REPUBLIC OF POLAND

MINISTRY OF ENVIRONMENTAL PROTECTION, NATURAL RESOURCES AND FORESTRY

NATIONAL POLICY ON FORESTS





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Ministry of Environmental Protection, Natural Resources and Forestry

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I. INTRODUCTION

- 1. Forests are the most natural formation in nature and ones that are linked inseparably with the Polish landscape, being an essential factor providing balance in the natural environment and conditioning the country's development. Thanks to human efforts in harnessing the forces of nature to meet society's needs, forests have become an indispensable element in the civilizations of today and tomorrow.
- 2. Forest management with a view to protection and utilization is the kind of activity that entails a considerable share of goods and services of a public character. As a result, there is justification for state intervention through the pursuance of a policy for forests that meets the general and common needs of society and is implemented by way of forestry and other interdependent sectors of the economy.
- 3. National Parks and Forest Reserves play a special role in the protection of forest ecosystems, their biocoenoses and the natural processes ongoing within them.
- 4. Forests serve very diverse functions, either naturally or as a result of managemental activities. The functions in question are:
 - * ecological (protective), ensuring:

stabilization of the water cycle in nature; the counteraction of floods, avalanches and landslides; the protection of soil against erosion and of the landscape against steppification; the shaping of the climate both global and local; the stabilization of the composition of the atmosphere and the purification of the atmosphere; the creation of conditions by which to preserve the biological potential of a large number of species, ecosystems and the genetic resources of organisms; and the safeguarding of the diversity and complexity of the landscape, as well as better conditions for human health, life and agricultural production;

* productive (economic), through:

ensuring the renewability and sustainability of the use of timber and non-timber forest resources as well as hunting; the development of specialized tourism; the profits from the sale of the aforementioned goods and services; the creation of places of work and the provision of income for state and local budgets by way of taxes;

* social, serving in:

the shaping of favourable health and recreation conditions for society; the enrichment of the labour market; the creation of diverse forms of use by local communities; the utilization of degraded land and marginal soils; the strengthening of national security and the development of the country's culture, science and education, including ecological education.

- 5. Growth in a given function of a forest may limit other functions, thus generating conflicts. Equally, many of the functions of forests augment and enhance one another, result from each other and are temporally and spatially variable.
 - * <u>The ecological functions of forests</u> have over the longer time perspective great economic and social significance. Through retention and the stabilization of water conditions, forests reduce the danger and scale of flood damage and periodic shortages of water in forestry and agriculture. They also limit the threat of fire and, through purification of the air and regulation of the climate, improve the health conditions for society.

- * <u>The productive functions of forests</u> are above all expressed through the production of timber a renewable and "human-friendly" ecological raw material which is the basis of many professions, traditions and cultural elements; which is put to a multitude of uses and which conditions the development of many branches of industry. In addition, timber takes up and accumulates carbon from the atmosphere, thus limiting the enhancement of the greenhouse effect, and is also easily used, giving it great pro-environmental significance.
- * <u>The social functions of forests</u> are to a great degree determined by their ecological and productive functions: a greater natural diversity in forests creates greater possibilities for their use in the economy and society, ensuring employment possibilities, and the supply of building materials, fuel and areas for rest and recreation.
- * <u>Conflicting functions</u> are revealed in previous antagonism between intensive economic or recreational use and some ecological functions like the protection of biological diversity and of soils. Conflicts have also arisen between the use of forests in tourism and productive and ecological functions (the littering of forests, destruction of ground cover and young trees, increased threat of fire, the scaring and disturbance of animals, etc.).
- 6. In serving many important and varied functions, forests are the key element in the ecological security of the country. In consequence, forest policy and management are of strategic rank, like national military, societal and energy security in which forests and forestry also play a role.
- 7. The functions of forests may be augmented by similar functions among areas planted with trees and shrubs, whose role is increasing particularly in areas of limited forest cover.
- 8. The state of Poland's forest resources is presented in Annex 1. Of particular importance in characterizing the situation and in establishing policy on forests are the following features:
 - * limited, regionally-uneven, but constantly-increasing forest cover,

- * the steadily-increasing level of timber resources in forests, both nationally and in subsidiary territorial units,
- * the excessive role played by single-species stands which do not utilize the potential productive possibilities of the richer forest habitats appropriate to multi-species forests,
- * the constantly-increasing proportion of broadleaved tree species in stands,
- * the marked prevalence of public forests, which account for 82.9% of cover nationwide, cf. private forests at 17.1%,
- * the less favourable state and managemental situation of private forests as compared with public forests,
- * the unsatisfactory state of health of forests, the increase in the number of species causing damage, the ever more frequent presence of harmful insects, the spread of territorially extensive tree diseases and the increasing threat of fire.
- 9. The main threats to the country's forest resources are changes in the natural environment brought about by human activity. Among these, the most important are:
 - * the pollution of the atmosphere with gases and dusts which stimulate global climate change and also have a negative influence on forest ecosystems through the acidification of soils and the toxic action on organisms, thus favouring the appearance of pests and leading locally to forest dying off,

- * the lowering of the level of groundwater and frequent precipitation deficits leading to the weakening of trees, making them vulnerable to pests and diseases and increasing their susceptibility to fire,
- * the uneven spatial structure of forests, as manifested in the presence of many small complexes which, while diversifying the landscape, face greater negative pressures and are more difficult to manage,
- * the consequences of schematized forestry management based on the raw material model.
- 10. Potential threats to forests, mainly on the local scale, may be posed by:
 - * the trend towards the replacement of forest-related forms of land use with others (settlement, transportational infrastructure and other linear development, recreational construction, military training grounds, mineral exploitation and industry),
 - * the enhanced penetration of forests by people and signs human-made damage of disturbance on forests,

* the pollution and littering of forest areas.

- 11. Principles for the preservation, protection and augmentation of forest resources, along with those for forestry management linked with other elements of the environment and the national economy but irrespective of form of ownership are set out in the Statute on Forests of 28.09.1991. The Statute elevates the environment-creating and general social values of forests to the same level as the raw-material benefits.
- 12. The legal bases for the protection of forest land are provided for in the 1995 Statute on the Protection of Agricultural and Forest Land.
- 13. Poland's new policy for forests now being established pays particular heed to:
 - * the provisions of the State Environmental Policy enacted by parliament in 1991, which are being developed in relation to forests under all forms of ownership,
 - * the Forestry Principles and Agenda 21 approved by the UNCED ("Earth Summit") held in Rio de Janeiro in 1992,
 - * the European Declarations of Forestry Ministers on the Protection of Forests (Strasbourg 1990 and Helsinki 1993), which set out guidelines for sustainable forest management and ushered in the process of establishing criteria and indicators.

A manifestation of these trends has been the interdepartmental document from the Ministry of Environmental Protection, Natural Resources and Forestry entitled "Polish Policy for the Comprehensive Protection of Forest Resources" (1994), as well as ministerial Decisions and Orders of the Director-General of the State Forests resulting from it.

14. The drawing-up and implementation of state policy on forests is among the duties of the Minister of Environmental Protection, Natural Resources and Forestry. In particular, the Minister is obliged to shape conditions underpinning the achievement of all the functions of forests; to provide constant supervision over the condition of forests and forestry management, over the forests within National Parks and over

the preparation of programmes following national policy. A further statutory duty of the Minister is to present the annual Information on Forests to the government, which is later directed to sessions of parliament.

- 15. National policy in regard to forests is pursued by:
 - * Voivodes (heads of provinces), in the scope of perfecting of the sustainable use of private forests and their resources, the improvement of the condition of such forests, and supervision over them,
 - * The Director-General of the State Forests, in the scope of improvement of the management practices performed on the state owned forests and their use as well, allowing thus for accomplishment of all the functions supplied by forests and indicated by the state policy on forest.
 - * The Director of the National Board for the National Parks and Park Directors, to the extent determined in the Forest Act, in relation to forests under all forms of ownership and in the scope of protection and management of forest ecosystems accordingly to the conservation plans of National Parks,
 - * The Office of Forest Management and Survey, in the scope of introducing to planning procedures the principles of forest management directed at achieving the aims of multifunctionality in the holding, and monitoring of the state of forest resources and forests' condition.
- 16. Partners in the implementation of national policy on forests are:
 - units of the national and local government administrations of the appropriate level:
 - * the voivodeship (provincial) administration, in relation to planning policy within voivodeships that guarantees maximum protection for forests (environmental protection, afforestation and systems of timbered areas),
 - * the local administration and self-government, in the scope of direct cooperation with Forestry Inspectorates and mutual participation in planning processes (forest management plans; physical development plans for gminas; conservation plans for National Parks, Nature Reserves and Landscape Parks) and in programmes to increase the ecological awareness and knowledge of local communities and to improve local models for sustainable development on the basis of, i.a., the inclusion within them of the resources and valuable features of forests,
 - the private owners of forests and associations of them, as well as other forest managers.

