests which in themselves would not be profitable for the land owner. State financing is available, for instance, for slash burning, the reforestation of farming land, young stand management, cleaning drainage ditches and maintaining forest roads. The funding is graded, so that forest owners in northern Finland may receive more than forest owners in the south. Ecological management in conjunction with silvicultural work may also receive funding. The Act on the Financing of Sustainable Forestry guarantees State subsidies for management activities/operations in private forests, which in themselves would not be profitable for the landowner. State financing is available for forest regeneration in specific cases, e.g. the afforestation of agricultural land, and for prescribed burning, tending of young stands, harvesting of energy wood, forest fertilization in some specific cases, (remedial) improvement ditching and forest road construction. The management of especially valuable habitats may receive governmental funding, if the forest operation involved becomes more expensive than normally. The state can also finance planning and implementation of forest ecosystem management projects on privately owned land, e.g. restoring important habitats which extend over more than one forest holding- surveying important habitats remedial forest work in the context of landscape management restoring a forest ditching area in an important natural habitat remedial forest work in context with the landscape management- other significant projects of regional importance (multiple forest use, cultural value, recreational value etc.). Forest owners can be provided with financial support for the maintenance of biological diversity in their forests. As a financial support for the maintenance of biological diversity in forests the state can give environmental aid. The forest owner can be provided with partial or total financial support for the economical losses caused by maintaining of biological diversity especially the special importance habitats. However the forest owner must bear the insignificant financial losses. The level of insignificant losses is 4 % of the production value. The social benefits for the society are not covered by any state subsidies. The Everyone's right guarantees the access to forests for all citizens and the forest owner do not have the right to charge any fees or get any state aid for this.

Cooperation: On the European level Finland has been active in the series of Ministerial Conferences on the Protection of Forests in Europe and has committed itself to its Resolutions. The first Ministerial Conference was organized in Strasbourg 1990 and the second in Helsinki in 1993. In the follow-up process to the second Ministerial Conference on the Protection of Forests in Europe a set of Pan-European criteria and indicators for sustainable forest management were developed in 1994. Finland also fully supports the follow-up work of the third Ministerial Conference on the Protection of Forests in Europe held in Lisbon and the preparatory work for the fourth Conference in Vienna. Finland has implemented the process that begun at the UNCED by participating actively in the process of Pan European Ministerial Conferences, which is developing criteria and indicators for sustainable forestry, and by revising the main forest legislation and the primary regulations on forestry methods to correspond to international recommendations. During the present decade, one of the major starting points for the new

objectives in Finland's forest policy has been international agreements and political commitments. Particularly important are those agreed upon in the UNCED conference in Rio de Janeiro, in the subsequent follow-up process (IPF and IFF) and in the Ministerial Conferences for the Protection of Forests in Europe, including the follow-up of these conferences, too. The outcome of the international co-operation within processes has been adapted to Finland's circumstances in the new forest policy, legislation and management guidelines. Simultaneously, results from forest and environmental research have, of course, been used for redirecting forest policy. Finland has been actively participating in the IPF process both in Finland and during the IPF sessions. A dominating feature has been a broad participation where all walks of life of the Finnish society have been present and contributing to the process. As a part of six-country initiative Finland finalized the assessment of the IPF proposals in June 1998 in a participatory manner where representatives from relevant sector authorities and other organization were invited by the facilitator, Department of Forestry, Ministry of Agriculture and Forestry (2. a and b). In addition to national measures, many IPF proposals for action are significant to Finland in terms of international forest-related co-operation. In practical terms related to the key areas of the IPF process, Finland has: (i) finalized her national forest programme in spring 1999, (ii) continued national forest inventories and collects additional information in order to fulfill the latest needs of the Finnish society e.g. related to biological diversity and forest health, and (iii) kept continuously developing her national criteria and indicators towards operational tools for the follow up of the implementation on national forest policy. These key areas will be discussed in more detail further on in this chapter.

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CHAPTER 12: MANAGING FRAGILE ECOSYSTEMS: COMBATING DESERTIFICATION AND DROUGHT

Decision-Making: No information available.

Projects and Programmes: No information available.

Status: There are no deserts or areas in danger of desertification in Finland.

Capacity-Building, Education, Training and Awareness-Raising: No information available

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: Finland signed the International Convention to Combat Desertification in Countries Experiencing Drought and/or Desertification Particularly in Africa in 1994 and ratified it in 1995.

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CHAPTER 13: MANAGING FRAGILE ECOSYSTEMS: SUSTAINABLE MOUNTAIN DEVELOPMENT

Decision-Making: No information available.

Programmes and Projects: No information available.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER 14: PROMOTING SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

Decision-Making: The Ministry of Agriculture and Forestry is primarily responsible for agriculture and rural development in Finland. The Ministry of the Interior is responsible for coordinating regional development planning in cooperation with other ministries. National legislation covering agriculture and rural development consists of the following laws: 1. Act on Rural Industries; 2. Act on the Measures for Structural Policy in Agriculture; 3. Act on the Implementation of the Common Agricultural Policy in the European Communities; and 4. Act on Regional Development. The laws have been reviewed and modified to meet the requirements for sustainable development. Finland's national legislation does not restrict the transfer of productive arable land to other uses. Finland, as one of the rural member countries of the European Union, needs a reinforced rural policy. Horizontal rural policy has been implemented in Finland since 1988 in collaboration with several different branches of administration as well as regional and local organs.

The Strategy for the Sustainable Use of Renewable Natural Resources is a vital part of the Finnish government's policy on sustainable agriculture and rural development (SARD). Objectives of the Strategy is the integration of sustainable use of natural resources into the activities of the Ministry of Agriculture and Forestry. The activity of the Ministry and the research institutes and other institutions working under it have to make sure that the natural resources are used in a sustainable way. Integrated pest management from 1998, GAEPS support is subject to the condition that only tested and approved equipment may be used for spraying pesticides. Testing of equipment must be carried out by an authorized agency. Application of pesticides has to be carried out by a trained person, who has completed a course on pesticide use, application and handling, incorporating with the following items: how to minimize the environmental risks caused by pesticides; how to assess the actual need of pesticides in a farm and parcel basis; how to design a proper crop rotation in order to minimize the use of pesticides; how to do the application to avoid the wind drift, volatilisation and runoff; how to keep field-margins unsprayed; where to get the diluting water and how to wash the sprayer.

Programmes and Projects: Rural and regional policies are being implemented through Finnish regional programmes and the European Union's Programmes and Community Initiatives. The Rural Programme (1996) aims at achieving rural viability and improving rural areas diversifying rural economic activities, creating networks and increasing interaction with towns. A plan for a new Rural Development Programme in Finland connected with the Agenda 2000 Reform in the EU will be presented to the Commission of the EU in autumn 1999. It includes a plan for the horizontal Agri-Environmental and LFA-programmes and for regional programmes. In Finland the Agri-Environmental Programme based on the EU Regulation 2078/92 was prepared for the years 1995-1999, and is co-financed by the European Union (50%). The programme was prepared in cooperation with the Finnish agricultural and environmental authorities. The Programme consists of four elements: 1. the General Agricultural Environment Protection Scheme (the GAEPS); 2. the Supplementary Protection Scheme (the SPS); 3. the Scheme for Advisory Services and Training; and, 4. the Scheme for Demonstration Projects. The Åland Islands have their own separate Agri-Environmental Programme.

By the end of 1998, 88 % of the active farms participated in the programme. Thus requirements of the GAEPS cover 91 % of the arable land of the country. The amount of contracts for different SPS measures totaled almost 17 000 by the end of 1998 and covered about 210 000 hectares of the cultivated area and over 7000 livestock units. The area of under or in transition to organic farming covered about 125 000 hectares by the end of 1998. The objective of the Agri-Environmental Programme is to practice agricultural and horticultural production in a sustainable way to reduce the impact on the environment caused by production, to protect the traditional agricultural landscape, and to preserve the preconditions for production in the long term. The objective is also to regulate the use of production methods in order to achieve the goals set for preserving biological diversity, and at the same time, to produce pure, high quality products using acceptable production conditions and methods.

In the preparation of the programme, the opinions of many organizations, e.g. the Union of Finnish Farmers as well as local and regional authorities were heard. To receive the GAEPS premium the farmer has to make, together with the authorities, an environmental management programme for his/her farm. Implementing the programme the

farmer will reduce the use of fertilizers and handle manure properly, reduce the use of pesticides, increase the plant cover outside the growing season and help preserve the biodiversity and agricultural landscape. SPS consists of: promoting organic production; establishing riparian zones for reducing erosion and nutrient losses in vulnerable areas; promoting treatments of runoff waters from arable land and balanced use of nutrients in manure; restoration and management of traditional landscapes; extensification of agricultural production on ground water areas; and maintaining local breeds in danger of extinction. The Agri-Environmental Programme includes the Scheme for Advisory Services and Training and provides free of charge advisory services and training to teach farmers in environmentally friendly production methods and techniques.

Even though the Agri-Environmental Programme covers also the issue of conservation and rehabilitation of degraded lands when needed, the problem of degradation is not serious in Finland. In some areas on minimum of 30 % of the arable land must be covered by plants or plant residues outside the growing season, or an approved method of reduced tillage must be used. The minimum plant cover requirement of 30 % for all the farms is, however, seen as problematic it being too stiff a measure. The effects of the measure on reducing runoff on certain soils can be contradictory. Integrated pest management, land degradation and rehabilitation, integrated plant nutrition management and plant and animal genetic diversity are also reflected in the Agri-Environmental Programme in Finland. In addition the programme aims at integrating environmental concerns into agriculture development projects, for example in relation to management of rangelands, forests, water quality, wildlife, conservation of genetic resources or other. Providing water for sustainable food production and sustainable rural development are not relevant issues in Finland.

There is no separate integrated pest management (IPM) programme but one of the objectives is to reduce detriments resulting from the use of pesticides. There has been a clear decreasing trend in the use of pesticides in the 1990's. From 1994 to 1996 the decrease in the use of pesticides measured as effective substance was 34 %. Obligatory testing of spraying device as well as training in the use of pesticides has contributed to this decrease. Consistent with the subsidiary principle, the role of the provinces in programming has increased. In accordance with the partnership principle, the organizations concerned with employment or industry and commerce participate in the regional policy planning. In addition, municipalities and enterprises take part in the local development more than they did previously.

Status: In Finland, the number of farms has decreased. In 1990, the number of active farms was about 130 000 whereas in 1998 it was less than 86 000. At the same time, the size of farms has increased. The average arable land area of an active farm is 24 ha (1997). The total agricultural area is 27 490 km² which is 8 % of the total area. About 42 % of the farms are specialized in crop cultivation and 33 % in dairy farming. Dairy products and meat account for almost a half of total agricultural production. Cereal production is mainly concentrated in southern, southwestern and western Finland whereas dairy farming in central Finland and in western Finland. The share of agriculture in the gross domestic product was 1.5 % (1997) and the share of labour force employed in agriculture 6 %. The major environmental problems caused by agriculture are leaching of nitrogen and phosphorus into the watercourses, emissions of ammonia into the air and loss of biodiversity. The main threats for the rural development in Finland are the discontinuing of agricultural production and the depopulation of the countryside.

According to the results of monitoring of the Agri-Environmental Programme, the agricultural practices have changed into a more environmentally friendly direction. The use of fertilizers was at its highest at the turn of the 1980s and 1990s, and since then it has been on the decrease. Application of nutrients (incl. both commercial fertilizers and cattle manure) has notably decreased in the 1990's. When in 1990, 131.3 kg nitrogen was applied per hectare; the figure in 1997 was 104.3 kg, the amount of applied phosphorus decreased from 35.8 kg/ha to 16.6 kg/ha. In 1997 the use of nitrogen administered to the crops in artificial fertilizers and manure was about 10% and that of phosphorus about 30% smaller than in 1994. In the use of artificial fertilizers this means in practice that the average quantities used have fallen below the basic fertilization levels according to the GAEPS. For the most part the fertilization is carefully planned on the basis of the information from the soil fertility study, plant species or varieties and expected yield. The nutrients in manure are also taken into account in fertilization, which is reflected in the reduction in the sales of phosphorus fertilizers. Peak fertilization levels no longer occur on the farms

receiving environmental aid. Winter green cover has increased, animal densities have declined. The loss of nitrogen and dissolved phosphorus has also declined.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: The Ministry for Agriculture has prepared a strategy (1997) and general indicators for monitoring and managing the amount and use of renewable resources (first set 1999). With the aid of these indicators it is possible to gather nationally reliable data on renewable natural resources and obtain information on pressures and threats, including qualitative and quantitative trends for the resources. The set of indicators consist of the following Finnish renewable natural resources: arable land, agricultural plants and domestic animals, production methods and quality of the products, renewable energy sources, fur farming, products from forests and peat land, game husbandry, reindeer husbandry, fisheries and water resources. The rural landscape (countryside) and biodiversity is also considered an important natural resource as well as social, cultural and economic impacts of agriculture on the farmers and the viability of the rural areas. The indicator system will be tested during the next two years.