17. Also participating in policy on forests are:

- * trades unions, which are active within forestry in line with their statutory entitlements,
- * Departments of Forestry of higher education establishments, the Forest Research Institute and other scientific institutions, through the carrying-out of research on the ecological and social functions of forests and their harmonization with technologies and methods of production, as well as on the implementation of programmes by which to educate society on nature and forests and to train forestry personnel,

- * forestry scientific and technical associations (the Polish Forest Society, the Association of Forestry and Timber-Industry Engineers and Technicians), in relation to the popularization of knowledge on forests and the provision of opinions and proposals with respect to national policy in this sphere,
- * *the forestry press and forestry publishing houses*, in relation to information on forests, training and national policy.
- 18. The units implementing policy on forests also include government departments whose activities are of key significance to the state of forests and the conditions for their management, especially in relation to:
 - * "forest-friendly" planning at national level, especially optimal conditioning for forests of the agricultural andscape, and industrial and urbanized areas,
 - * the utilization of marginal soils and the promotion of sustainable development of the rural populace in harmony with the country's forest resources,
 - * the protection of Treasury assets,
 - * the utilization of forests for the security and defence of the country,

* programmes easing the burdensomeness on forests of developments and industrial technologies,

- * minimization of losses of forest resources resulting from their serving of social functions or from forest fires and ecological disasters,
- * international cooperation in forestry areas within the framework of foreign policy.
- 19. Particular roles in establishing national policy on forests are played by:
 - * the Sejm and Senat (lower and upper houses of parliament), in relation to the framing of law concerning forests, appropriate policy safeguards in the national budget, checks on the implementation of provisions of policy on forests and the environment, and the introduction of the principles of sustainable development,
 - * *the government*, in relation to implementation of the principles of state environmental policy in all sectors.

II. IDEAS BEHIND POLICY

- 1. The subjects of the policy are forests under all forms of ownership and their functions; the aims and principles of forest management and the links between forestry and society, other divisions of the national economy and management and other organizational units cooperating in forestry.
- 2. The bases of the sustained utility of all forest functions are proper methods of organization and management of the areas forming forest ecosystems, as well as their protection.
- 3. Important tasks of multifunctional forest management are to ease or prevent conflicts between different functions and to enhance their complementary character. The methods of forestry management and the conditioning of forest production should thus take account of the specifics of the natural, economic and social conditions in which they will be implemented, and be in harmony with the ecological and social functions of forests.
- 4. Differences in natural conditions and in the spatial role of forests in the landscape combine with the increasing scale of the threats to forests and the varying expectations and needs of local communities to point to a necessity for policy programmes to be diversified in different regions. Account should be taken of:
 - * the type of landscape, the state of the natural environment and the role forests play in it now and should play in the future,
 - * the functions of an area and the needs of the local community,
 - * functional linkage with the timber industry and other consumers of wood.
- 5. Analysis of the state of forests and the designation of the directions in the development of forestry necessary for the attainment of national ecological, economic and social policy aims should consider:
 - * the existence of limits to the effective, full and immediate achievement of all forest functions, on account of the unsatisfactory state of health of most of the country's stands, the severe threats posed by diverse anthropogenic and natural factors and the generally unsuitable management of private forests,
 - * the great needs and opportunities for increasing forest cover through the planting of agricultural land that is productively-inefficient or unused,
 - * the need to accelerate the transformation of Polish forestry, firstly the State Forests, towards a model of sustainable, multifunctional management,
 - * the need to exclude from production those forests of a near-primaeval character worthy of legal protection or being embraced by special management principles,
 - * the inadequate income from forestry (still coming almost solely from sales of timber) which hinders the full development and utilization of all the functions of forests under different kinds of ownership – especially the ecological functions, and which limits the development of technical infrastructure, vocational and secondary education in forestry, research, and the services provided to the whole of society by forestry.

- 6. The remaining conditioning of national policy on forests derives from:
 - * the demographic situation, manifested in population growth outpacing increases in forest cover and resulting in a steady decline in the area of forest per inhabitant,
 - * the anticipated increase in the demand for raw timber beyond the level of supply possible from the domestic base,
 - * the need to balance the increasing expectations of society in regard to forests and their functions with society's level of knowledge on forest management and its natural bases,

* Poland's international obligations in line with the conventions, agreements and understandings signed.

- 7. The attainment of the aims of forestry in conditions of uncertainty regarding the climate combine with the long production cycles for timber in stands to necessitate, i.a.:
 - * intensified research on changes in the natural environment and their influence on forests and the functions they serve,
 - * the defining and attainment of parameters corresponding to the criteria and indicators of sustainable forestry management associated with European forest policy,
 - * ongoing monitoring of the state of forests and the threats they face, with a view to the reliable prediction of changes to these elements.
- 8. Inter-sectoral policy on forests is an integral part of the environmental, economic and social policy of the country and each sector should work to achieve the aims of these policies within its area of operations, through;

* the easing of conflicts between economic growth and the needs of environmental protection,

- * the identification and integration of all participants in economic life and society who are interested in sustainable development, and especially the development of forestry, as well as efforts to set up ongoing consultations between them,
- * co-creation of unified prospective legislation in relation to the protection, shaping and use of the natural environment, as a prerequisite for the legal and economic balancing of timber production and the protection of the forest environment,
- * legal protection of forests under all forms of ownership,
- * the assurance of state care of forests under all forms of ownership and the setting-up of monitoring to ensure appropriate methods that are based on principles for the sustainable development of multifunctional forest management,
- * the development of legal and financial mechanisms encouraging owners and managers of forests to invest constantly and protect elements in forests which benefit society as a whole,

- * the generation of conditions favouring the proper valuation and utilization of wood as a renewable ecological resource of varied application, and as a biological energy carrier,
- * the development of proper principles for harmonizing the aims set by different users of forest functions with the requirements of the agricultural and forest economy.
- 9. The formulation of goals for national policy on forests requires simultaneous consideration of international conditioning in line with Poland's participation in European and world affairs, especially activities in the name of environmental protection and timber management. Involved here in particular are:
 - * Poland's active participation in the establishment of global policy on forests,
 - * improvement of the mechanisms and means by which Poland heeds its international obligations resulting from the conventions, agreements and understandings it has signed,
 - * the drawing-up of national programmes for the development of forestry and the submission of reports of progress in this field to sittings of the UN Commission on Sustainable Development.

III. AIMS AND PRIORITIES

1. The overriding aim of policy concerning forests is to designate the complex of actions shaping relations between humankind and forests, with the aim of preserving – in changing natural and socio-economic circumstances – the conditions for the indefinite maintenance of the multifunctionality of forests, their multi-faceted utility and protection and their role in the shaping of the natural environment, in line with the present and future expectations of society.

2. The safeguarding of the permanence of forests, along with their multifunctionality, will be achieved by:

* increasing the country's forest resources,

* improving the state of forest resources and providing them with comprehensive protection,

- * reorientating forest management away from the previous domination of the raw-materials model towards a pro-ecological and economically-balanced model of multifunctional forest management that corresponds with criteria formulated for Europe by the Helsinki process and takes account of the specifics of Polish forestry.
- 3. The supplementation of forest resources will occur through:
 - * increasing forest cover to 30% by 2020 and 33% by the middle of the 21st century, successively as land unsuitable for agriculture is given over to reafforestation, as well as attainment of the spatially-optimal structure of forests in the landscape through the protection and full utilization of the productive possibilities of habitats,
 - * the restitution and rehabilitation of forest ecosystems, mainly through the reconstruction in appropriate habitats of mixed tree stands in place of single-species ones, as well as by way of biomelioration methods,
 - * the regeneration of devastated and neglected tree stands in private forests and then their ecological rehabilitation.
- 4. The increasing of forest resources will be accompanied by programmes:
 - * to introduce systems of timbered areas and plantations, as substitutes for forest in productive agricultural areas and as an additional source of raw timber,
 - * shaping transitional tree communities and plantations of trees and shrubs on land degraded by industrial, mining, construction and military activities, and on chemically-contaminated soils.
- 5. To improve the state of forests, and to protect them, so that they might better and more fully serve diverse functions, the following actions will be taken within forestry management:
 - * work to enhance the health of tree stands and their resistance to harmful abiotic and biotic factors, through the ever-wider implementation of biological and ecological methods of protection,
 - * limitation to necessary cases only of the use of chemical substances (pesticides, mineral fertilizers, mineral oils, etc.),

- * the drawing-up and implementation of a programme to redevelop the small-scale retention of water with a view to restoring beneficial supplies of water to forests and improving water management in the country, especially on divides and in upland and mountain areas,
- * further improvement of methods for the active combating of the threat of forest fires and the fires themselves,
- * enhancement of the genetic and species diversity of forest biocoenoses and the diversity of ecosystems in forest complexes on the basis of natural models,
- * regulation of forms and intensities of use of forest resources, i.e. harvesting of timber and non-timber products, as well as of the servicing by forests of protective and social functions, such that these activities are not able to threaten the permanence of forests or to have a negative influence on the state of tree stands,
- * an acceptance that:

the utilization of resources as regulated by a plan of forest use is a derivative of the needs established with silvicultural and protective aims in mind and is to ensure the continuity of production of the greatest possible amounts of timber of the best quality,

the amount of timber harvested in the course of tending should not exceed ongoing increments but should rather guarantee the accumulation of timber increment in stands, thus giving a basis for enhanced reproduction,

the size of the timber harvest from mature stands should take account of limitations resulting from the fulfilment of protective and social functions, the present and future species and age structures of forests and the degree to which they accord with habitat properties, the degree to which the planned management goals are achieved and needs where the renewal and reconstruction of stands are concerned,

- * the regulation of populations of game animals to levels not threatening the silvicultural and protective goals of a forest,
- * the regulation and steering of recreation and tourism in forest areas in a manner harmonizing the social functions of forests with the protective and productive functions,

* enhancement of the effectiveness of the legal protection afforded to all forest land.

Success in these activities may be achieved in full if there is simultaneous sustainment of the present trend towards reduced inputs into forests of all kinds of chemical and physical pollutants from sources at home and abroad.

6. Society's expectations of a significant widening of forestry services towards the diverse benefits resulting from the varied functions will be met if forest management is multifunctional and sustainable. The drawing-up and implementation of the principles for such management will require:

- * theoretical and experimental studies into a new model for forests taking account of the influence of random factors on management (in place of the previous model determining the schematic spatial and temporal organization of tree stands with a view to the obtaining of high incomes immediately),
- * the adjustment of the concepts for forest management and utilization towards the natural, economic and social conditions of functioning of the forest holding, with the priority being natural or semi-natural cultivation with a preference for complex felling and the use of natural regeneration,
- * the development of enduring and biologically-resistant forests,
- * securing on the basis of the Statutes on Nature Conservation, on Forests and on the Protection of Agricultural and Forest Land, the protection of all forests, and especially the most valuable ecosystems and keystone or rare elements of forest biocoenoses,
- * radical restrictions on the use of forests of a near-primaeval character, as well as those by watercourses representing ecological corridors,
- * the promotion and protection of biological diversity in the whole process of forest organization and management,
- * the application of forestry techniques and technologies that are safe for the environment and "friendly" to people and nature,
- * the ensuring of effectively-regulated utilization through precise knowledge of the structure of stand resources which conditions the level of implementation of all the functions designated for forests in successive developmental cycles of tree stands (successive generations of trees).
- 7. The devising and promotion of a model of sustainable and multifunctional forest management will be served, along with the comprehensive protection of forest resources, by the already-initiated programme for Promotional Forest Complexes, whose aim is to test the model in different natural and social conditons, and to prepare it for wide application in public forests, especially those of the State Forests, and later in forests under all types of ownership. The detailed scope and directions of the programme are presented in Annex 2 "Polish Policy for the Comprehensive Protection of Forest Resources".
- 8. In addition, actions enhancing the functions of forests, most especially public forests, will be directed towards:

- ecological functions:

- * through compulsory consideration, in planning studies for forest areas, of ways in which to realize all the important types of function of forests, and especially the ecological functions (account must be taken of the shaping, protection or restitution of ecosystems occurring locally and proper to a given region, as well as of the biological organization of ecotonal zones),
- * through compulsory consideration, in physical development plans for gminas (units of local government administration), of optimal field/forest boundaries, the spatial structure of forests in the landscape, the system of timbered areas and ecological corridors between forests, as well as of the lifting of ecological

barriers and above all the limitation or elimination of external pressures on forest ecosystems by way of "forest-friendly" management of adjacent land,

- productive functions:

- * through a search for new forms and subjects in the utilization of forest resources, with simultaneous heeding of the principles of sustainable development, i.e. the ensuring of the permanence and protection of these resources,
- * through the devising of sustainable methods of use favourable to the future of forests and taking account of changes in the global environment and ecological uncertainty, as well as their possible influences on the local, regional and national scales,
- * through the perfected functional integration of forestry with the timber industry, and cooperation with other consumers of wood,
- * through the stabilization of the national market for timber and wood,
- * through the use of incentives for the wide use of timber an ecological material in building work, and for its rational use, protection and preservation;

- social functions:

- * through specialized management of forests with specifically-defined social functions (those in National and Landscape Parks, on the edges of towns and cities, in regions of intensive recreation and tourism and in experimental areas), in such a way that potential conflicts with the other functions of these forests or adjacent ones are eased,
- * through integration of the aims of forestry with those of the sustainable development of society on the local, regional and national scales, as well as closer cooperation with local communities in the development of local models for sustainable development that take account of the state of forest resources and their functions,
- * through the ecological and forest-related education of society and the shaping of appropriate attitudes to forests and forestry.
- 9. If the diversity of functions served by forests is to be enhanced and broadened, it is essential that stands in forests under private ownership be regenerated and their ecosystems rehabilitated. This will require the establishment of appropriate legal, economic and organizational bases.

IV. ORGANIZATIONAL, ECONOMIC AND LEGAL CONDITIONING

- 1. The effective creation and popularization of a model for sustainable, multifunctional forest management requires that legislation, and the system by which forestry is financed and organized, be adapted to the changing conditions of management.
- 2. Attainment of the aims and tasks of policy on forests will require the drawing-up of long-term executive prorgrammes which will set out the necessary organizational, economic and legal solutions appropriate to the needs of forestry and the country's possibilities.
- 3. The organizational basis of forestry is provided by the principles that:
 - * forest law relates equally to all forests in Poland,
 - * a unified and constant policy for forests be implemented, along with methods of management that correspond with this policy, irrespective of form of ownership
 - * the State Forests will play the leading role in technical and technological progress in forestry.
- 4. The place of forestry in the structure of the central administration is to a great extent predetermined by the following factors:
 - * the dominant role of the Treasury in the structure of forest ownership,
 - * the broad accessibility of forests to the populace,
 - * the considerable role of legal regulations and economic parameters in the steering of the development of forestry.
- 5. The exercising of state supervision over forests should be dichotomous, with supervision:
 - * of state-owned forests, and mainly of State Forests holding, being handled centrally by a Minister, on account of the centralized character of this organization,
 - * of forests not under state ownership being the responsibility of provincial elements of the central administration (i.e. voivodes (heads of provinces) and the directors of regional offices).
- 6. The system of planning and forecasting in forestry requires the conversion of the Office of Forest Management and Survey into a planning and forecasting body in the nature of a state agency subordinated under legal provisions to the office of the Minister supervising forestry and working for the good of all forests in Poland irrespective of ownership. The tasks of such a national planning and forecasting service should include:
 - in relation to planning and forecasting work:
 - * constant and continuous monitoring of the sizes, status and structure of forests,
 - * the drawing-up of prognoses for the needs of the government,

- * cooperation with central and local government bodies engaged in spatial planning on the scales of the country, voivodeship or gmina, with a view to developing optimally the structure of the landscape, and especially the area and distribution of new planting of forests and trees and the conditions for the functioning of forest ecosystems in the landscape,
- * the making of regular checks on the implementation of national policy on forests,
- * the development of cooperation in monitoring with other systems of environmental monitoring in Poland, neighbouring countries and Europe as a whole,
- in relation to the carrying-out of service work:
- * the drawing-up of management plans, together with a programme of nature conservation, for the needs of the managers and owners of forests,
- * (to facilitate the taking of managemental and protective decisions), the drawing-up of reports for managers and owners concerning changes in forest resources.