Research and Technologies: No information available.

Financing: Financial support for agriculture is provided by the General Agricultural Environment Protection Scheme and the Environmental Support Programme of Agriculture, in accordance with the regulations of the European Council. The European dimension is also reflected in Finland's relationship to foreign trade and GATT/WTO, agriculture commodities prices and regional economic integration: as a member of the EU Finland has common measures with the European Union.

Cooperation: Finland is committed to Baltic 21 - Action programme for sustainable development in the Baltic sea region -programme. Baltic 21 sets goals for sustainable development in the region i.e. for the agricultural sector, that are also supported by Finland. In the implementation of the Baltic 21 programme local farmers and citizen are encouraged to take part in the sustainable measures. The union of the Finnish Farmers implements an Agenda 21 programme of their own. More information on the Baltic 21 programme can be found on programme's web-pages <http://www.ee./baltic21>.

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CHAPTER 15: CONSERVATION OF BIOLOGICAL DIVERSITY

Decision-Making: The Council of State has taken a Decision-in-Principle on Measures promoting the research and conservation of biological diversity (Council of State Decision dated December 21, 1995). Its objective is to promote cooperation between ministries and to define their respective responsibilities in the implementation of the Convention on Biological Diversity. The Decision-in-Principle states that each ministry is responsible for the conservation and sustainable use of biological diversity within its field of jurisdiction, as well as for making proposals for measures promoting biodiversity (under the principle of “sectoral responsibility”). The principle of sectoral responsibility has been carried further in the work of the National Commission For Biological Diversity (1996-97) including Finland’s national action plan for biological diversity 1997-2005. The action plan is indeed designed to create a new orientation in administration, trade and industry by ensuring that the maintenance of biodiversity is given due attention in all public endeavours, comprising a wide body of representatives from all ministries, key sectors of trade and industry, as well as environmental organizations.

Legislation: The ministries have worked to ensure the requirements of biodiversity are considered in all the legislation on the use of natural resources, which has been renewed during the 1990s (The Nature Conservation Act, the Water Act, the Forests Act, the Act on the Financing of Sustainable Forestry, and legislation on the Forestry Development Centre Tapio, forestry centers, Metsähallitus – Forest and Park Service and the forestry associations). Other legislation has also recently been revised to promote the conservation of biodiversity. The new Land Use and Building Act (132/1999) came into force in January 2000. Plans must also now incorporate ecological sustainability, recreational land use, landscape and natural values, environmentally and economically sustainable transport and technical maintenance systems and the reduction of environmental degradation. The act includes a new section concerning national urban parks, which are intended to promote the preservation and management of extensive, nationally significant parks and green areas in urban surroundings.

Finland became a member of the European Union on 1 January 1995 and is therefore bound by EU Regulations. Finland has reviewed and revised its legislation and adopted various national programmes and decisions in accordance with the objectives of Chapter 15 and international agreements, e.g. CITES in this field.

Projects and Programmes:

Finland's National Action Plan for Biological Diversity 1997-2005 is designed to preserve a sufficiently representative sample of the various species and structural diversity of natural habitats and ecosystems in all of Finland's biogeographical zones. A concurrent aim is to protect and care for flora, fauna, genetic resources and habitats. In addition to the protection of living organisms and ecosystems, the action plan aims to preserve the biological diversity of those cultivated and domesticated species with established importance as a genetic resource in Finland. The environmental impact assessment of the action plan will begin in 2003.

The importance of the conservation and sustainable use of biodiversity is clearly evident also in *the National Forest Programme for 2010* approved by the Government in 1999. The programme balances ecological, economic and social aims with the intent to achieve and maintain a favourable conservation status for species and habitats through a suitable combination of protected areas and the application of varied management methods in commercial forests. Steps will be taken to reduce the ecological risk factors, which became apparent during the environmental impact assessment for the programme.

The Ministry of the Environment's working group on the need for protection of forests in Southern Finland examined the conservation status of forests in Southern Finland during 1999-2000 and made proposals regarding the need to develop the protection of the region's forests. The work of this expert group is being continued by the government-appointed *Southern Finland forest protection programme committee (METSO)*, whose task is to draft proposals for a programme of aims, funding and action for the protection of forests in southern Finland, western parts of Oulu Province, and south western parts of Lapland Province.

Finland's proposals for the *Natura 2000 nature conservation network* include 1,458 areas that meet the requirements of the EU's Bird and Habitats Directives, covering a total area of some 4.8 million hectares (approx. 12% of the country's total area). About 75% of the total area proposed consists of land areas, and 25% of areas of water. Some 97% of the land areas were already protected or designated for protection under existing conservation programmes. Numerous nature reserves have been established to preserve biotopes and species typical to Finland. Six *national conservation programmes* have been drawn up, namely the Mire Conservation Programme, the Eskers Conservation Programme, the Waterflow Habitats Conservation Programme, the Shore Conservation Programme, the Herb-rich Forest Conservation Programme, and the Programme for Conservation of Old-growth Forest. Special *protection plans* have been completed for many endangered species.

The Ministry of Agriculture and Forestry revised at the end of 2001 its *strategy for the sustainable use of renewable natural resources*. The first strategy is from 1997. In addition, the *Finnish Agri-Environmental Programme* (EEC Reg. No. 2078/92) aims at protecting the genetic diversity of agricultural plant and animal species, and at preserving and restoring biotopes essential for agriculture-dependent, threatened wildlife.

Status: The maintenance of Finland's biological diversity rests on two things: having a sufficient number of nature reserves and ensuring the sustainable use and management of commercially exploited land, while also giving due consideration to other public interests. The increasing emphasis that is being placed on biodiversity in the commercial use of land will eventually reduce the need to establish new nature reserves.

A new 'red list' describing the status of Finland's threatened species was published in 2001. Enough data existed for the status of some 15,000 to be determined, and about one in ten of these were classified as threatened. Just over half of Finland's 43,000 species had to be left outside the evaluation. Some 37.5% of Finland's threatened species are primarily associated with forests, which are still the most important habitat category for threatened species. The gradual endangering of forest species seems to have slowed during the 1990s, but many species, particularly those associated with old-growth forest habitats in southern Finland, are increasingly in danger of extinction. The status of species associated with traditional agricultural habitats has noticeably worsened since previous surveys were conducted.

Nature conservation:

Finland has a network of nature reserves established under the Nature Conservation Act, including legal protection programmes for various habitat types added between the 1970s and 1990s. Due to new nature reserves, and particularly to new wilderness areas, the total area of nature reserves had tripled by 2001 since the beginning of the 1980s. At the end of 1998, the area of nature reserves in Finland was 2.8 million hectares, or 8.2 percent of Finland's surface area. The scope of current conservation programmes is 3.55 million hectares, about 9.3 percent of Finnish territory. The target is to have all programmes realised by 2007.

Forestry:

The need to maintain biodiversity in the development of sustainable forestry has been stressed. The proposals of the National Action Plan for Biological Diversity 1997-2005 have generally been implemented well in the forestry sector.

Regional forestry programmes drawn up as required in the Forest Act represent an attempt to balance the various uses of commercially managed forests, and to give an overall view of the state of forestry and development needs in different regions. These programmes include descriptions of each region's forest biodiversity, needs and goals related to preserving forest biodiversity, and estimates of the economical and environmental impacts of the necessary measures. Indicators are being developed to monitor the implementation of these forest programmes.

Metsähallitus (formerly the Forest and Park Service) has adopted new 'landscape ecological planning' procedures (LEP). According to an evaluation by external consultants, "[LEP] represents a considerable step towards ecologically, economically, and socio-culturally sustainable forestry." During the year 2000, 112 LEPs were completed, for all major state-owned commercially managed or recreational forest holdings administered by Metsähallitus, with the exception of mainly treeless land-holdings in northern Lapland.

The large forest industry companies, Metsähallitus – Forest and Park Service, the Forest Research Centre Tapio, regional forestry centres and over a hundred forestry associations each have their own environmental management systems. However, there is still work to be done regarding, for instance, the lack of applicable research data, the cost-efficient integration of timber production and ecosystem management, the funding of ecosystem management and the availability of human resources.

Agriculture:

The agri-environmental subsidies programme for 2000–2006 contains sections describing how the protection and management of biodiversity can be promoted. The first Agri-environmental Programme for Finland involved about 90 % of all operating farms over the period 1995–99. The most interesting forms of subsidy for farmers have proven to be agreements on the management of traditional agricultural biotopes. Other management agreements concerning landscapes and natural habitats are being promoted through training, guidance and the production of educational materials. MYTVAS 1 project has shown how the various forms of environmental subsidy and their criteria have affected agricultural practices, environmental loads, and the state of the environment over the first subsidy period (1995–1999). This research will continue through the second subsidy period (2000–2006) within the MYTVAS 2 programme

General planning related to biodiversity in agriculture is being developed through a joint project, involving the Ministry of the Environment and the Ministry of Agriculture and Forestry, which began in 2001. Farmers are encouraged to manage valuable natural habitats through careful planning, and associated advice on financing opportunities.

Transport:

National Road Administration guidelines stress that when new roads are planned, suitable routes must also be created or preserved for animals, by surveying their routes and territories, and where necessary by providing suitable routes for them to pass over or under new roads according to their natural movements. The *ECOPLAN* project, as part of the FIBRE research programme, attempts to promote research into the ecology of urban areas, and to improve the utilisation of ecological data in urban planning and the management of nature in towns and cities. Research results due in 2002 are also intended for use in the transportation sector.

The impacts of the transport infrastructure on biodiversity are currently assessed mainly on a local scale, when new routes are planned. The Ministry of Transport and Communications has an environmental programme, which includes proposals for indicators which could help to assess the scale of the ecological impact of new routes.

Land use:

Local authorities are required to promote and supervise environmental protection. To ensure a sound environment, they plan local land use and regulate and supervise building and development. Local authorities conserve and maintain biological diversity through land use planning. Apart from reserving areas from conservation, measures for conservation and maintenance of biological diversity include consideration of important habitats in planning the location of urban development, preservation of land areas, conservation of landscapes and development of shore plans. A guide is being prepared which will help local planners to consider biodiversity while drafting plans or assessing the environmental effects of proposed developments.

Capacity-Building, Education, Training and Awareness-Raising: The regional environment centres have a key role in the distribution of information to local authorities about the obligations of the Nature Conservation Act, and in the consideration of biodiversity during the planning procedure and when issuing various environmental permits, for instance. Regional and local interest groups should be involved in cooperation on planning at the earliest possible stage.

The forestry sector trains its own personnel and experts from outside the sector on the preservation, management and sustainable use of biodiversity. Most forestry professionals have already received special nature management training; and forestry workers, forest machine operators and forestry service-providers are also significantly getting involved. The numbers of forest-owners participating in such training and assessment have only risen slowly, however. The national average score for those undergoing such graded assessment has been 82% (1999–2001).

Metsähallitus – Forest and Park Service, the organisation responsible for the administration of state-owned forests, has developed its activities and planning and trained its personnel with regard to the management of biodiversity.

The National Board of Education assessed during 2001 how sustainable development could be promoted in schools and other educational institutions. According to the report, issues related to the preservation and sustainable use of biodiversity are covered in biology at all levels in schools. Attempts have also been made to include issues related to the management of biodiversity in the teaching of other subjects. The National Board of Education has approved the basis of a national core curriculum for the restructuring of secondary professional education. Related curricula have already been developed and adopted in certain educational institutions. Biodiversity and sustainable development have already been more widely considered in tertiary education.

See also under **Research and Technologies**.

Information: Different stakeholders have produced plenty of material on the conservation and sustainable use of biodiversity, including press releases, leaflets, guides, publications, websites and other informative materials. At the end of 1998, a new website on the Finnish Clearing-House Mechanism of the Convention on Biological Diversity, known as LUMONET, was set up by the environmental administration as part of the Clearing-House Mechanism of the Convention on Biological Diversity (CBD CHM). For more information: www.ymparisto.fi/lumonet <http://www.luomus.fi>

Monitoring of biodiversity:

The Ministry of the Environment's *research, monitoring and information systems expert group (TST group)* has proposed a system for monitoring the state of biodiversity in Finland. Finland does not yet have a single comprehensive data register or information service for planning data. Several geographical data systems, including data systems on threatened and other monitored species, forest biodiversity, habitat types and protected areas as well as valuable cultural and natural sites are being developed or examined in praxis.

The annual monitoring of nature management in commercial forests involves compiling data on the occurrence of valuable natural features, the preservation of such features after cutting, the extent of stands spared from cutting in order to preserve biodiversity, the protection of water courses, the quality of ground preparation and landscape management work, and the costs involved in nature management methods. Results obtained during 2001 indicate that the quality of the nature management work carried out during cutting and forest renewal work has improved. Natural features are evidently already being well preserved in commercially managed forests, and the overall situation regarding guaranteeing the preservation of valuable habitats is now favourable.