7. Study and research

- The increasing threats to forests and the ever-greater significance of their various functions necessitate an intensification of interdisciplinary research. It is becoming necessary for a long-term strategy of forest research to be devised.

In this, priority should be given to research seeking to offer methods by which to ensure the permanence of forests and the continuity of their functions:

- * studies on the augmentation of the country's forested area and its structure,
- * studies on the dynamics and sustainability of forest ecosystems, as well as the protection and use of the potential offered by forest biodiversity,
- * reconnaissance and implementational work on ecological engineering in forests and safe working techniques and technologies,
- * studies of new models for forests and ones augmenting the multi-faceted utility of forests to the Polish economy and society,
- * studies to improve monitoring, and the forecasting of changes in the state of forests and the threats to them.
- the new orientation of foresty requires decisive qualitative development of scientific and research backup (particularly inadequate in the departments of forestry of the higher education establishments bringing together most of the highly-qualified scientific personnel in forestry), the development of cooperation with research institutions abroad and support for the licenced forest advisory bureaus that are anticipated.
- 8. Nature/forest education and the promotion of policy on forests.

Indispensable factors in the attainment of the aims set before forestry are the understanding and acceptance

of policy on forests by society, and society's participation in the co-creation of this policy and its implementation by professional foresters. In connection with this, there should be development and improvement of both formal and informal education, as well as promotion of knowledge on forests using the many possibilities:

- in formal education:

- * to stimulate programme changes in forestry education at secondary and higher levels with a view to broadening knowledge of the functioning of forest ecosystems and landscapes; the protection of biological diversity; ecological engineering in forests; the realization of the ecological and social functions of forests; the spatial planning, management and administration of forests and the trade in forest products and services in the new socio-economic conditions and with a new model for forest management,
- * to work towards the introduction to primary and secondary school programmes and the programmes of departments of higher schools dealing with environmental issues – of essential knowledge on forests as useful natural and economic systems serving many important functions in society as well as participating in the economic development of the country;
- in informal education and the promotion of knowledge about forests:
 - * to maintain and develop supplementary training courses for the forest services concerning sustainable and multifunctional forest management, ecological issues and nature conservation,

* to design and organize diverse forms by which to educate society in nature and forest-related knowledge (courses, workshops, "green schools", knowledge contests, discussions, displays, exhibitions, education al trails, etc.),

- * to ensure the above aims by safeguarding the development of the Forest Cultural Centre in Goluchow, the Centre for Nature and Forestry Education in Rogow and education centres in Promotional Forest Complexes,
- * to use the media to shape the knowledge and opinions of the people (tourists, the owners of forests, developers, decisionmakers, the electorate and politicians) in relation to forests, their protection and use,
- * to stimulate and improve publishing activity in relation to magazines and journals, as well as popular scientific books, which disseminate knowledge on forests among children, young people and adults,
- * to develop cooperation with ecological movements and organizations, especially youth organizations, that are interested in forests and forestry;
- in the wider involvment of society in policy on forests:
 - * to bring into effect consultations with the people at the local, regional and national levels, in relation to the perfection and implementation of policy that takes account of needs and expectations regarding what is an asset of the whole nation, and reconciling the conflicting interests of different interest groups and social strata,

* to heed the principle that people be informed constantly about the state of forests, and in particular to take joint action for forests and forestry in association with interested organizations and local government.

9. Interdepartmental cooperation in forestry

- The role of forests in the socio-economic development of the country, the multitude of functions served and the numerous interdependences between the state of forests and external economic entities all explain the need for policy on forests to be implemented in inter-sectoral systems, and especially in association with:
 - * environmental policy,
 - * national planning policy,
 - * agricultural policy,
 - * defence policy,
 - * policy regarding the use of Treasury-owned assets,
 - * energy and industrial policy,
 - * social policy, including that in education and science,
 - * fire-control policy,
 - * the strategy for national development,
 - * the strategy for the protection of biological diversity,
 - * the strategy for climate protection.

The multidirectional nature of the linkages in national policy on forests is reflected by a presence within the implementational programmes of various administrative bodies and institutions. Particularly in need of reorganization are the links between forestry and the timber industry and other customers for wood, as well as the economic entities taking profit from forests and the sector providing services to forestry. Between forestry and its customers – particularly the timber and papermaking industries – there should be the organization and development of functional integration and even capital integration bringing benefits to both sides. This action should take the form of:

- * the drawing-up and implementation of a long-term strategy for the demand for timber and the determination of the possible supply from the national base, with an obligation that harvests should not exceed levels determined in forest management plans,
- * the augmentation of the national forest timber base with timbered areas and tree plantations, on the basis of rational programmes for establishment and use,
- * consideration of possibilities and needs in relation to the import and export of timber on a scale resulting from differences between demand and the possibilities of the national timber base,
- * encouragement of the adjustment of technologies and directions of production in the timber industry to the quality of the range of timber, including that of small or medium dimensions produced by multifunctional forestry management,
- * support from forestry and the timber industry for the process of trade in timber through the introduction of a modern market-oriented information system, improvement of the sales and accounting systems and moderation of the instabilities in supply and demand.

- 10. International cooperation
 - In the light of the transboundary nature of the threats to forests and the conventions and agreements in force, the development of international cooperation, especially with neighbouring countries, requires that Poland participate in dialogue devoted to the formulation of global principles of sustainable forestry management whose final encapsulation in legal form is anticipated. Particular areas for cooperation should be in:
 - * the exchange of information:
 - on the status and development of the forestry and timber sector, the application of forest law and the participation of forestry in national development,
 - on the status of forests, ecological progress in areas of threat to natural and planted forests, and the resultant socio-economic implications,
 - on technological progress, and programmes and results of scientific research, that are of significance in the optimal utilization and protection of forest resources or the restitution of degraded forms of them,
 - * establishing possibilities for the harmonization of legislative work in the sphere of forestry,
 - * consulting as regards methods by which to define economic aspects of pro-environmental forestry policy,
 - * consulting as regards necessary actions in the forestry and timber sector and their surroundings, especially where border areas are concerned,
 - * the agreement of the principles, scope and organization of certification for conditions of production and the harvesting of timber.
 - Annex 3 presents a review of the international institutions with which Polish forestry is particularly interested in cooperating.
- 11. Systems and directions for the financing and economic improvement of forestry should take account of its new aims resulting from the increased significance of the ecological and social functions, the greater threats and actual damage incurred as a result of a variety of factors and the need for partial recompensing of the outlays made by the managers and owners of forests for the public services they render. The system and directions of financing and economic improvements to forestry should aim at the following solutions:

- in relation to forests under all forms of ownership:

* the participation – as far as is possible – of the national budget, the budgets of the local government administration and special funds and subsidies, in the realization of the ecological and social functions of forests (the restoration of proper water relations, reafforestation, the planting of trees and shrubs, the special costs of the functioning of protected and protective forests, the costs of restoration after ecological disasters, the nature and forest-related education of society, and programmes resulting from Poland's ratification of international conventions, particularly the Convention on Biological Diversity and the Convention on the Protection of the Climate);

- * the creation of a mechanism defining the effective participation of resources from the National Fund for Environmental Protection and Water Management in compensating for damage to forests caused by industrial pollution of the air.
- in relation to the State Forests holding:
- * identification of principles for limited self-financing of activities as a consequence of a defining of the public functions of forests qualifying for financial support from the national budget and special funds,
- * the maintenance and improvement of the system for the redistribution of financial resources originating from a levelling calculation between forest holdings in different natural conditions of production, with a diversified range of services provided and hence varying profitability,
- * the obtaining of income from ecological surcharges on the prices of energy carriers, when these are introduced,
- * the obtaining of payment for certain forest services that were previously free of charge, e.g. for the commercial-scale harvesting and collection of forest-floor products,
- * the development and commercialization of new forms of managemental activity,
- * rationalization of employment to the economically-optimal level and increased employment in forestry services, by way of:
 - defined actions guiding and supporting economic entities engaging in and rendering services to forestry,
 - the leasing of equipment for forestry work,
 - the establishment of a system of preferences for the creation and stabilization of multi-person enterprises offering forestry services,
 - the raising of the professional qualifications of employees in enterprises offering forestry services,
 - the future concessioning of this form of service activity;
- * the consideration, in programmes combatting unemployment at regional and local level, of reafforestation work.
- 12. The statutorily-guaranteed universal accessibility of public forests to the public may not be treated as unrestricted acsess to forest resources for economic entities profiting from the taking of animals and plant raw materials or the trade in them; the extraction of minerals; the organization of tourism, recreation and sports or the use of forests for special purposes. Regulation of the levels of these forest services and their commercialization are essential if the permanence and biological diversity of forests are to be assured and income from forest holdings compensating for the costs of maintaining valuable features obtained. To this end, it will be necessary:
 - * to determine the rational level of supply of the aforementioned products and services on the national, regional and local scales,
 - * to work towards a system of fees for the auxiliary economic utilization of forest resources and the sale of services that are proportional to the scale of these activities and the losses they produce in forests.