Indicators:

The Ministry of the Environment published a series of indicators of sustainable development including a preliminary set of biodiversity indicators in 2000. The Ministry of Agriculture and Forestry has through wide-ranging co-operation created a set of criteria and indicators for sustainable forestry. General indicators are currently being assessed in accordance with the aims and framework of the Ministry's new natural resources strategy, and indicators to measure the state of biodiversity are being developed further in connection with this work. The Ministry of Agriculture and Forestry has also been actively involved in the development of *Agri-Environmental Indicators* for the OECD. Data on natural resources (e.g. indicators for the natural resources strategy) is gradually being compiled on the ministry's web site. These measures contribute to the establishment of a system for managing data on natural resources.

A game biodiversity index developed by the Finnish Game and Fisheries Research Institute (RKTL) has proven to be a good indicator of the state and distribution of the populations of game species.

Forest certification:

At the beginning of 2001 some 95% (24.8 million ha) of Finland's commercially managed forests had been certified under the *Finnish Forest Certification System* (FFCS). Independent certifiers granted 13 regional FFCS certificates over the period 1999–2000. External evaluations during 2001 revealed only slight deviations from the criteria specified in the FFCS, which is part of the wider *Pan-European Forest Certification System* (PEFC). By

autumn 2001, more than 30 Finnish forest industry companies had been granted the right to use PEFC product labeling. PEFC labeling is particularly widely used in the marketing of mechanically made forest industry products.

Finland's Forest Stewardship Council (FSC) working group prepared during 2001 a set of draft FSC certification standards for Finland, with the support of nature conservationists. FSC certification was granted for the first privately owned Finnish forests in autumn 2001. Since Finland's FSC standards have not yet been internationally approved, for the time being international FSC criteria have only been applied in these forests (92 ha). Two companies in Finland have so far been granted the right to use FSC product labelling for products made of certified imported wood.

See also under **Research and Technologies**.

Research and Technologies: The Finnish Biodiversity Research Programme (FIBRE 1997-2002), initiated by the Academy of Finland, aims to produce high-level, internationally-applicable research data on the following themes: the sustainable use of natural resources as part of the preservation of biodiversity; the biology of nature conservation and the socio-economics of nature conservation as a tool in the conservation of biodiversity; and the preservation of genetic biodiversity and biotechnology. The FIBRE programme represents a considerable investment in research and development in this field, also on the international scale, both in terms of its wide scope and the funding involved (about. 20.2 m euro).

Other relevant research programmes include Finnish Global Change Research Programme FIGARE (1999-2002), FIGARE projects (1999-2002) and Research Programme on Sustainable Use of Natural Resources SUNARE (2001-2004). In addition, the national forest inventories include data related to biodiversity. The data have been developed systematically in the 1990s.

The representativeness of Finland's network of protected areas, and its effectiveness in preserving biodiversity have been assessed in the *Evaluation of the representativeness of Finland's protected areas* (SAVA) research project. Finland became a full member of the *Global Biodiversity Information Facility* (GBIF) on 25.4.2001 (<http://www.luomus.fi>).

The Ministry of the Environment's second working group monitoring Finland's threatened species compiled over the period 1997-2000 a third list of threatened species. This work involves following trends in the populations of Finland's threatened animals and plants, and applying the categories of the IUCN classification of threatened species (1999, 1994) in Finland.

Financing:

Nature conservation programmes:

The Finnish Government approved in 1996 a nature conservation funding programme for 1996–2007, earmarking a total sum of 552.5 million euros for the implementation of conservation programmes, land acquisition for the State, and compensation for land-owners, aiming to ensure that nature conservation programmes could be implemented by 2004 at the latest.

Research, monitoring, conservation and management work related to threatened species:

The *red list of threatened species in Finland 2000* report included calculations of the additional resources needed for research and the monitoring, protection and management of threatened species. These expenses amount to a total of 3.9 million euros a year over the next ten years (research: €0.6m; monitoring €1.4m; protection €0.8m; management €1.2m).

The Ministry of the Environment has allocated resources amounting to €0.2–0.3 million a year for the period 1998–2002 to the Finnish Environment Institute, regional environment centres, WWF expert groups for different species groupings, universities and natural history museums; for use in projects, reports and planning related to the management and protection of threatened species on private land. The funds involved have remained at virtually the

same level for a decade, allowing no scope for additional financing, even for urgent projects related to the protection and management of species in need of special protection.

The management of protected areas:

The funding allocated by the Ministry of the Environment for the management and maintenance of protected areas is crucial for their long-term development. Metsähallitus estimates that an increase in funding of €4.0m a year for the years 2003-2006 compared to 2002 levels will be needed to ensure the increasing workload is satisfactorily dealt with.

Table. Government expenditure on the maintenance and management of protected areas; million €(approx.); 1998–2002 (Ministry of the Environment 1998–2002).

1998	1999	2000	2001	2002
11.5	12.3	12.6	14.0	15.3

The EU LIFE Nature fund:

EU LIFE Nature funds are allocated for the protection of species and habitats listed in the birds and habitats directives, particularly in areas proposed for the Natura 2000 network of protected areas (consisting of partial funding of up to 50 %, and in special cases funding of up to 75% of total costs). Over the period 1995–2001 Finland received a total of approximately €28.9m in EU LIFE Nature funding for 30 projects, each lasting 2-4 years

Environmental subsidies for forestry:

Environmental subsidies granted under the Act on the Financing of Sustainable Forestry significantly promote biodiversity in commercially managed forests. Government budgets for 1997–1999 allocated approximately €2.5m a year to promote natural forest management. The National Forest Programme increased this funding by some €1.7m; and the budget for 2000 duly allocated annual funding amounting to a total of €4.2m for these purposes. But in spite of the growing need for nature management within the forestry sector, funding levels have remained at this level of €4.2m during the period 2001–02.

Environmental subsidies for agriculture:

The Agri-environmental Programmes (1995–1999 and 2000–2006) aim to reduce the harmful environmental effects of agriculture, and to promote biodiversity in farmland habitats. One aim of the programme for 1995–1999 was that more than 90% of all active farms would become committed to meeting the conditions for basic subsidies. In 1999 around 90% of all the farms that had applied for field area subsidy were involved in the basic subsidy scheme. In 1999 a total of around €270.1m was paid out in environmental subsidies, of which more than €233.4m consisted of basic subsidy, and around €35.3m of special subsidy, with the remainder allocated for training, consulting and experimental projects. The Ministry of Agriculture and Forestry supported environmental training and consulting in agriculture to the tune of €7.2m over the period 1995–1999. In 2000, some €276.2m of subsidy was paid out under the Agri-environmental Programme for 2000–2006. Special agri-environmental subsidies may be granted for establishing buffer zones, creating and managing wetlands, organic farming, managing traditional agricultural biotopes and raising landrace livestock breeds, for instance. Over half of the subsidies are financed by the EU. Training, consulting and information services will be continued during the period 2000–2006, with €0.8m a year earmarked to cover expenses.

Cooperation: The Convention on Biological Diversity (CBD) was signed in 1992; ratified in 1994; and entered into force 1 August 1994. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was signed in 1976. Finland has participated in the work of the Inter-governmental Forum for Forests (IFF) and in discussions on international agreements on forests. Finland participates in the biodiversity projects of the EU/European Environment Agency; UNEP; the Council of Europe; and the Nordic Council of Ministers, and cooperates with the European Connect Network of Nature Conservation Research Unit, the Environmental Data Centre of the EU, the European Endangered Species Programme and the Species Specific Programme, as well as with the Arctic Environmental Protection Plan (CAFF). Finland also supports GEF, UNEP and international NGOs,

for example the IUCN. There is also an active Finnish-Baltic cooperation as well as cooperation with Russia to inventory valuable nature areas and to plan a network of protected areas (e.g. Green Belt). Finnish bilateral development programmes try to preserve the biological diversity in the target countries directly or indirectly.

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CHAPTER 16 AND 34: ENVIRONMENTALLY SOUND MANAGEMENT OF BIOTECHNOLOGY AND TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY, COOPERATION AND CAPACITY-BUILDING

Decision-Making:

Technology: No information available.

Biotechnology: No information available.

Projects and Programmes:

Technology: In 1994-1995, the Confederation of Finnish Industrial Employers (TT), the Ministry of Trade and Industry, the Ministry of the Environment, and the Finnish Environment Agency carried out a joint project regarding sound management of environmental affairs by SMEs. After the cooperation project, further steps for improving environmental management in SMEs were planned.

Biotechnology: No information available.

Status:

Technology: Environmental soundness is considered to be an integral part of any new technology, and accordingly this means that the development and transfer of Environmentally Sound Technologies (ESTs) is supported in the same way as any new technology. Technology policy is one of the most important parts of Finland's industrial policy, and the Government is both increasing the funding of R&D as well as improving the effectiveness of the existing innovations. More financial and human resources, improved data bases and exchange of information sources/systems and study visits are proposed to improve access to and efficient use of information sources/systems related to environmentally sound technologies.

Biotechnology: No information available.

Capacity-Building, Education, Training and Awareness-Raising:

Technology: It is important that end users participate in the assessment and selection of the technology to be used. The technology employed should be socially and politically acceptable, affordable and compatible with the available human and material resources, replicable as well as ecologically sustainable. In its ideal form, the technology employed in a development project makes use of existing traditions and contributes to greater local, national or regional independence. It promotes creative human activity and should, in this way, lead to the creation of more appropriate technologies. There is national legislation to protect Intellectual Property Rights (IPRs) which is also applicable to promote investments related to transfer ESTs. This legislation is compatible with applicable international agreements. Finland also promotes the use of ESTs through its development aid. According to the newly published Development Cooperation Guidelines for Programme Design, Monitoring and Evaluation, technology is a part of society's products, processes and institutions and is a major force in social and political change. In a development project, technology refers too much more than the equipment or the tools, which are used, and this has far-reaching implications on sustainability. Economic instruments are used to promote technological innovation in specific sectors, such as water and waste management (for example, user charges for sewage treatment and waste management; national charge for waste disposal and management; charges on pesticides; charges on lubricant oil; and taxes on beverage containers). There is a deposit system for returnable bottles. This also includes wine, spirit and beer bottles that are not reused as beverage containers but recycled as raw material. A new deposit-refund system for disposable beverage containers (aluminum and steel cans) entered into force as of 1 December 1995. In Finland there are several eco-labels to inform the consumers about environmental considerations. The most important ones are the Nordic Eco-Label and the EU eco-label.

Biotechnology: No information available.

Information:

Technology: The Finnish Foreign Trade Association publishes the Finnish Environmental and Technological Review (ENVIROTEC) yearly. Its sources of information are the following: Technical Research Centre of Finland (VTT); Technology Development Centre (TEKES); Chemical Industry Federation; Central Association of Finnish

Forest Industries; Federation of Finnish Metal Engineering and Electrochemical Industries (FIMET); and the Finnish Foreign Trade Association. In collaboration with the Finnish Foreign Trade Association, Finnish administration, enterprises and research institutes are developing a new Internet-based information system of environmental technology. The links and network of the system are under development. The system is planned to be in action at the end of 1998. The contact person is Export Promotion Manager Aarno Karttunen in the Finnish Foreign Trade Association. Internet: aarno.karttunen@exports.finland.fi / internet: www.envirofi.com

Biotechnology: No information available.

Research and Technologies:

Technology: Environmentally-sound technologies are promoted in many ways, including through the application of energy and environmental taxes and support to research programmes on alternative energy technologies. The Technology Development Centre (TEKES) and Technical Research Centre of Finland (VTT), in particular, contribute to the development and use of ESTs. The Finnish National Commission on Sustainable Development has a subcommittee on production and consumption, finance and transfer of technology. In addition, both technology centers at different universities and technology fairs bring together stakeholders with a view to promote and improve the selection, transfer and application of environmentally sound technologies. Finland has no general policy or strategy for the promotion of innovation in the area of ESTs. However, Finland grants subsidies to research and development of ESTs and to development of models of activities in this area. Governmental guidelines of the subsidies for the promotion of environmental protection have been adopted and they are applied.

Biotechnology: No information available.

Financing:

Technology: Environmentally motivated subsidies include: Grants for energy efficiency and renewable energy; grants and loans for research and development; environmental conservation loans and guarantee systems; and agricultural environmental aid. Already now Finland has a substantial environmental portfolio. For example Finland has specific programmes and financial arrangements for transferring environmentally sound technology to combat climate change. In this field Finland supports cleaner power and heat generation options with grants, concessional credits and development credit financing. A great part of Finland's pre-mixed concessional credits of USD 693 million has been used for transferring environmentally sound technologies, such as pulp and paper, energy production and waste water treatment technologies to developing countries. FINNFUND was established in order to promote economic and social development in developing countries by transferring human and material resources. Most of the funds have been utilized for projects in forestry as well as in energy and transportation.

Biotechnology: No information available.

Cooperation:

Technology: Finland emphasizes the role of development aid in supporting developing countries to fulfill their international environmental obligations. Finland has continued to support several multilateral assistance programmes and organizations aiming at technology transfer, such as the Global Environmental Facility, The Ozone Fund, UNEP and UNDP. Finland's share of environmental technology in the export markets can be increased, especially in the markets in close proximity to Finland, provided that financing for the investment can be raised. The most important countries receiving support for the transfers of environmentally sound technologies from Finland are developing countries and the neighbouring countries with economies in transition. Finland has also supported several multilateral assistance programmes and organizations aiming at technology transfer, such as the Global Environmental Facility, the Ozone Fund, UNEP's Clearinghouse and UNDP. The Technical Research Centre of Finland has actively participated in international cooperation in the field of clean technologies and waste minimisation.

Biotechnology: No information available.

CHAPTER 17: PROTECTION OF THE OCEANS, ALL KINDS OF SEAS, INCLUDING ENCLOSED AND SEMI-ENCLOSED SEAS, AND COASTAL AREAS AND THE PROTECTION, RATIONAL USE AND DEVELOPMENT OF THEIR LIVING RESOURCES

Decision-Making: The Ministry of the Environment, Land Use Department, is the responsible body for integrated coastal zone management and sustainable development. The Ministry of the Environment is also responsible for issues related to marine environment protection in general. However, the Finnish Maritime Administration, which belongs to the administration of the Ministry of Transport and Communications, is responsible for issues related to shipping, and the Finnish Environment Institute is the responsible body for combating oil and chemical spills. Furthermore, the Ministry of Agriculture and Forestry is responsible for matters related to fishing and game (birds, seals etc.). The Advisory Board undertakes coordination for the Marine Environment, which works in connection with the Ministry of the Environment to find common understanding in marine environment matters. The legislative principles for the use and protection of shore zones were laid down in conjunction with the amendment of the Nature Conservation Act. In accordance with the amendment of the Building Act 1997, it is now prohibited to erect new buildings in any shore zone, marine or otherwise, without a ratified master plan or a detailed site plan for new construction. The Water Act 1961 and its amendments and the Act on the Prevention of Marine Pollution 1994 contain important provisions on the protection of aquatic habitats. The latter also includes regulations laid down in the Conventions for the Protection of the Baltic Sea as well as North East Atlantic. The National Policy on Oceans is part of the National Sustainable Development Strategy. Master planning in shore zones has proved to be a feasible approach to implementing the Shore Conservation Programme ratified by the Council of State in 1990. In recent years it has become an increasingly common practice to draft master shore plans. The Ministry of the Environment endorses the drafting of master shore plans, and nearly 100 master plans incorporated in the Shore Conservation Programme have already been completed or are in the process of being drafted. The following economic incentives have been introduced for marine environmental protection: a municipal waste water charge, a water protection charge, an oil pollution fee, a compulsory waste reception fee for ships calling at Finnish ports irrespective of the amount of garbage received, and a CO₂/energy tax on fossil fuels. Prior assessment is mandatory for activities with impact on the marine and coastal environment.

Programmes and Projects: The Council of State decided upon a Decision-in-Principle on goals of Water Protection Programme to 2005 in March 1998. The main goals of the Programme are reduction and prevention of eutrophication, which are fundamental in the planning, and supervision of water protection and the related decision-making. The general goal of water protection is to prevent further deterioration in the state of the Baltic Sea and inland waters caused by human activities and to improve the condition of those watercourses that have already been contaminated. The quality and quantity of ground water must in general be maintained at least at the present level and improved in locations where the quality has been weakened by human activities. The protection of waters is based on the Polluter-pays Principle.

Status: Major population centres in the coastal area include the City of Helsinki and its surroundings and the Town of Turku and its surroundings. There are several summerhouses and holiday homes on shoreline, and boating is also popular in Finland in the summer. Commercial fishing contributes to 0.2 % of the gross national product (GNP). The value of the total catch was 117 million FIM in 1995 (1 USD is about 5 FIM). Eutrophication is the most urgent problem in the protection of Finnish waters. In marine areas, eutrophication is worst in the Gulf of Finland; in the Archipelago Sea, around the islands of the Quark and the northeastern part of the Gulf of Bothnia, there is also evidence of increasing levels of eutrophication. The high incidences of blue-green algae in inland waters and the Baltic Sea in summer 1997 were an indication that the waters are slowly becoming more eutrophic as a result of constant nutrient load and the release of nutrients deposited in the bottom sediment. Shipping is one of the major sources of sea-based pollution of the marine environment. Airborne pollution also has an important role in the marine environment. Oil spills (illegal or accidental), SO_x and NO_x emissions as well as emissions of volatile organic compounds from vessels, environmental noise, discharges of waste water (untreated sewage should be brought ashore according to the Convention for the protection of the Baltic Sea, i.e. Helsinki Convention), illegal discharges of garbage (dumping of waste is prohibited in the Helsinki Convention) and organisms in the ballast

water -- these all may have harmful effects on coastal zones as well as to the biodiversity of the marine areas. Even though harmful substances are not allowed to be discharged from vessels to the Baltic Sea, illegal discharges still happen. The Contracting Parties to the Helsinki Convention try to prevent these illegal discharges.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: The following are some useful internet addresses for obtaining information about the Baltic Sea:

HELCOM: <http://www.helcom.fi> / Ballerina: <http://www.baltic-region.net/index.htm>

Baltic Sea Algaline: <http://www2.fimr.fi/algline/index.htm> / Baltic 21 network: <http://www.ee/baltic21/>

Baltic Marine Environment Bibliography and Database: <http://otatrip.hut.fi/vtt/baltic/intro.html>. A national set of indicators on sustainable development is being developed. A proposal for indicators was finalized in 1998. In addition, the Ministry of Agriculture and Forestry is developing a set of indicators on the use of renewable natural resources. Finland participates in the development of socio-economic and environmental indicators in systematic observation systems in clearing houses and in the Global Ocean Observing System. The Government does not participate in mussel watch programmes. Existing data adequately cover habitats, protected areas, marine degradation caused by land- and sea-based activities, estuaries, wetlands, sea grass beds and other spawning and nursery areas in coastal zones. Since the 1970's, frequent comprehensive assessments of the state of and changes in the environment of coastal and marine areas have been carried out.

Research and Technologies: Mining occurs along the shoreline in the form of extraction of sand gravel and dredging. In addition, several industrial plants are located in coastal areas. Nowadays the best available technology is used in treatment of their wastewaters, and therefore their discharges of harmful substances have mostly been reduced. The main pollution sources are diffuse sources such as agriculture, forestry and traffic.

Financing: Financing is provided mainly through the national budget.

Cooperation: Finland participates in the following Multilateral Agreements, among others are: Convention for the International Council for the Exploration of the Sea 1964 and Protocol / International Convention for the Prevention of Pollution from Ships (MARPOL) 1973 and Protocol 1978 and their amendments / Convention on the Protection of the Marine Environment of the Baltic Sea area 1974 and 1992 and its amendments / United Nations Convention on the Law of the Sea (UNCLOS) 1982 and ratified it in 1996. / Convention on the Protection and Use of Transboundary Watercourse and International Lakes 1992. Finland cooperates at the international level in addressing the prevention, reduction and control of the degradation of the marine environment from land- and sea-based activities, and it gives high priority to regional and subregional cooperation and cooperates intensively in marine environment approaches at the global level

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CHAPTER 18: PROTECTION OF THE QUALITY AND SUPPLY OF FRESHWATER RESOURCES: APPLICATION OF INTERGRATED APPROACHES TO THE DEVELOPMENT, MANAGEMENT AND USE OF WATER RESOURCES

Decision-Making: The responsibility for coordinating water resource management and development is divided among the ministries of the Environment (water protection, environmental protection and nature protection); of Agriculture and Forestry (water resource management); of Trade and Industry (hydropower, industrial water use); and of Social Affairs and Health (drinking water). Water resource management is also coordinated at the regional level, through 13 regional environment centres. There are three regional water courts, which act as permitting bodies. The Association of Finnish Local Authorities participates in decision-making in this area as well. Legislation requires that all major stakeholders have a chance to participate in the decision making process. Decision-making procedures are made as transparent as possible. For example, committees with representation from various stakeholders and interest groups are often set up for preparing environmental policies and strategies. Relevant legislation and the regulatory framework for this area include the following: Water Act (1961, last revision 1996): agriculture, industry, households / Act on Environmental Administration (1995) / Act on Public Water and Sewage Plants (1977, rev. 1994): households, industry. The Water Act covers use of freshwater by agriculture. The Water Act and the Act on Public Water and Sewage Plants cover Freshwater used by the industry and by the households. One of Finland's priorities for freshwater resources is to cover all activities in society, in particular land use, agriculture and forestry, industry and energy generation, in such a manner as to introduce overall sustainable use of water resources. Water resources management plans will be developed in 1997 for the nitrogen sensitive water bodies that will be established according to an EU Directive. Integration of land and water management and development is taken into account in land use and urban planning and in sectoral plans and programmes. There are regional and local plans for combating flood situations. Due to the climatic conditions, specific disaster preparedness for droughts is not needed.

Programmes and Projects: The Finnish Ministry of the Environment is preparing long-term goals for the protection of waters for the year 2005. The goal setting is based on water use requirements and on safeguarding the functioning of ecosystems. The goals presume the use of best technology or water protection practices. According to the National Water Protection Programme, the load from major pollution sources such as industry, agriculture and communities, will be considerably reduced during the programme period. The implementation of the first EU-based programme for reducing nutrition loads from agriculture ran from 1995 to 1999. In addition, the Environmental Programme for Forestry, the Environmental Programme for Rural Areas, and several major research projects promoting sustainable development as well as joint research projects concerning i.e. water conservation in agriculture and forestry have an impact on the quality of water resources. The state of water is under continuous monitoring so that the effects of water protection measures can be assessed. The Finnish Environment Institute is starting a new project called "National pattern of water use in Finland". The project handles especially distribution of residential water usage.

Status: To prevent pollution of freshwater supplies and to conserve freshwater, various measures are used, such as legislation, national water protection programmes, permits, supervision and application of the polluter pays approach. There is a general objective to increase the share of population connected to public water supply and sewerage systems where it is practicable. If this is not feasible, water supply and sanitation are covered through local, site-specific means. Public waterworks served Eighty-six percent of the Finnish population in 1994 and approximately 78 percent is connected to public sewerage systems. All urban wastewater is treated, mainly through biological-chemical means. All industrial wastewater is also treated. Water recycling is carried out to a high degree within industry. Finland follows the standards set by the European Committee for Standardization (CEN) and the Finnish Standards Association (SFS). The quality of Finnish wastewater treatment is very good. However, there is still need to improve biological and chemical (phosphorus removal) treatment of wastewater. In the case of ground waters there is a need to improve neutralization as well as iron and manganese removal. For surface waters chemical flocculation, sand filtration and disinfections are being improved.

Capacity-Building, Education, Training and Awareness-Raising: Education for the sustainable use of water resources has been increased as part of implementing the Environmental Programme for Forestry, and the Environmental Programme for Rural Areas. The main areas of environmental expertise of Finnish industry lie in waste-water treatment, vaporization and measuring techniques, and methods of raising the efficiency of the forest industry and combustion technology. Demand for environmental technology on export markets is expected to increase. Finland has also carried out programmes and campaigns to educate the public about issues of water conservation and management. For example, the National Consumer Administration and the Martha organization have together published a poster exhibition, the main items of which are clean drinking water, the quality of well water, saving water and the consequences of human activities on the environment and the quality of water. Research related to water management covers water ecosystems, environmental impact assessment, waste water treatment and regulation and restoration of watercourses.

Information: The Finnish Environment Institute maintains national monitoring networks that cover all main components of the hydrological cycle and several chemical analyses of water quality. Municipalities take care, by and large, of the water supply and wastewater treatment of communities. Data on water quality, quantity, ecological status, hydrological information, discharges, effluents, investments and running costs are collected by municipalities, regional environment centres, NGOs, the Finnish Environment Institute and Statistics Finland. The information is public and is distributed by the organizations that collect the information. Some of the indicators collected include the following: Annual withdrawals of ground and surface waters as a percent of available water are 2.27 (1994); domestic consumption of water (litres/capita/day) is 257 (1995); concentration of faecal coliforms in freshwater bodies is not regularly collected but is considered to be an insignificant proportion; BOD in water bodies is not measured in recipient waters in Finland, because the concentrations are lower than the measurement accuracy; wastewater treatment coverage is 93% (1995). All urban and industrial wastewater is treated. In sparsely populated areas there is site specific treatment for household waste water. The density of hydrological networks is one per 37 sq. Km (1997). There are approximately 460 surface water level stations and 320 water flow stations in Finland. On top of those there are e.g. 75 precipitation and snow water equivalent stations and 50 national groundwater stations (total area of Finland is 338 000 km²). Information is also available electronically through the internet, at <http://info.vyh.fi/>

Research and Technologies: Research related to water management covers water ecosystems, environmental impact assessment, waste water treatment and regulation and restoration of water courses. The main institutions where freshwater research is conducted are The Finnish Environment institute, Regional Environment Centres, Technology Development Centre (TEKES), Technical Research Centre of Finland (VTT), and various universities and other schools of higher education. Research is mainly funded by the state.