- 13. Enhancement of the economic efficiency of forests in private ownership, and of the functions they serve, requires:
 - * by way of supervision, the creation of conditions for the effective implementation of the provisions of the Statute on Forests and the aims designated by national policy,
 - * the drawing-up of new legal standards and economic stimuli to increase the functional and organizational effectiveness of private forestry management,
 - * the establishment of the legal, economic and organizational conditions for the association of private owners of forests voluntarily (in companies, communities, associations, etc.) or compulsorily (in forest chambers), with a view to the joint management of forests, improvement of their quality and enhancement of the effectiveness of management,
 - * the stimulation of increases in the area of private forests through the reafforestation of land no longer needed for agricultural production and owned by natural persons, or by way of the sale to farmers of small publicly-owned complexes surrounded by private land,
 - * the use of incentives and easements in the consolidation of private forests,
 - * the creation of financial conditions for the efficient purchase of private forests by the national or local authorities in cases in which their owners do not pursue rational management policies and are not interested in ownership,
 - * the systemic regulation of the principles for the extension of non-budget subsidies and loans for improved forestry management in private forests with special emphasis on:
 - the regeneration of stands damaged by pollution and other factors,
 - preventative action in the protection of forests,
 - support for compulsory husbandry work in forests on farms that give low incomes on account of their poor state, as well as in forests whose owners have set up forestry associations,
 - * the perfection of financial instruments linked to to the reafforestation of post-agricultural land and favouring the ecological and social functions of forests,
 - * the improvement of management in private forests with the aid of a specialized forest service exercising supervision, being professionally trained and possessing the necessary skill in negotiating and the provision of advice,
 - * the organization of training in forestry management,
 - * the establishment of databases on forests that are not under Treasury ownership.
- 14. Work to improve legislation should aim, i.a., at:
 - * systemic solutions ensuring rational support for management in public and private forests by way of various economic and financial mechanisms for the attainment of other ecological and social functions, and in addition – in private forests – for organizational activity (supervision, the setting-up

of associations and forestry chambers) and for selected managemental goals (reafforestation, the liquidation of the consequences of disasters and the reconstruction of stands),

- * extending and improving the legal possibilities for the associating of private owners with a view to the joint management of forests and joint presentation of interests to bodies of the central and local government,
- * regulating the principles of the timbered areas management, financing it and conferring upon their appropriate status as an important component of the landscape
- * regulating the systemic mechanism and scope of compensation for the damage done to forests by industrial pollution and catastrophic events, as well the financing of actions to enhance the ecological functions served by forests under various forms of ownership,
- * the introduction of a system of fees for the utilization of non-timber forest resources by economic entities,
- * the longer-term introduction into state environmental policy (in line with the economic system of the country and trends in the E.U.) of an ecological surcharge on the prices of energy carriers, with the designation of some of the funds so-obtained to promote the assimilation and accumulation of CO_2 in forests and timber with a view to counteracting the enhanced greenhouse effect (reafforestation, the increasing of plant biomass in forests, the protection of organic matter in soils and the more effective and enhanced use of timber in construction work),
- * the statutory subordination of organizational tasks to bodies of the central administration supervising forestry, and their entrustment to a national planning and forecasting service,
- * the legal placement of Promotional Forest Complexes within the organizational system of the State Forests, as functional areas with defined ecological, productive and social goals,
- * the adaptation of hunting law to the goals of sustainable, multifunctional forestry management, and especially silvicultural and protective needs.
- 15. Strategic Government Programme
 - * The inclusion of the priority aims of forestry in a strategic government programme is justified by the fact that forestry seeks to achieve aims important to the whole country, including ecological security (dependent on forest cover, the sustainability and diversity of forests and their varied environment-shaping attributes), as well as aims important in satisfying society's expectations vis-a-vis the continued provision by forests of diverse products and services.
 - * Strategic Government Programme would be concerned with the development of forest space and would integrate the priority ecological, productive and social goals of forestry management, build a basis for the long-term implementation of national policy on forests and represent – at the beginning of the third millennium – a solid foundation for the natural spatial structure of the country and living conditions.
 - * The process of linking theory with experimentation and practice that is characteristic of forestry, the complementary nature of the research topic and the huge areal and functional scope of the undertakings all provide additional justification for the supporting of the main tasks in forestry resulting from national policy on forests by way of a strategic government programme.

V. POLICY IMPLEMENTATION: ANTICIPATED EFFECTS AND TIMETABLE

1. Anticipated effects

The prevalence of Treasury-owned forests in the ownership structure creates particularly favourable conditions for the realization of the ecological and social functions of forests which have been defined as priorities in the reform of national policy on forests. It is on account of these very functions that the transformation of the country's economic system will not weaken the state's hold over forestry, but will create conditions for its development through the rationalization of aspects of production and the elimination of the danger that the level and structure of the supply of timber might be subordinated to the timber industry. At the same time, however, the separation of the sphere of activity of the state administration from the management of forestry will guarantee the development of natural market processes. Conditions for the partial commercialization of functions other than the productive ones will also come into existence.

In the conditions described, the consistent attainment of the aims of forest policy in harmony with European provisions should ensure the following gains within the first half of the 21st century:

* an improvement in the state of forest resources and the sustainability of forests,

- * an increase in Poland's forest cover to 30% by 2020 and 33% after 2050 and reconfiguration of field-forest boundaries to the benefit of the landscape, the functioning of forests and agriculture,
- * an increase in the retentive properties of forests and an easing of the water deficit in forest ecosystems and in the country as a whole,
- * an increase in the amounts of carbon dioxide fixed and accumulated, by about 10% by the year 2020 and 20% in the second half of the 21st century (i.e. 4.5 and 9 million tonnes respectively),
- * an improvement in local climates and a limitation of degradational processes in the landscape,
- * an increase in the natural diversity of forests, including by the year 2050 an increase in the proportion of broadleaved species from 22 to 33%, an increase in the proportion of multispecies tree stands to 48% and the introduction of a broadleaved understorey to 1 million ha of pine stands in fresh pine forest and mixed/pine forest habitats,
- * an enhancement of the role played by forests in the ecological structure of the country, through the biological shaping of forest edges and the linkage of forest complexes by ecological corridors of timbered areas,
- * full assessment of the natural resources of forests and the creation of the conditions by which to safeguard them,
- * an increase in the timber resources in forests by about 15% by the years 2020 and by 20% by 2050,
- * in relation to age structure, an increase to 25% in the area covered by tree stands more than 80 years old,
- * an increase in the annual harvesting possibilities for large timber in forests under all kinds of ownership – from the present level of 21 million m³ to 24 million m³ after 2010,

- * growth in the rational harvest of timber from plantations and timbered areas to 1.5 million m³ per year,
- * an improved process for the monitoring and forecasting of the state of forest resources and management planning based on a modern databank concerning forests under different types of ownership and modern information-processing technologies,
- * the spatial development and economic and natural improvement of private forests through the establishment of associations of private owners, the bringing into operation of economic stimuli, and education,
- * the safeguarding of the many valuable features of forests by directing tourist and recreational traffic in forests and by protecting the productive base of forest-floor vegetation,
- * the attainment of relative harmony between the different categories of forest functions,
- * the broadening of society's knowledge on forests, their protection and use.