Financing: Mainly the municipalities finance the municipal wastewater and water supply investment costs and operation meanwhile maintenance costs including capital costs are mainly covered by the users in compliance with the Polluter Pays Principle. Industry invested FIM 424 million (US\$92 million) in water protection in 1994. The current investment costs of public water and sanitation services are about 1800 Million FIM per year (ca. \$ 340 million/year). The percentage of ODA allocated for water resource management and development is 5,1 percent (ca. \$US 23 million, 1996).

Cooperation: Finland is a member of the Convention on the Protection of the marine environment of the Baltic Sea area; the Convention on the protection and use of transboundary watercourses and international lakes; bilateral Agreements with Sweden, Norway, Russia on Transboundary Waters; and a water protection agreement with Estonia. Finland and Russia have agreed on an action plan for water pollution control for their common transboundary watercourses. In the Finnish development cooperation, the water sector has always played an important role. Seven percent of the total aid has been allocated to water projects. Finland also reports on discharge data, use of water and status of waters to the European Union, the European Environment Agency (EEA), the Baltic Marine Environment Protection Commission (also called Helsinki Commission HELCOM) and OECD.

CHAPTER 19: ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS, INCLUDING PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC AND DANGEROUS PRODUCTS

Decision-Making: The Ministry of Social Affairs and Health, the Ministry of the Environment, the Ministry of Labor, and the Ministry of Trade and Industry are all involved in decision-making for this issue. Finland has followed the Agenda 21 recommendations, developing and implementing obligations referring to chemicals, and participating in international cooperation in the chemical field.

Programmes and Projects: Finland's industry is working to reduce chemicals risks. An example is the Responsible Care Programme covering environment, health and safety, which has been introduced by the chemical industry. Finland has contributed to the following programmes and projects in the field of chemicals and pesticides management: the development of laboratory facilities and analysis of pesticides in products as a component of safe management of pesticides in Egypt; the development of information system on chemicals in Eastern Africa and South East Asia in the context of an ILO project; the initiation of a programme on the collection and final disposal of obsolete agricultural chemicals in Nicaragua; and the preparation of comprehensive guidelines on the safe use of hazardous chemicals, mainly pesticides, for the use in the development cooperation projects.

Status: No information available.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: No information available.

Research and Technologies: No information available.

Financing: No information available.

Cooperation: As a member of the European Union, Finland has implemented EU legislation on chemicals. In the field of chemicals control, Finland participates in the work of the European Union as a Member State. Finland also has cooperation in this field with the other Nordic countries, with the neighbouring countries, within the OECD, and in the framework of the United Nations (UNEP, WHO, ILO).

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CHAPTERS 20 TO 22: ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS, SOLID AND RADIOACTIVE WASTES.

Decision-Making:

Hazardous Wastes: Preparations for legislation will start shortly for New Decisions on PCB and PCT wastes; Decision on incineration of hazardous waste; and Ministry of the Environment Decision on wastes and hazardous wastes. The new Waste Act entered into force on 1 January 1994. The overall aim of the Act is to promote sustainable development through rational use of natural resources and through preventing and abating the danger of waste to human health and the environment. By implementing the new waste legislation, in addition to the measures taken so far, a majority of the requirements set in Chapters 20 and 21 of Agenda 21 can be fulfilled in Finland by the year 2000. Waste management is to be based on the best economically available techniques and on sound practices for abating environmental and health risks. Anyone holding waste shall see to proper waste management. In some cases, however, municipalities are responsible for waste management.

Solid Wastes: The Ministry of the Environment, the Regional Environmental Centres and the municipalities are primarily responsible for waste management. The new Waste Act entered into force on January 1, 1994. The overall aim is to promote sustainable development through rational use of natural resources and through preventing and abating such dangers and inconveniences that waste may cause to human health and the environment. The implementation of the new waste legislation will ensure that most of the requirements set in Chapter 21 of Agenda 21 can be fulfilled in Finland by the year 2000. The National Waste Plan includes programmes of action for different sectors and has adopted the following time-bound targets: In the year 2000, the amount of municipal waste should not exceed 1994 amounts; in the year 2005, the amounts of municipal waste, construction and demolition waste and waste from industry should be at least 15 % less than the forecast amount without waste minimization measures; the recovery rate for municipal waste should reach at least 50 % by the year 2000, and at least 70 % by the year 2005; the recovery rate for construction and demolition waste and waste from industry should reach at least 70 % by the year 2005; and, the amount of waste from mining and quarrying and from water and energy supply should be reduced in relation to production volumes, and their recovery rate should be at least 50 % by the year 2005. The following Government decisions have been issued or are under preparation: Decisions on emissions from incineration of municipal waste, the use of sewage sludge in agriculture, landfill requirements, and arrangements concerning packaging and packaging waste.

Radioactive Wastes: The Government grants licenses for waste management facilities. The competent authority in matters pertaining to nuclear power is the Ministry of Trade and Industry, which oversees that the planning and implementation of any measures belonging to nuclear waste management are carried out in a timely and proper manner. The responsibility for the control of nuclear safety, including waste management, belongs to the Finnish Centre for Radiation and Nuclear Safety. According to the legislation on nuclear waste management in Finland, each producer of nuclear waste is responsible for the financing of its operations. The nuclear power plants are obliged to levy funds for waste management during the operation. According to the legislation on nuclear waste management in Finland, each producer of nuclear waste is responsible for the safe management and disposal of the waste. The present Nuclear Energy Act calls for the disposal of the spent fuel into the Finnish bedrock. Before, the spent fuel from the Loviisa NPP was shipped to Russia, but this is no longer an option. Based on the Council of State's decision-in-principle (1983), a long-range programme for the implementation of spent fuel disposal is in progress. The Finnish waste management policy is based on disposal of low and medium level waste into high standard rock cavity repositories located at the NPP sites. At the Olkiluoto site, the repository has been in operation since 1992. The repository at the Loviisa site is under construction and is scheduled to be commissioned in 1998.

Programmes and Projects:

Hazardous Wastes: The Government has executed prohibitions and restrictions on the use of, among others, the following dangerous substances: PCBs and PCTs, arsenic and asbestos. According to the decision on waste oil management, waste oils shall primarily be regenerated and secondarily incinerated. The marketing of batteries and accumulators containing heavy metals is limited. In the future, more activities are meant to be concentrated on the development of environmentally sound and economically efficient collection of hazardous wastes and of transport schemes to get all hazardous waste properly treated.

Solid Wastes and Radioactive Wastes: No information available.

Status:

Hazardous Wastes: According to the latest statistics (1992), the annual generation of hazardous wastes in Finland amounts to about 270,000 tonnes. Finland has the capacity to dispose of almost all wastes, and especially hazardous wastes, generated in the country. A major part of the hazardous wastes is transported to the national hazardous waste treatment and disposal plant where wastes are incinerated under strict limits for emissions imposed by environmental authorities. The annual incineration capacity of the plant is 65,000 tonnes at present.

Solid Wastes: The Ministry of the Environment has estimated that approximately 85 million tonnes of waste are produced annually in Finland. The average recovery rate of material or energy is about 47%. The largest amount of waste is generated in mining 35 million tonnes yearly, and in agriculture and forestry, about 23 million tonnes annually, the recovery rate of the latter being roughly 85%. The main disposal method for municipal waste is landfills. In 1992, there were a total of 585 active landfills for municipal waste in the country. Municipal solid waste is mostly collected by compacting trucks based on entrance collection or other types of collection. The systems serve almost all of Finland's population.

Radioactive Wastes: In Finland, four nuclear power plants (NPPs) have been in operation for 15-20 years, and they have generated about 1,100 tU of spent fuel and more than 5,000m² of low and medium level waste. The accumulation of radioactive wastes from other sources is only about one percent of that from the NPPs.

Capacity-Building, Education, Training and Awareness-Raising:

Hazardous Wastes: No information is available.

Solid Wastes: No information available.

Radioactive Wastes: No information available.

Information:

Hazardous Wastes: No information available.

Solid Wastes: No information available.

Radioactive Wastes: No information available.

Research and Technologies:

Hazardous Wastes: No information available.

Solid Wastes: No information available.

Radioactive Wastes: New waste treatment and conditioning technologies have been introduced at the NPPs in the past few years, enabling a significant reduction of waste generation and environmental discharge.

Financing:

Hazardous Wastes: No information available.

Solid Wastes: No information available.

Radioactive Wastes: No information available.

Cooperation:

Hazardous Wastes: The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was signed by Finland in 1989; ratified in 1991 and the latest information was provided to the Basel Convention Secretariat in 1996. Finland has implemented the OECD Council Decisions concerning hazardous waste. The special EU directives on waste will mainly be implemented through Government Decisions under the Waste Act. As of 1996, the following Government Decisions concerning hazardous waste have been issued or were under preparation: Decision on batteries and accumulators and Decree on transboundary movements of wastes.

Solid Wastes: No information available.

Radioactive Wastes: Finland has supported IAEA's programmes (e.g. the RADWASS-programme). It has also participated in projects to improve the radioactive waste management practices in the Northwestern parts of Russia.

CHAPTERS 24 TO 32: STRENGTHENING THE ROLE OF MAJOR GROUPS

Women: Decision-Making: Policies are being drawn up for achieving equality in all aspects of society, including the development of a strategy by the year 2000 to eliminate obstacles to the full participation of women in sustainable development. Status: The percentage of women in government decreased from 41 in 1992 to 38 in 1996; the percentage of women in parliament also decreased, from 39.5 to 34; the percentage of women at the local government level, however, increased from 30.6 to 31.4 in the municipal elections held in October 1996. Cooperation: The Convention on the Elimination of All Forms of Discrimination Against Women was signed on 17 July 1980 and ratified on 4 September 1986.

Children and youth: Decision-Making: Different youth organizations and youth groups are active around Agenda 21 issues through their own interest. The Government has also involved them in the Rio follow-up work by including them in the Finnish National Commission on Sustainable Development and its sub-committees as full members. Two youth representatives were also included in Finland's delegation to the fourth session of the CSD. Status: Several groups and organizations work on sustainable development issues, and some have even received financial support. The Nature League and the Scouts have established a Youth Environmental Parliament, and there are some Local Agenda 21 information centres (for example in Åland Island). The goal set in Agenda 21 --to ensure by the year 2000 that more than 50% of youth, gender- balanced, have access to appropriate secondary education or vocational training -- will be met. Some cities have established citizens' fora on sustainable development where young people are also involved, and the Helsinki City Youth Office has established a Youth Environmental House as a centre for activities of environmental organizations. A special remark should be made concerning youth unemployment. It has grown to be among the highest in the industrialized countries during the 1990s. In 1990, the unemployment rate among 15-24 year-olds was 6.7%; today the rate is approximately 30%. This affects the perspectives young people have on their future and does not promote a sense of being part of the society or being able to influence policy decisions. Capacity-Building, Education, Training and Awareness-Raising: The National Board on Education has supported 10 schools in its environmental education efforts by providing funding and material. Some schools have taken the issue as a central element in their curricula, and there the involvement of the pupils has been strong. In 1995-1996, ten Finnish schools participated in the international Rescue Mission: Planet Earth project on sustainable development indicators. In Finland, the project was funded and facilitated by the Ministry of the Environment and the Ministry for Foreign Affairs, and it was included in the official work of the Finnish National Commission on Sustainable Development. As a part of the pilot phase of the project, a special event, Day of Access, was held in February 1996, when the participating schools gathered together with the decision-makers, including Ministers, and discussed the status and implementation of sustainable development in Finland. In the second phase of the project, almost a hundred schools are participating in the project, and the Ministry of the Environment has translated the indicators into Finnish and Swedish, the two official languages. A new Day of Access was organized in January 1997.

Indigenous People: Decision-Making: A process to empower indigenous people and their communities -- through policies and legal instruments -- is in place, and indigenous people participate fully in appropriate national processes as well as in resource management strategies and programmes at the national and local level: The "Saami Parliament" is a full member of the National Commission on Sustainable Development.

Non-Governmental Organizations: Decision-Making: Mechanisms exist to promote and allow NGOs to participate in the conception, establishment and evaluation of official mechanisms to review Agenda 21 implementation, and NGO inputs are considered to be important. The Government has included NGO representatives both in the permanent committees, such as the FNCSD and the Commission on Climate Change, and Ad hoc Committees and Working Groups, such as the MOE Ad Hoc Committee on Acidification. In addition, the Government has included and will continue to include representatives of major groups in CSD meetings. Financing: Since 1995, activities undertaken by major groups have received financial support amounting to some US\$200,000. Government aid for NGO activities in developing countries amounted to some US\$26 million.

Local Authorities: Status: According to the mapping of the Association of Finnish Local Authorities, there were 41 municipalities working on Local Agendas 21 in autumn 1995. Although these municipalities comprised less than 10% of Finland's municipalities, some 38 % of the Finnish population lived in them. In autumn 1996, the number of municipalities preparing local Agendas 21 had increased to 88. Half of the Finnish population lives in these municipalities. Almost all larger municipalities are preparing them. Only about 10% of municipalities with a population of 2,000-6,000 are involved, but, among the smaller towns (fewer than 2,000 people), nearly 25% are working on Local Agendas 21. Capacity-Building, Education, Training and Awareness-Raising: The Association of Finnish Local Authorities has promoted the implementation of the objectives of Agenda 21, and increased awareness of and responsibility for sustainable development among office-holders by defining sustainable development in municipalities, organizing training courses, publishing articles, and creating tools for the promotion of sustainable development. In the near future, the Association of Finnish Local Authorities will support the participating municipalities by publishing a Local Agenda 21 guidebook, by helping them in developing local agenda programmes, by organizing a conference on climate change issues for the senior management of municipalities, and by arranging other seminars together with provincial associations and regional environment centers. Cooperation: Many municipalities have also actively participated in international cooperation to promote sustainable development in municipalities. By signing the so-called Aalborg document, 22 municipalities have joined in the Sustainable Cities in Europe campaign.

Workers and Trade Unions: Decision-Making: The relevant ILO Conventions have been ratified, and workers take full part in National Agenda 21 discussions and implementation. Trade Unions and their local units are increasingly interested in environmental issues. They have their representatives in the Finnish Commission on Sustainable Development and in its divisions. Status: The degree of organizing in Finland is high, about 80 %. There are labour trustees, representatives, advocates and committees in the work places, taking care of working conditions and labour welfare. In addition to conventional duties, like ensuring that workers security and health are taken care of in the working environment, advocates and committees are also authorized to look after protection of the environment in a broader sense. Young people in the labour market are typically persons who have graduated from vocational school after passing the comprehensive school. However, the educational gap threatens to get broader in older generations, especially if those in question are faced with unemployment. The essential way of alleviating unemployment is to broaden the right to education, which will be the Trade Unions main mission during the upcoming years.

Business and Industry: Decision-Making: The biggest Finnish enterprises have committed themselves to the ICCs Business Charter for Sustainable Development. In addition, major chemical companies follow the Responsible Care Programme. Many firms are introducing a variety of environmental management tools, such as environmental management systems, environmental auditing, and life-cycle assessment. In 1995, the confederation of Finnish Industrial Employers launched its new environmental policy, entitled "Know-how, Partnership and Eco-competitiveness". One of its main messages is that environmental protection is not just a burden, but can be seen as an opportunity, too. Environmental soundness has become an important component of competitiveness, just like price and quality. Another central message is that success in environmental protection requires high level know-how as well as open and close cooperation - partnership - within business and industry itself and between industry and its stakeholders. The new policy is being implemented through, for example, the work of industrial branch organizations. Special emphasis will be laid on small and medium-sized enterprises. Small and medium-sized enterprises have adopted the sustainable development policies more slowly than bigger ones. Status: Environmental protection standards in heavy industry stand up well to international comparison also with respect to efficiency in use of raw materials as well as reduction in emissions. Water and air pollution have been reduced substantially both by improvements in processing techniques and by cleaning emissions.

Scientific and Technological Community: Status: The Research Council for the Environment and Natural Resources of the Academy has taken the responsibility to study the environment and natural resources in the context of sustainable development. The Research Councils fields of research (e.g. ecology, evolutionary biology and taxonomy, biochemistry, molecular biology, forestry, agronomy, ecotoxicology, biotechnology and environmental technology) bring together different perspectives on the conservation of the environment and on

sustainable use of natural resources. The Council also promotes cross-sectoral studies and adaptability of the research by supporting economic, technical and social research dealing with protection of the environment and the use of natural resources.

Farmers: Decision-Making: The Central Union of Agricultural Producers and Forest Owners in Finland takes part in the design of sustainable development policies in many ways. It works together with the authorities and other central organizations in environmental projects. In addition to this, the Union has developed its own programmes and methods to encourage farmers and forest owners to conserve biodiversity and the agricultural landscape. **Programmes and Projects:** The Finnish Agri-Environmental Programme for 1995-1999 (FAEP) is designed to support farmers to undertake sustainable farmers practices and technologies. By 1995, some 80,000 Finnish farmers had already joined the General Agricultural Protection Scheme (GAEPS), which is a part of the programme. This is about 80 % of the farms in Finland and 90% of the total arable area. The GAEPS consists of financial support, and conditions for receiving it. At the moment, any stronger demand would harm the implementation of the programme.

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CHAPTER 33: FINANCIAL RESOURCES AND MECHANISMS

Decision-Making: Finland doesn't differentiate a particular part of the national budget for financing sustainable development. However, one of the main objectives of the Government policies is the strengthening of the principles of sustainable development in different sectors of society, especially with regard to the management of natural resources and the environment. The development of ecological accounting of both the national economy and the Government sector is particularly important. See also under Status.

Programmes and Projects: See under **Capacity-Building, Education, Training and Awareness-Raising.**

Status: For 1999, the State targeted 4,2 billion FIM for environmental expenditures (2,1% of the whole budget). For 2000 3.7 billion FIM were targeted (1.9 % of the whole budget). In addition to this the Finnish municipalities target financial resources for the environmental expenditures. In year 1997 this amounted to 3.8 billion FIM. Finland also publishes a "green budget". "Finland's Natural Resources and the Environment" was first published as an annex for the Government proposal for the 1995 budget, and since then as a yearly publication. These reports review the trends in the main sectors of the economy - industry, forests, energy, transport and agriculture - from the environmental point of view.

Energy Taxation: The latest energy tax bill came into force 1 September 1998. Both the CO₂ tax and electricity tax were raised by 24 %. The CO₂ rate was set to 102 FIM/tCO₂ and the rate for electricity 4,1/2,5 p/kWh. In order to further improve the competitiveness of natural gas, the charge laid upon it has been reduced by 50 percent. For similar reasons, the tax rate of peat is somewhat lower compared to the amount based on carbon content, although since September 1998 the tax rate on peat was raised considerably compared to the earlier level. *Waste act:* The newest environmental tax, national waste tax, based on The Waste Act, came into force in late 1996. In practice it applies only to waste brought to the landfill sites. The tax is restricted to the municipal landfills, which means that this tax does not apply to private landfills, such as industrial waste dumps. The landfill site operator is responsible for paying the tax to the state. The tax rate has been FIM 90/tonne of waste since 1996 and does not differ according to the quality of waste. A number of changes and amendments were introduced in the Waste Act at the beginning of 1999, the main aim being to make the recovery and utilization of wastes on landfill sites exempt from the tax. This also applies to the utilization of waste for construction purposes on landfill sites.

Voluntary Agreements: A range of voluntary agreements are implemented in the Finnish environmental policy. Agreement between the packaging industry and the Ministry of the Environment are established for target recovery rates and recycling rates. Since June 1996 a voluntary agreement on the re-use and handling of tyres is also in force. Voluntary agreements are also an integral component on the Government's decision on future energy policy and energy savings programme.

Capacity-Building, Education, Training and Awareness-Raising: The Ministry of the Environment, the Ministry of Trade and Industry, the Technology Development Centre, and the Academy of Finland have together launched a research programme called Environmental Cluster Programme 1997-2000. The programme is a collaborative project between researchers, enterprises, authorities and funding organizations aiming to seek new ways of saving the environment and natural resources and to develop them into environmentally friendly products, production technologies and infrastructure. Eco-efficiency is one of the major themes in the programme. Altogether this research programme will get 80-100 million FIM in its working period. The majority of Finnish research and development money comes from industry, amounting to some 11.6 billion FIM in 1997. The Government provided an additional 5.3 billion FIM for technology research, which yields a total of 16.9 billion FIM or 2.7% of GDP. The Government's funds are channelled through the Technology Development Centre (Tekes), which operates under the Ministry of Trade and Industry, the Academy of Finland, which operates under the Ministry of Education, and the Sitra Fund (Finnish National Fund for Research and Development), whose operations are mainly financed through income from endowment investment and project finance. Tekes, for example, channels approximately 10% of its yearly budget for research on new technology for the research made in the sphere of environmental technology. In addition to this the Ministry for the Environment enhances and supports the product development

and implementation of the environmental technology with its own financial resources. Altogether some 200 million FIM are annually invested by the public sector into the research made in the fields of environmental technology.

Information: The Ministry for Foreign Affairs, Department for International Development Cooperation continues to compile extensive statistical reporting to OECD/Development Assistance Committee, annually. On a pilot basis, this reporting is expected to differentiate, from the fall of 1999 onwards, also the development efforts directed towards the implementation of international environmental conventions (OECD/DAC Pilot Study on Aid Targeting the Objectives of the Rio Conventions), so as to facilitate examining national efforts and making comparisons between different countries' performance in this respect. The main parts of this statistical reporting are available at the OECD's web-site <http://www.oecd.org/dac>. The financial aspects linked with sustainable development in the national level are also subject to some reporting. The use of economic instruments in Finnish environmental policy is included in a survey published regularly by the Nordic Council of Ministers latest: Nordic Council of Ministers: The Use of Economic Instruments in Nordic Environmental Policy 1997-1999, www.norden.org). Finland also reports to the Environmental Policy Committee of OECD on the use of economic instruments, environmental taxes, charges and subsidies for environmental protection every 35 years. Information on the Finnish environmental Taxes can also be obtained from the Database on environmental taxes in the European Union Member states, plus Norway and Switzerland http://www.europa.eu.int/comm/dg11/enveco/tax_fi.htm. In Finland, economic data on environmental protection is collected from industries and the public sector. Data on environmental expenditure by industry, based on questionnaires sent to industrial establishments in a sampling survey, has been published yearly since 1994. The last survey was published 1997.

Research and Technologies: Development of energy technology is one of the key activities in Finnish energy policy and also plays a key role in the Energy Strategy. Development and deployment of advanced energy technology is particularly important given the Government's emphasis on energy efficiency and renewables in the strategy. The development of energy technology is also relevant for trade energy technology being a trade article.

Cooperation: The Finnish Development Cooperation Strategy presented to the Parliament in 1993 is clearly based on the principle of sustainable development. Finland supports either bilaterally or multilaterally various basic needs programmes implemented jointly with the local population in fields involving ecologically sustainable production methods, water supply and sanitation, education, agriculture and forestry. This has evolved through the EIA process of bilateral projects, and through participation in the OECD/DAC environmental coherence work. In addition, the Department for Development Cooperation of the Ministry for Foreign Affairs has prepared environmental guidelines and manuals and included the aspects related to environmentally sustainable development in its more general policy or guidance documents. Finland supports capacity-building both through multilateral and bilateral channels. The proportional share of technical and financial assistance to support the efforts of developing countries in the field of sustainable development has been on the increase for some time, recently reaching the level of 20 to 25 percent. In line with the OECD/DAC directives on statistical reporting, the Finnish database on development assistance commitments includes a marker system that can separate projects that contain environmentally relevant aspects, either so that the projects are designed to improve the status of the environment or they integrate, in other ways, environmental concerns into the activities of the intervention.

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CHAPTER 35: SCIENCE FOR SUSTAINABLE DEVELOPMENT

Decision-Making: The Department of Higher Education and Research of the Ministry of Education, the Academy of Finland, and the universities are the bodies primarily responsible for natural and social sciences and related legislation. The science sector is an advisory member in the Finnish National Commission for Sustainable Development. There are also various scientific institutions directly involved and participating in national decision-making or policy formulation on environment and development. Representatives of the scientific community are included in the Finnish National Commission on Sustainable Development. There are a few permanent expert bodies and several ad hoc committees and working groups for this purpose. Several ministries make research contracts with the Government research institutes or universities in order to get scientific information on policy issues. The Research Council for Environment and Natural Resources consists both of scientists and representatives of policy makers as well as other users of the research results. Increased emphasis is put on the interaction between research organizations and sectoral authorities as well as to popularisation and exploitation of research results.

Programmes and Projects: Sustainable development as a way of life is one of the priorities of the development plan for education and university research for the period 1995-2000. The Ministry of the Environment is currently coordinating a research programme (1997-1999) on the environment cluster of technology and industry. Some of the relevant current and recent research programmes connected with sustainable development are: Finnish Research Programme on Environment and Health 1998-2001 / Biodiversity 1997-2002 / Restoration of Boreal Environments (RESTORE) 1996-2000 / Ecological Construction 1995-1998 / The Finnish Research Programme on Climate Change (SILMU) 1990-1996.