2. Timetable for the implementation of national policy on forests

Three periods in the creation and implementation of the policy are to be distinguished:

- * by the year 2000, completion of programme-related work on the set of executive studies to national policy on forests which were initiated by the Statute on Forests in 1991, as well as by studies entitled: "Polish Policy for the Comprehensive Protection of Forest Resources" (from 1994); the "Programme for the Augmentation of Poland's Forest Cover" (from 1995) and the "Strategy for the Protection of Forest Biological Diversity" (from 1996). Also to have been prepared: an amended Statute on Forests, forestry instructions and principles, a Strategic Government Programme and a Programme for Promotional Forest Complexes, while a system of timbered areas nationwide will have been put into effect, along with an increase in support for policy on forests from special funds;
- * by the year 2020, there will among other things have been: the completion of the transformation of forestry from the materials-based to the multifunctional; an increase in forest cover to 30%; the completion of the Programme for Promotional Forest Complexes and its full implementation throughout the State Forests holding; an improvement in the health of forests; systemic protection of biological diversity and a redoubling of efforts to combat "greenhouse" warming; rationalization of forestry management in private forests; a harmonization of forest functions and full systemic support for forestry management from budgets and special funds;
- * by the second half of the 21st century, all of the planned goals of the policy for forests will have been achieved, including transformation of the species structure and the effective participation of forests in the regulation of the climate, water management and the preservation of the country's natural heritage.

ANNEX 1

THE STATE OF POLAND'S FORESTS

As of December 1995, forests occupied 8,756,148 ha (or 28.0%) of Poland. Forest cover has increased steadily in the last 50 years, but still varies considerably in the different voivodeships (provinces) – from 12.0% in the Province of Plock to 48.6% in that of Zielona Gora. There are at present 0.22 ha of forest per inhabitant.

The greater part (78.4%) of the country's forest is under the management of the State Forests, while 1.8% is within National Parks.

Private forests account for 17.1% of the total, though their participation in central and eastern parts of the country is much higher, with a number of voivodeships of low percentage cover having 30-60% of the forest that is present in private hands (Siedlce Province – cover 21.1% of which 59% private; Lomza – 20.3% and 56% respectively; Lublin – 15.9% and 50%; Biala Podlaska – 22.1% and 42%; Sieradz – 19.5% and 38%; Radom – 21.8% and 37%, Ciechanow – 16.6% and 36%, Skierniewice – 13.2% and 32%). In turn, 0.9% of the forested area is owned by gminas (units of local government administration), 1.1% is in the Treasury Agricultural Property Reserve and the former State Land Fund and 0.7% is owned by other units.

A decided majority (63.1%) of the country's forests are in coniferous forest (particularly pine forest) habitat. The moderately humid pine forest habitat typical for Polish conditions accounts for 29.7%, mixed/coniferous forest for 29.6% and mixed forest for 18.4%. Stands are dominated to the extent of 77.9% by coniferous species, among which Scots pine is dominant, at 69.4%. The share of broadleaved species in the composition of stands has risen in recent decades from 13 to 22.1%. Nevertheless, the situation remains problemmatical in relation to excessively simplified biological structure and the large proportion of stands whose species composition does not accord with the habitat. These problems result from a past preference for monocultural cultivation as stands were renewed. The mean age of stands is 55 years in the State Forests and 36 years in those in private hands. The timber stock in forests amounts to $1,526 \times 10^9$ m³ (i.e. twice as much as in 1956). This converts to a mean of 172 m³ per ha (195 m³ in the State Forests). Present annual harvests in the State Forests are at the level of 18-19 million m³ of large timber, with the remaining forests yielding another 2 million m³ or so.

The overall state of health of forests gives cause for concern in spite of some recent improvement. Forests are threatened by diseases and pests, unfavourable climatic phenomena, fires and the contamination of the air. Locally, these threats have led to the death of forests and an ecological disaster situation (in the Sudetic Mountains). The share of damaged trees, both broadleaved and coniferous, has exceeded 50%.

As a result of extensive deforestation in past centuries and very widespread post-War reafforestation, Poland's forests are highly fragmented and isolated spatially. The holding of the State Forests comprises 28,000 complexes, of which more than 6000 cover no more than 5 ha. The average size of a private holding does not even exceed 1 ha, and a holding of this size may often be made up of several separate plots.

As a consequence of their serving functions other than the productive, nearly half of state-owned forests are classed as protective. These are forests protecting soils from erosion and waters from excessive runoff and pollution; damaged by industry; offering refuges to animals enjoying species protection; significant to national security; in the vicinity of large agglomerations, sanatoria and spas; or subject to scientific research or mass tourism.

Forests are fundamental elements in the national system of protected areas, with forest land accounting for 62.8% of the area within National Parks, 65.9% of that in Nature Reserves and 55.1% of that in Landscape Parks.

State Forests land includes 849 Nature Reserves covering 66,400 ha, about 1740 protective zones around sites for rare and protected animal species, covering 54,500 ha, and c. 3800 Areas of Ecological Utility covering c. 14,000 ha.

Among forests in the different ownership categories, it is the private forests which appear in a relatively unfavourable light, being characterized by:

* a very high degree of fragmentation of plots and forest complexes,

* poor management,

* a low level of tree stand resources (only 55% of the mean for state-owned forests),

* a low mean age of tree stands (36 years as opposed to 55 for state-owned forests),

* a low raw timber harvest per unit area of forest (about 40% of that in state-owned forests),

* a low level of formal attainment of protective functions (the complete lack or rare occurrence of private forests with protected designations, Nature Reserves or protective zones for protected species).

ANNEX 2

POLISH POLICY FOR THE COMPREHENSIVE PROTECTION OF FOREST RESOURCES

(Information)

Poland – as a signatory to programme resolutions of the Pan-European Ministerial Conferences concerning principles of forest protection, and especially the resolutions on sustainable forest management and the protection of forest biodiversity – has recognized the great possibilities for broadening the scope of the tasks in sustainable forestry for areas in which nature and forest ecosystems are protected.

A programme entitled "Polish Policy for the Comprehensive Protection of Forest Resources" was drawn up, along with criteria and indicators for sustainable forest development adjusted to the specifics of Polish forestry.

The aforementioned Policy is based on the following premises:

- * that the population of the country will increase faster than forest cover, thus increasing pressure on forest resources and functions,
- * that there will be growth in the demand for timber, as a human-friendly ecological material conditioning the existence of civilization,
- * that there will be a change in a hard-to-determine manner in the state of the natural environment, and especially the climate, that the multi-faceted contamination of the environment will continue – perhaps exerting selection pressures on forest organisms which will react by migrating or by unpredictable changes in abundance or through regroupings in the structure of biocoenoses,
- * that many species will become even more threatened than at present, particularly those linked with truly-natural environments,
- * that it will become essential to prepare forest ecosystems for existence in an non-constant and varying environment and to safeguard the maximum possible number of local species.

The present and foreseen threats to forest combine with the growing demands for all forest functions in society to necessitate the adjustment – or even the replacement – of hitherto-existing managemental and protection concepts and technologies applied in forestry. There is thus a need and an opportunity to increase by way of management the natural value of forests and to improve forestry policy in line with the ideas of sustainable development.

This policy has 3 main components:

A – technological, B – educational and C – research-related, as well as three timescales: now to the year 2000, the time up to 2020 and the longer term up to 2050.

A. The technological component

This includes actions for the protection of biological diversity (nature conservation), as well as the promotion of techniques in forestry that are safer than those applied hitherto. The actions in question are to allow for the steering of forest management in full harmony with the postulates of nature conservation. This goal will be achieved through:

- * the preservation of forest ecosystems in a near-natural state,
- * the restitution of forest ecosystems that are currently disturbed or degraded,
- * the protection of the diversity of forest biocoenoses,
- * enhancement of the beneficial influence on forests on the natural environment as well as harmonization of the social and economic development of the country with the rational protection and utilization of forest resources.

The basic planning document in forestry management – the plan for the management of the forest in a given forestry district – will be augmented by a nature conservation programme containing:

* an assessment of the status of nature (ecosystems) and a plan for its protection,

* recommendations regarding environmentally-safe technologies in forestry,

* a plan for the restitution of forest resources relative to the potential of the habitat,

* a plan for the biological regeneration of degraded soils.