Status: Research related to water management covers water ecosystems, environmental impact assessment, waste water treatment and regulation and restoration of water courses. The main institutions where freshwater research is conducted are the Finnish Environment Institute, Regional Environment Centres, Technology Development Centre (TEKES), Technical Research Centre of Finland (VTT), and various universities and other schools of higher education. Research is mainly funded by the state. The Academy of Finland, in collaboration with the users and policy makers, establishes research programmes in rapidly developing, scientifically important areas of research and in nationally important problem areas requiring scientific knowledge. A research programme is for a fixed period, and the targets of the programme and the steps required for their attainment are itemized in its planning. Research programmes are often funded and managed in collaboration with sectoral authorities for environment, welfare and health, among others.

Capacity-Building, Education, Training and Awareness-Raising: Educational institutions from compulsory schools to universities will apply the principles of sustainable development to their everyday work (acquisition, waste disposal, energy management, transport, etc.) The results were assessed in 1999.

Information: Part of the social research is directed to issues of social exclusion, welfare systems and similar concerns. Practically all the Finnish scientists and scientific institutes use the Internet to provide information. Each institute has its own www site. For Science, please begin with [<http://www.aka.fi/>].

Research and Technologies: No information available.

Financing: No information available.

Cooperation: In the European Union, Finland will work to introduce sustainable development into educational and research programmes both as a principle and as an object of cooperation.

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CHAPTER 36: PROMOTING EDUCATION, PUBLIC AWARENESS AND TRAINING

Decision-Making: The provision of information and promotion of public awareness of environmental issues is prescribed by the act on environmental administration (1995). These duties and functions are based on national environmental research and on monitoring of the state of the environment in Finland. Systematic policy for producing and circulating environmental information to decision-makers, public authorities, business leaders, educators and the public at large is being prepared by the Finnish Environment Institute and the Regional Environment Centres in co-operation with the Ministry of the Environment. The development of partnerships among educators, scientists, Governments, NGOs, business and industry, youth, the media and other major groups is one of the targets in the national programme on sustainable development in education. In addition, the Finnish National Commission on Sustainable Development has a subcommittee on education and awareness-raising.

Programmes and Projects: The National Board of Education established a Programme for promoting sustainable development during 1998-2000. This programme is based on the views presented in 1994 by Finland's National Committee for Sustainable Development, and it lists the activities to be undertaken in the field of education to meet the challenges of sustainable development. In programme implementation, the sixth environmental programme of the European Union and the Finnish Governments programme for Sustainable Development (under preparation) are to be taken into account. According to this new Programme, environmental education and other actions should be geared to bringing about: Awareness of the necessity of sustainable development / favourable attitudes and willingness to work for sustainable development / sufficient knowledge and expertise for correct actions / know-how on integrating sustainability into daily activities. In addition, all schools and institutions are to include the principles of sustainable development in their training, education and learning activities, and also in their more general daily activities. The programme focuses on the main instruments available to the education authorities: guidelines for curricula and examinations, various activities of support (developing teaching material and teacher training), and participation in national and international cooperation projects. The Global Challenge project with its national network of experts aims at integrating issues related to the developing world, development cooperation, cultural awareness and intercultural contacts, global topics, sustainable development and tolerance as part of the everyday learning process in comprehensive schools and vocational institutions. The project is sponsored by the National Board of Education and the Ministry for Foreign Affairs. An example of one of the innovative programmes adopted in Finland is the waste advisory services project (1992-1996). A national project, it was initiated by the Ministry of Environment. In addition, other administrative representatives were chosen to be in the projects guidance group. These were the Ministry of Education, the National Consumer Administration, the Finnish Environmental Institute, the Helsinki Metropolitan Area Council (YTV) and the Association of Finnish Local Authorities. The general objective of the project was to attain widespread understanding of and compliance with the new waste norms. The motivation for starting the project was the new waste legislation that was being prepared in Finland.

Status: *Comprehensive school:* The curriculum is an expression of the local decision-makers political will as a part of the national education policy. At the lower level, biology, geography, environmental studies and civic studies make up a subject group called "Environmental Studies and Natural History", which makes it possible to integrate the subject with teaching oriented to nature and the environment. Even in arts and skill subjects, it is possible to plan on themes to organize projects and inter-disciplinary teaching. The main aim of Environmental and Natural Sciences is to support and guide the growth of students to investigating, active citizens who are interested in nature, in the study of nature, and in nature conservation. *The senior secondary school:* The main values in the senior secondary school are promotion of sustainable development, promotion of physical, social and mental well-being and growing up in order to become a member of a democratic society. The main aim in Environmental and natural sciences is to get the student to realize the significance of scientific knowledge in the changing world, and work for an ecologically sustainable environment. *Vocational education:* The objectives of sustainable development are central in all fields of education. Education for sustainable development in vocational education aims to develop a conscious relationship between environmental and moral responsibility for the state of the environment and global viability as well as a sense of responsibility in occupation. The issues involved are connected with the interaction of

natural processes and human activities, optimising the modes of transport, recycling, rational consumption, saving natural resources, technology, environmentally sound energy production and lifestyle. Concern is also shown for the aesthetic state of the environment. The Environment Parliament of the Youth has been organized twice by Finnish Scouts and the Nature League. In April 1996, in the fourth session of the CSD, Finland gave a national presentation on the work of the Finnish National Commission on Sustainable Development and on environmental education in particular. Finland also included two youth delegates on its delegation. The Northern Call for the Environment Conference on environmental education and the implementation of Agenda 21 was organized in Finland in summer 1996.

Information: The Finnish Environment Institute (and the whole environmental administration) publishes environmental information in the form of reports, publications, magazines, articles, press-releases, WWW-pages, videos and multimedia. A popularised report called, "The State of Finnish Environment," was published in 1992 and another, "The Future of The Finnish Environment," in 1996 (in Finnish, Swedish and English). A publication series of the environmental administration started in 1996. The names of the series are: The Finnish Environment, Environmental Guide and Regional Environmental Publications. The number of publications per year is about 100-150 including brochures. The Regional Environment Centres publish reports dealing with the state of the environment in their area. They have also prepared environmental multimedia programmes. The National Board of Education also puts together environmental information packages, such as a guidebook on eco-auditing for comprehensive schools, secondary schools and vocational institutions. Supplementary training, by means of courses of varying lengths, is given to teachers to increase their knowledge of environmental issues and to provide them with required teaching methods. Assessment criteria are provided for the evaluation of schools and vocational institutions to promote sustainable development. Additional information on education in Finland is available from the Finnish Environment Institute, P.O. box 140, FIN 00261 Helsinki, Finland, World Wide Web Site Home Page; <http://www.vyh.fi/syke/syke.html> and from the National Consumer research Centre, at <http://www.kuluttajatutkimuskeskus.fi/>.

Research and Technologies: Research related to sustainable development and the environment is funded by several ministries, governmental organizations, the private sector and foundations in Finland. The universities are funded by the Ministry of Education and the Academy of Finland.

Financing: No information available.

Cooperation: The Ministry of Education and the National Board of Education coordinate and support numerous international cooperation projects in environmental education. Among the most important are the Nordic Environmental Education project "Miljöundervisning i Norden (EE in The Nordic Countries), The OECD/CERI/ENSI project Environment and Schools Initiatives, the Globe programme, the Finnish -Russian Joint project "Pohjoiset metsäekosysteemit ja koulutus" (Northern forest ecosystems and education), the UNESCO projects in Finnish schools, and the European Council project, "Cultural Heritage Classes." The EU DG XI programme also includes a cooperation project for the secondary school level managed by the National Board of Education. In the European Union, Finland is working to introduce sustainable development into educational and research programmes both as a principle and as an object of cooperation. The National Board of Education and the Ministry of Environment have made short reports to the EU Directorate XI B.4. (Research and development, relations with the European Environment Agency, statistics, training, education, health) on issues covering environmental education in general education and vocational education and training. Reports are made twice a year.

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CHAPTER 37: NATIONAL MECHANISMS AND INTERNATIONAL COOPERATION FOR CAPACITY- BUILDING IN DEVELOPING COUNTRIES

This issue has been covered under the heading **Capacity-Building, Education, Training and Awareness-Raising** in the various chapters of this Profile.

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CHAPTER 38: INTERNATIONAL INSTITUTIONAL ARRANGEMENTS

This issue deals mainly with activities undertaken by the UN System.

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CHAPTER 39: INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

This issue has been covered under **Cooperation** in the various chapters of this Profile. However, you will find below a list of International Legal Instruments. The Nordic Research Project on the Effectiveness of Multilateral Environmental Agreements was commissioned by the Nordic Council of Ministers' environment sector in autumn 1994. It relates to the Nordic Strategy for the Environment, and is directed to the development and enhancement of implementation and verification of multilateral environmental agreements. The Finnish Ministry of the Environment administers the project. The major Conventions included in the project are: The United Nations Framework Convention on Climate Change (entry into force in Finland 1.8.1994) / The United Nations Convention on Biological Diversity (entry into force in Finland 25.10.1994) and the Convention to Combat Desertification (ratified in 20 September 1995).

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CHAPTER 40: INFORMATION FOR DECISION-MAKING

Decision-Making: All the government ministries and agencies are responsible for decision-making in terms of collection, analysis, management, and dissemination of information and data related to sustainable development in their own field of activities. The major actors are the Ministries of: the Environment, Agriculture and Forestry; the Interior; Foreign Affairs; Transport and Communications; Trade and Industry; Finance; Social Affairs and Health; Education; and Labour; and Statistics Finland. The Government Institute for Economics Research, the National Research and Development Centre for Welfare and Health, and the Finnish Environment Institute. Ministry of Finance steers and co-ordinates Information Management and use of Information and Communication Technologies in government. The Information Management (IM) unit is also responsible for co-coordinating and developing Information Services for the Government. A reform of the legislation on access to and secrecy of government activities entered into force at the beginning of December 1999. The Act on the Openness of Government Activities implemented the right of access to information in official documents in the public domain. The right of access to information was extended to all those exercising public authority irrespective of their organizational form. The authorities have an obligation to promote the openness of their activities by disseminating information on their activities and by producing relevant information material. The openness of preparation is increased. The new Act also codifies the most central provisions on secrecy.

Further development of a national set of indicators for sustainable development is envisaged. As a next step, Finland is going to study the use of indicators in different policy making circumstances. Also a need for key (or headline) indicators will be analysed. In Finland, all standardization matters are handled by the Finnish Standards Association SFS. It guides and co-ordinates national standardization work and confirms the national SFS-standards. It also represents Finland in European (CEN) and in International (ISO) Standardization organizations. The own register, which is called STANDI, has been built on standards and proposals for standards in 1995. It works under TRIP-program and consists of up-to-date information on over 400 standards and proposals for standards in the preparation of which Finland/FEI has taken part. The information consists of the name of a standard or a proposal, status, date of calls, descriptors, edition, number of pages, language of confirmation and publication. Experts and scientists in Ministries, State Research Institutes, Universities and Statistics Finland are a major group to contribute to the collection, assessment, management, and dissemination of information and data for decision making for sustainable development. The local authorities, especially, provide primary data and information of social aspects. However, they are not actively participating to the assessment, management, and dissemination of information and data for decision-making at the national level. Lapps, a group of indigenous peoples in Finland provides, assesses, manages and disseminates information concerning economic, social and institutional aspects of Lapps. They have a delegation for Lapp affairs, and a small office to facilitate the work.

Programmes and Projects: The Ministry of the Environment has prepared an Environment Monitoring Strategy. The strategy stresses the need to strengthen the legal status and effectiveness of the monitoring activities, and the access to environmental information. The main areas in which monitoring and statistics need to be further developed are biological diversity, land use changes, pollution from diffuse sources, and waste. A project has been established to develop a new operational data system for air emission inventories based on measured data and calculations from diffuse sources. It will be based on international standards and the newest research information. A statistical system of the total material requirement (TRM) of Finland has been compiled in a project "Eco-efficient Finland". The total material requirement of Finland (TRMFIN) includes the time series of the Finnish natural resource use 1970-1997. TRMFIN has been documented and published separately as a CD reprint. In Finland there are currently 245 local municipalities with ongoing projects related to Local Agenda 21, covering almost 80 percent of the population. Most of the Local Agenda 21s contain a need for local indicators for sustainable development. The EU initiative on local-level indicators of sustainable development was introduced in Hannover in February 2000. The aim of the initiative is to create a more integrated system for monitoring the sustainability of development in European cities. In Hannover five Finnish cities and towns signed an agreement indicating their commitment, i.e. Helsinki, Tampere, Turku, Pori ja Kouvolaa. In addition, the environment barometer project launched by the Association on Finnish Local Authorities is aimed at establishing an indicator system describing

the performance of local authorities in terms of environmental protection. The purpose of the system is to describe the progress made in each municipality and in this way to encourage movement towards ecologically sustainable development. What comes to technical possibilities, a lot of the libraries even in rural areas have a connection to Internet, and computers available for customers. This service is free of charge. In addition, nearly all of the schools have an internet connection.

Status: The internet home pages of Sustainable Development are available to everyone. The pages include news, major events, information on local, national and international initiatives, national indicators of sustainable development, etc. An updated review “Natural Resources and the Environment” is distributed in the Parliament in connection with the publication of the Government budget proposal every year in early September. The review is compiled by Statistics Finland under the supervision of the Ministry of the Environment. The latest report on the state of the Finnish environment was published 19th October 2000. As the name “Finland’s Nature CD-Fact. A tale on the State of the Environment” indicates, it’s a CD-ROM multimedia product. A weekly television programme called “Environmental news” was launched in the middle of 1990’s. Since then it has been a popular television programme, both educative and entreating. The indicators are used as a tool to assess the fulfilment of government goals and targets. Results of the assessment are or could be used to renew targets and focus the Government Programme, sectoral programmes and State Budget towards sustainable development. Separate indicators could and are already used for scenario analysis. The CSD indicators are so different and linkages unknown that it's difficult to combine indicators and use integrated modelling. The modelling approach will be studied later. Indicators are also excellent means of reporting the state of sustainable development to politicians and the public. The main issue areas, in which the most immediate attention is required, are biological diversity, land use changes, production and consumption, social problems and equality issues, and participation. Moreover the population living in sparsely inhabited areas, especially, in Eastern and Northern Finland, in archipelago and Lapland, have the most urgent needs for improved access to information. The other important population groups needing improved access to information are decision-makers at local, regional and national level, as well as, in enterprises. The major challenges in further enhancing the use of indicators are to collect feedback, to assess the need of key/headline indicators, to develop an environmental profile, and to strengthen the linkages to policy formulation.

Capacity-Building, Education, Training and Awareness-Raising: Public administration services are readily available to citizens. Citizen’s guide to be used in the Internet includes all the essential information that citizens need in different situations in life. This electronic guide also provides useful information to companies and communities. This electronic service can be used with all the general browser programs. Citizens can have access to this service at home, at work, in library and in school, that is every place with an Internet connection. Retrieval of information from this electronic guide and reading of the information is free of charge. Government institutions are responsible for the quality of data they collect, assess, manage and disseminate. Therefore, State Research Institutes and Statistics Finland themselves, as well as, universities and private enterprises arrange training courses focusing on collection, assessment, management, and dissemination of information. In addition Finland has a very good public library network. Public libraries are Finland’s most popular cultural service, used by about 80 percent of all Finns. Libraries have data catalogues and directories, and access to national and international meta databases. For example the Environment Data System of Finland (EDS) is the basic tool for environmental control, monitoring and assessment. It is used by environmental authorities at all levels of organization through the Finnish Environment Network. EDS is also open to other users outside the environmental government. The Environmental Data System is a GIS-based information system. All data is bound up to co-ordinates. This enable map presentations and make possible to combine data from different databases. Information on sustainable development is available on the Internet: <http://www.vyh.fi/poltavo/keke/keke.htm> in Finnish and in English <http://www.vyh.fi/eng/environ/sustdev/english.htm>

Research and Technologies: Remote sensing is already used in national forest inventories and production of real time snow cover maps. A research project to study operative monitoring system for the quality of inland and coastal waters has also launched. The aim of the project is to establish an operative, remote sensing technology based monitoring system for inland and coastal waters in Finland and to test the suitability of different remote sensing instruments in quantitative monitoring of waters.

Financing: Finnish information system is based on government funds. For the development of advanced monitoring technology funds from private sponsors and international research programmes have been searched and used.

Cooperation: Finland approached South Africa in the 3rd CSD meeting to form a twinning arrangement in the testing of indicators for sustainable development. This was agreed upon, and a delegation from Finland visited South Africa during February 1997. Approaches to testing and a time frame for testing and reporting were among the issues discussed. During this visit it was decided that each country will test the indicators separately but at the same time exchange information and ideas. Co-operation in the transfer of technology and know-how is based on agreements between State Research Institutes, and research and training programmes.

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CHAPTER: INDUSTRY

Decision-Making: Discussions on the topic of 'Green Industries' has led to a need to emphasize the greening of all industries, not just a separate sector or cluster of industry. Environmental policy instruments (such as eco-labelling) and industrial policy instruments (such as technology research) help in this direction. The markets also provide an important incentive for industries to become greener. An ad hoc committee on eco-exports (1995) made an inventory on Finnish strategies and know-how in the field of environmentally sound technologies and products. At the beginning of 1995, an Act came into force in Finland on voluntary participation by companies in the industrial sector in an eco-management and audit scheme, or EMAS. The EU regulation on the matter, a valid law in Finland as such, is being implemented through this act, which contains the necessary supplementary provisions for national bodies, legal consequences and charges. The EMAS system was launched simultaneously in all EU member states on April 13, 1995. Companies are widely using environmental impact assessment for evaluating the impacts of planned projects and investments. In this connection, environmental risks, caused by accidents or other exceptional occasions, are also frequently assessed. In addition, many companies use different kinds of life-cycle assessment methods for internal product design purposes. These tools are mainly used on a voluntary basis. However, environmental impact assessment is also mandatory to big companies according to the Environmental Impact Assessment Act. There is no national policy or strategy for ecologically sustainable industrial development as such. However, the Finnish Government's programme for sustainable development (currently under preparation) will have a section on sustainable products, production and consumption, and the programme on sustainable consumption and production patterns (Ministry of Trade and Industry 1997) contained several recommendations. Furthermore, the Industrial Strategy of Finland (Ministry of Trade and Industry 1993) has integrated environmental issues into the strategy. Economical sectors and industrial branches in addition to private enterprises are very interested in making their own eco-management and audit schemes or in applying EU's Environmental Management and Auditing System (EMAS) or the ISO 14 001 standard.

Programmes and Projects: The Ministry of Trade and Industry has signed energy conservation agreements with the organizations of industry and employers, energy producers, energy distributors and with the organizations of local authorities. In addition, the Confederation of Finnish Industry and Employers and its branch organizations have prepared and launched an Industry Action Programme for Promoting Sustainable Development ("Responsibility for the Environment and Welfare" 1997). The main objectives of the programme continue to be improvement in the following fields: development of products and production methods; development of corporate culture and know-how; development of partnership with stakeholders. The programme also includes branch-specific qualitative targets. Industrial enterprises and industry federations are responsible for the implementation of the programme.

Status: Industry has also undertaken a number of energy conservation initiatives some of these include: Corporate Energy Week to motivate companies and their Personnel to become more aware of rational use of energy. / In November 1997, the Ministry signed new framework agreements with industry and employers associations, energy producers, energy distributors and the Association of Finnish Local Authorities. The framework agreements commit the sectoral organizations to promote energy conservation. Companies joining an agreement must have an energy audit, appoint an energy manager and make an energy conservation plan. Then, they must implement the measures identified in the plan and report annually to the sectoral association. The agreements will remain effective until 2005. The Government will provide funding for the energy audits and for the investments of companies participating in the agreements. There is not yet any overall target of improvement for the set of agreements. / The Energy audit programme since 1992, with a new implementation phase starting in 1996. Since 1992, the Ministry of Trade and Industry subsidized audits. About 10% of the industrial and service premises were audited between 1992 and 1995. The objective of the programme is to cover 80% of all buildings of public and private service sectors as well as buildings and processes of the industrial sector by the year 2010. Energy audits are subsidized by 40% in the private sector. The audits are mainly carried out by consulting companies. / R&D, particularly for sustainable paper and steel and base metal production. Both aim at achieving the world's lowest specific consumption of energy through the development of processes. The 1997 Energy Strategy calls on R&D aimed at

efficient use of energy to continue as well as to bring new technologies to the market. R&D is focused on the commercial utilization of research and on promoting industrial competitiveness. In Finland the main pollutants from industry have been waste water discharges as well as emissions to air. However, water and air pollution have been reduced substantially both by improvements in processing techniques and by cleaning emissions. By now, the emissions of industry have been decreased to a level well beyond the targets set. Environmental protection standards in industry stand up well to international comparison also with respect to efficiency in use of raw materials as well as reduction in emissions. Meanwhile, carbon dioxide emissions from energy production have grown in volume. The greatest challenge Finland faces is to combat climate change by reducing greenhouse gases. The main problems are caused by other sources of pollution such as transboundary emissions and traffic.

Capacity-Building, Education, Training and Awareness-Raising: No information available.

Information: Finnish companies are used to open disclosure of information on their environmental issues. In addition to company and site level environmental reports, branch-wise annual reports are published by the forest and chemical industries. A national jury annually awards the best environmental reports. For additional information on this topic, please refer to the following Web Site of the Ministry of Trade and Industry: <http://www.vn.fi/ktm/index.html> and the Confederation of Finnish Industry and Employers: <http://www.tt.fi>

Research and Technologies: No information available.

Financing: No information available.

Cooperation: No information available.

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CHAPTER: SUSTAINABLE TOURISM

Decision-Making: The Ministry of Trade and Industry, Trade Department, Internal Market Division and Finnish Tourist Board are responsible for sustainable tourism at the national level. At the local level, the Municipalities' tourism administration is responsible. There is legislation for national parks in Finland as well as the following standards and codes of practice: Environmental management system for hotels and restaurants / Many of the hotel chains have their own environmental programmes / Environmental guide for tourist by the Association of Finnish Travel Agents. In general, both industry and consumers have reacted positively to these codes and standards, and interest in developing such measures further is growing. The Finnish Tourist Strategy up to the Year 2000, commissioned by Ministry of Trade and Industry, addressed issues related to production and marketing of the cultural and nature-based tourism. Monitoring of progress in the implementation of this Strategy is undertaken by the permanent group for promoting and developing the sustainable tourism in Finland. A number of Major Groups are involved in decision-making in this area. There are representatives from the NGOs, local authorities, workers and unions, business and industry in the group for promoting and developing the sustainable tourism. NGOs, local authorities, workers and unions, business and industry, and the scientific and technological community have also participated in the process of the Agenda 21 for Baltic Sea Region/Baltic 21 tourism.

Programmes and Projects: Major Programmes available to promote sustainable tourism include the following: Process of the Agenda 21 Baltic Sea Region/Baltic 21 Tourism report, and the Centre of Expertise on Tourism, Savonlinna, Finland.

Status: Tourism currently comprises approximately 5 % of the GNP in Finland (figures for 1995; total amount, FIM 31 billion). The employment effect of tourism in Finland in 1995 was 75,000 persons in work-years. The growth of overnight stays in hotels (1988-1997) has been 30.6 % over the past decade, and the growth of foreign overnight stays has been 42.6 %. The growth of travel expenditure by foreigners (1988-1997) has been 85.6 %. It is expected that the tourism sector will grow approximately 4 % per year during the next decade. All larger hotels have their own environmental systems. Their scope varies.

Capacity-Building, Education, Training and Awareness-Raising: Training that is available for employees in the tourism industry to assist them in understanding, applying and promoting sustainable tourism is provided through the Finnish University Network for Tourism Studies and Polytechnics. In addition, some of the hotel chains have their own training in environmental issues. The media has also been used to promote sustainable tourism. Nature-based tourism and eco-tourism are promoted in campaigns and brochures of the Finnish Tourist Board and the Finnish regions both in Finland and abroad. Some of the hotel chains have had their own awareness campaigns. Promotion of sustainable tourism has taken place through reports and publications (for example Environmental management system for hotels and restaurants and Environmental guidelines for tourism events). Literature has also been published, including publications of the group for promoting and developing sustainable tourism and the Report of Agenda 21 for the Baltic Sea Region/Baltic Tourism. The target group for brochures of the Finnish Tourist Board is often environmentally-conscious tourists.

Information: The establishment of a clearing house for the Baltic Sea Region with information on i.e. methodology, criteria, indicators, best practice examples and rules of conduct is suggested in the Baltic 21 Tourism Report. The group for promoting and developing sustainable tourism is currently working on indicators for sustainable tourism. In addition, there will be a seminar on indicators early 1999 in the framework of the process of Baltic 21 tourism. Maps on national parks are available, and eco-systems have been inventoried in national parks. Finland maintains a number of Web Sites for information on Finland and sustainable tourism. These can be found at the following addresses: <http://www.mek.fi> / <http://www.vn.fi/ktm/> <http://www.vyh.fi> / <http://www.vyh.fi/syke/syke.html> / <http://www.ee/baltic21> / <http://www.metsa.fi/eng>

Research and Technologies: No information available.

Financing: Activities in the area of sustainable tourism are financed by the National budget and the tourism industry.

Cooperation: There are few tourist centres that could be called sustainable tourism destinations in Finland. Fritidsresor (a tour operator) has its own hotels, so called Blue Villages, abroad (for example in Turkey, Spain, Cyprus). These hotels have their own environmental programmes. These model destinations assist the national programmes through indirect publicity. Both local authorities and private sector are represented in the group for promoting and developing the sustainable tourism. Bilateral, multilateral and international cooperation for sustainable tourism takes place through the following arrangements: Baltic Sea Regional level (Agenda 21 for the Baltic Sea Region/Baltic 21 Tourism); Finnish-Estonian co-operation in the field of tourism; and, Archipelago co-operation (Finland, Åland Islands, Sweden).

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