The programme for the protection of ecosystems and safe technologies will pay particular attention to:

- * the preservation in a near-natural state, or re-creation, of bodies of water and watercourses within forests and their biological composition, and the restitution or protection of riparian and moist forests,
- * the preservation in the natural state of biocoenoses of the so-called areas of ecological utility marshes, bogs, peatlands, heaths, dunes, boulder fields, rocky outcrops, clearings, alpine and other meadows and other forest land not subject to reafforestation but requiring protection,

* the completion of soil and habitat studies throughout the holding of the State Forests,

- * the biological reinforcement of forest edges and division lines between forest complexes,
- * the protection of forest soils, and especially the cumulation and protection of its organic matter, i.a. through the leaving of small branches, deadwood and fallen trees with no economic value in healthy stands,
- * the introduction of finely-chopped bark and sawdust as soil is cultivated, e.g. in the reafforestation of ex-agricultural land,
- * the retention in each stand destined for renewal by way of clear-cutting of some (5-10%) of the old trees to the time of their physiological old age or biological death, including trees with holes and dead trees – as habitat for many species of forest biocoenoses,
- * increasing the scope of husbandry in biocoenoses and habitats through intensive work on the introduction to pine stands of a lower layer of vegetation formed from native broadleaved species of tree and shrub, as well as the augmentation of forest biocoenoses with nectar-producing species of herbaceous plants,

- * extending specific action for the conservation and protection of particularly valuable (keystone or rare) components of biocoenoses (especially birds, ants, ground cover and species under legal protection),
- * the departure from clearcuts (wherever natural renewal is achievable),
- * limitations on the width and sizes of clearcuts where clear-felling is unavoidable (to 30-60 m and 4 ha), with seed-trees left in groups and clumps along with the various layers of undergrowth and clumps of admixture trees – all with a view to enhancing the diversity, complexity and aesthetics of forest space. There will also be a departure from straight-line cuts,
- * ensuring that management in stands that are special from the natural point of view is directed towards the overriding aim of conserving biological complexity and diversity, with the harvesting of timber being a side effect necessitated by the silvicultural and sanitation measures taken,
- * the application in timber harvesting of environment-friendly techniques that entail restrictions on work so as to minimize the damage to remaining components of a forest. This may be achieved by cross-cutting in a stand, then their removal from the stand to the nearest forest path with the use of forwarders moving along appropriately laid-out skidding trails and a departure from the use of heavy transporting equipment. In forests especially valuable from the natural point of view teams of horses and specialist equipment should be used,
- * a preference for small nurseries within forests and under the canopy to improve the quality of seedlings and saplings, with central nurseries being confined in their productive space and more area given over to protective belts formed from shrubs and trees,
- * limitations on the use of chemical agents in the raising of saplings in nurseries, as well as enhanced use of organic fertilizers and mycorrhizae, the microbiological revitalization of soils, the use of herbaceous plants with pest-control properties to combat nematodes, for example, and the application of phytonicides,
- * the recommended augmentation of species compositions and the mixing of species in line with the natural mosaic-like nature of habitats, in cases where resources are being renewed artificially or self-seeded areas supplemented,
- * the use of existing planted trees in the reafforestation of agricultural and unused land, along with the leaving of small bodies of water and marshes and the use of the full diversity of habitats in the species enrichment of forest cultivation. In justified cases also the use of natural succession only.

The aforementioned aims will be realized by way of ongoing managemental decisions issued by the Director-General of the State Forests up to the year 2000, by which time there will have been modifications to, or the replacement of, principles for forest cultivation, instructions for forest management and protection and other regulations going further in the introduction of ecological elements into forestry management.

While the principles of this Polish Policy for the Comprehensive Protection of Forest Resources will be brought in throughout the holding of the State Forests nationwide, there will – for both substantive and financial reasons – be fullest implementation in 10 designated complexes of forest accounting for 7% of the total area under SF management. These represent different natural conditions and are termed Promotional Forest Complexes. The target is for some 20 PFCs (LKP in Polish) to have been designated

by 1999, and of the existing 10, 7 were set up in 1994 and 1995 and a further 3 in 1996. The areas in question are of the *Puszcza* type (i.e. extensive primaeval-type forests), as well as *Lasy*, (i.e. forests dominated by broadleaved tree species) and *Bory*, (i.e. forests dominated by coniferous tree species). Specifically they are: Puszcza Bukowa, Puszcza Bialowieska, Lasy Darzlubskie, part of Bory Tucholskie, Lasy Wloclawsko-Gostyninskie, Lasy Janowskie, Puszcza Kozienicka, Lasy Rychtalskie and part of Bory Zielonogorskie and Bory Beskidu Slaskiego.

Each PFC grouping several forestry districts will be evaluated from the natural point of view and will come to constitute an important link in the country's ecological system.

Run in accordance with the many requirements of nature conservation, each PFC will be a place in which to pass on experience gained to wider circles within forestry, as well as one serving in the ecological education of society and in the enhancement of cooperation with it.

To this end, centres of nature and forestry education will be organized in PFCs, along with educational trails and published informational materials. Greater attention will also be paid to management for tourism and recreation.

PFCs will be accessible for nature/forestry research, and for proper determination of their functions, their Technical and Managemental Commissions will include representatives of the forestry and nature-related sciences, scientific and technical associations and people active in conservation and ecological movements.

An assessment of the implementation of protective and managemental measures in each PFC will be made by its Socio-Scientific Council.

The first PFC was the State Forests Complex of Puszcza Bialowieska, for which the cultivational and protection principles were approved by a decision of the Minister of Environmental Protection, Natural Resources and Forestry of November 8th 1994. These identified the area as one managed in line with the principles of sustainable development with particularly stringent protection principles.

B. The Educational Component

This is recognized as a priority on account of the need to prepare the forestry services of the State Forests and the National Parks to undertake new tasks or to bring a greater nature-related element into tasks already implemented. The following are planned within the framework of the educational component:

- 1. The establishment of a "Centre for Nature and Forest Education",
- 2. The drawing-up of educational programmes:
 - a) for the forestry engineering services, in relation to National Parks, the national administration and training, and concerning:
 - the pro-ecological model of forestry management,
 - the protection of biological complexity and diversity in forests,
 - geographical information systems and teledetection in forest protection and spatial planning,
 - b) for the needs of diploma training in the field of the "protection of forest resources",
 - c) for the level below that of engineer, in relation to ecology in general, and with particular account taken of nature conservation in forests.
- 3. Publishing activity in relation to nature conservation in forests, including sets of handbooks, training materials and popular-science journals and magazines for young people at school and others.
- 4. The undertaking of ecological education in parallel with the creation of the Centre, with the first to be trained being employees of the Office of Forest Management and Survey, the Forest Inspectorate and central man agement personnel.

C. The Research Programme

This would have as its task support for a programme of environmentally-safe technology and the creation of bases for a pro-ecological model of forestry management in conditions of uncertainty and change in the global environment. This would be a programme taking account of the following aims:

- 1. Improved analysis of the anticipated level of variability.
- 2. Recognition of the ecological risks, mechanisms, scale and intensity of impact of different methods of forest management on the naturally-valuable elements of forest biocoenoses.
- 3. The drawing-up of a pro-ecological model of forestry management, including:
 - the outlining of management principles entailing a reduced level of exploitation of habitats and environmentallysafe technologies based on the principles of ecological engineering,
 - the replacement of methods of forest management by methods of ecosystem management taking account of nature-related and landscape functions,
 - improved analysis of the natural and economic consequences of proposed changes in the systems for the management and utilization of forests,
 - the devising of theoretical bases for the amendment of principles, guidelines and standards in the management, cultivation, protection and utilization of forests.
- 4. The undertaking of research work on a probabilistic model of the forest, as a theoretical basis for changing methods of management and regulation applied hitherto, thereby ensuring the permanence of forests.

The consequences of the Policy and of Promotional Forest Complexes will be:

* the devising of appropriate regulations, and instructions for their implementation,

* the ongoing training of forestry personnel in relation to sustainable management,

* the drawing-up and undertaking of a research programme,

* the mobilization of appropriate additional resources from beyond the national budget,

* the adoption of the government programme to increase Poland's forest cover.

The effect of the Programme of the Polish Policy for the Comprehensive Protection of Forest Resources will be:

- to adapt forests to changing conditions of ecological risk and to forestall or counteract the changes (thus protecting the climate),
- to combat degradation and protect sensitive species (biodiversity protection),
- to shift forestry management towards a pro-ecological form and to prove that forestry management and natural resources can co-exist (the promotion of sustainable development),
- to link forests and forestry with the spatial development of the country and vice versa (increased forest cover, the shaping of the agricultural/forest boundary and the construction of the country's so-called "ecological grid"),
- to prepare forestry personnel to implement and complete the Programme and to supply them with the necessary publications, including new technical principles for forestry.

ANNEX 3

THE INTERNATIONAL CONDITIONING OF POLISH POLICY ON FORESTS

- 1. In many countries, in compliance with expert opinions and the provisions agreed by conferences of contracting parties, plans are being drawn up and brought into force with the aim of ensuring the ongoing multifunctionality of forests with a prevalence of protective functions. These trends are associated with legal regulations binding worldwide or regionally in forest management. At present, the greatest influence on the sustainable use of forests on the global scale is exerted by:
 - * the Convention on Biological Diversity (CBD) agreed in Rio de Janeiro in 1992 and ratified by Poland in 1995. This makes Parties to it responsible for the preservation of genetic, species and ecosystem diversity and obliges them – while retaining national sovereignty – to make rational use of biological resources.
 - * the Convention on Wetlands of International Importance Especially as Waterfowl Habitat from 1972 (known as the Ramsar Convention and relating also to marshy forests).
 - * the Convention Concerning the Protection of World Cultural and Natural Heritage (WHC) from 1972, requiring Parties, i.a., to protect particularly-valuable "puszczas" (areas of extensive, near-primaeval forest).
 - * the United Nations Framework Convention on Climate Change (FCCC) from 1992, concerning i.a. reductions in emissions of "greenhouse" gases in which forestry management plays a large role, above all via the retention and enlargement of forest areas and the protection of organic matter in soil.
 - * the Convention on the Conservation of European Wildlife and Natural Habitats from 1979 (known as the Berne Convention).

Poland is a Party to all of the above conventions.

- 2. Conventions are augmented by non-binding agreements in so-called "soft law". The most important of these include:
 - * The Forestry Principles from 1992 adopted by the UNCED ("Earth Summit") in Rio de Janeiro and calling for application of the principles of sustainable development and the rational use of forest resources; as well as the by-then-clear:
 - * Chapter 11 of Agenda 21 devoted to programmes for the protection of forests and postulating the preservation of the diverse functions of all types of forest:
 - increasing the protection and sustainable use of all forests and afforestation as well,
 - promoting the effective use of the goods and services provided by forests,
 - enhancing inventorying and programme development in relation to forest resources and the trade in timber;

- * the Declaration of the Conferences of Forestry Ministers of European countries held in Strasbourg (1990) and Helsinki (1993), which formulated a contemporary concept for the sustainable development of forests and forestry as expressed through 6 criteria:
 - maintenance and appropriate enhancement of forest resources and their contribution to global carbon cycles,
 - maintenance of forest ecosystem health and vitality,
 - maintenance and encouragement of productive functions of forests (wood and nonwood),
 - maintenance, conservation and appropriate enhancement of biological diversity in forest ecosystems,
 - maintenance and appropriate enhancement of protective functions in forest management (notably soil and water),
 - maintenance of other socio-economic functions and conditions.

3. Many international initiatives, and in particular those from:

* the FAO Conference of Forestry Ministers and Experts (Rome 1995)

* the 3rd UN Conference on Sustainable Development (New York 1995)

led to the establishment of an International Panel on Forest Policy which is considering the possibilities for the encapsulation in international law of forest policy principles, including the certification of forest holdings and the trade in timber. Such a document might take the form of a Convention on Forests.

- 4. Poland participates actively in all international debates on forest policy, and should in particular develop cooperation with the following international organizations:
 - * the UN Commission on Sustainable Development,

* the World Bank and its Global Environment Facility,

* the European Union and its agendas involved with forestry (afforestation), nature conservation (the ECNC) and funding (PHARE),

* the European Forestry Commission of the FAO (the state of forest resources),

* the Timber Committee of the UN ECE and FAO (the certification of forest products),

- * the International Union of Forest Research Organizations (IUFRO) (in relation to forest-related education, science and research),
- * the Committee of the 3rd Pan-European Ministerial Conference on the Protection of Forests (Lisbon 1998) (membership of the Committee, involvement in the process harmonizing criteria and indicators of the sustainable development of forests and forestry).

ANNEX 4

GLOSSARY

biological diversity – the diversity of forms of life on Earth or in a given area of it (country, region), usually considered in relation to three levels of organization in nature, as: 1) species diversity, 2) ecological diversity, i.e. the diversity of the types of groupings organisms create, and 3) genetic diversity, i.e. the diversity of genes (alleles making up the gene pool of a population). The world's biological diversity has been brought under protection by force of a 1992 UN Convention.

field/forest ecotone - (an ecotonal zone), specially-managed areas where forest edges meet open areas (cultivated fields, bodies of water, etc.), with the aim being to prevent unfavourable changes to the forest, e.g. degradation of the soil, reduced water retention or the deformation of plant and animal communities

forest -1) the most complex terrestrial ecosystem, in which the different plant and animal organisms present co-create a biocoenosis. Forest is distinguished by the considerable proportion of trees growing in the vegetation cover and playing the role of the main edificators; 2) in accordance with the Forests Act from 1991, forest denotes land of a contiguous area of at least 0.1 ha that is covered with forest vegetation (or forestry cultivation), i.e. trees and shrubs and a ground cover layer, or else temporarily lacking in same (but designated for forestry production, or constituting a Nature Reserve, or being within a National Park, or being entered on the register of monuments) and associated with forest management.

forest ecosystem – a synecological unit represented by a relatively uniform patch of forest, within which the habitat, vegetation and animals remain mutually interdependent, creating an ecological system that maintains itself dynamically as a whole.

forest resources – the sum of the components of a forest capable of being assessed quantitatively, and including elements of the biocoenosis and especially the tree stands, the ground cover layer and the animals, as well as elements of the biotope - soil and water.

functions of a forest – the utilities supplied by a forest in the form of productive goods and benefits, as well as the protective and social services rendered.

monitoring of forests – the systematic collection of information on the state of the forest environment and the health status of stands with a view to determining spatial variation in the degree of damage to forests, the dynamics and directions of changes in this damage, the cause and effect linkage between the state of health of stands and environmental factors, and the reactions of forest ecosystems to different doses of pollution in different ecological conditions.

non-timber forest products – different material goods of plant origin (resin, bark, needle-cuts, leaves, forest fruits, the fruiting bodies of edible fungi, medicinal and industrial herbs, etc.), or animal origin (animals, skins or other hunting products, the products of forest beekeeping etc.), as well as dug products (peat, sand, gravel, etc.).

plan for forest utilization – when account has been taken of the sustainability, preservation and stability of a forest, the optimal net volume of large timber that can be harvested in the period for which a forestry management plan in a forestry district is binding (usually 10 years).

plantations – areas planted with forest or non-forest trees distinguished by their rapid growth and high level of productivity where raw timber is concerned. They are managed intensively to reduce the length of the production cycle.

production cycle of a forest – the period elapsing from the initiation of the development of a forest to the time of the attainment of a product (yield) that is ready for use.

regeneration of a forest – the reconstruction of tree stands destroyed, or neglected in terms of tending, with a view to re-establishing structure and functional properties.

rehabilitation of a forest – the application of different types of phyto- and zoomeliorative methods with a view to conferring features of a forest ecosystem upon existing communities of trees (most often monocultures of Scots pine growing on ex-agricultural land).

renewal of a forest – the natural or artificial introduction of a next generation of forest on the site of a stand felled in the course of normal utilization or destroyed by natural disasters, disease or insect pests.

restitution of a forest – the introduction of tree stands in areas long used in non-forest, e.g. agricultural, cultivation.

sustainable, multifunctional forest management – actions intended to shape the structure of forests and to use them in a manner and at a rate ensuring the ongoing presevation of their biological richness, high productivity and the regenerative potential, vitality and ability to serve – now and in the future – all the important protective, economic and social functions at the local, national and global levels, without harm to other ecosystems.

timbered areas – single trees and shrubs or groups of same planted away from forests and also away from urban areas, serving ecological, aesthetic and also productive functions by supplying wood, fruits, etc.

timber resources (timber stock) – the total volume of the trees in a forest, most often equated with the measured (estimated) volume of large timber in a stand.

transitional (substitute) forest communities – groupings of trees in the nature of planting on land degraded by human activity and not therefore capable of forestry cultivation in its current state.

tree stand – the basic unit of the spatial division of a forest identified on the basis of accepted natural and economic criteria for the needs of registration, planning and the implementation of managemental activity in a forest.

