

## **GOVERNMENT OF THE REPUBLIC OF CROATIA**

In accordance with the article 30, paragraph 3 of the Law on the Republic of Croatia ("Official Gazette", no. 101/98, 15/2000 and 117/2001), the Government of the Republic of Croatia, on a session held on July 17<sup>th</sup> 2003, brought the following

### **CONCLUSION**

1. The Government of the Republic of Croatia passes National Forestry Policy and Strategy, in the text which is a component of this Conclusion.
2. This Conclusion and National Forestry Policy and Strategy will be published in "Official Gazette".

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Zagreb, July 17<sup>th</sup> 2003

President

Ivica Račan

## **NATIONAL FORESTRY POLICY AND STRATEGY**

### **1. INTRODUCTION**

Forests in Croatia have economic, environmental and social functions and have a major impact on the quality of life. Croatia is endowed with a great diversity of habitats (The Adriatic Sea, sub-mountainous regions and Panonian plain) and over 60 various forest communities are recognised. Our forests are acclaimed internationally for their natural composition on 95% of the forest areas and also for their great diversity of plant and animal life, resulting from more than 150 years of forestry tradition.

The distribution of forests and forest land is as follows:

- Areas covered by forests - 2,078,289 ha
- Forest land not covered by forests - 345,952 ha
- Infertile forest land - 61,370 ha

Total - 2,485,611 ha

Forests in the Republic of Croatia occupy 2.5 million hectares or approximately 43.5% of total mainland area. Of the total area, the state owns 2,024,474 ha (81%) of forests and forest land, while 461,137 ha (19%) is privately owned. "Hrvatske šume", limited company, Zagreb is responsible for management of state forests (1,991,537 ha), while some smaller areas (32,937 ha) are managed by other legal entities.

According to data from the Management Plan for 1996, some 59 % of forests are high forests, approximately 24% are coppice, and the remainder may be considered as various forms of degraded forest: -maquis, garrigue, scrub forest, etc. Approximately 71% of high forests are mainly even-aged (regular high forest) with 29% of uneven aged forests.

Broad-leaved species dominate on 85% of the forest areas, while conifers occupy 15% of areas. Main species are beech (36%), peduncled oak (14%), sessile-flowered oak (10%), common hornbeam (8%), common ash (3%), other hard broad-leaved species (11%), soft broad-leaved species (4%), fir and spruce (11%), pine (2%) and other coniferous species (1%).

Almost 86% of the total growing stock, estimated at some 324,256 million m<sup>3</sup>, is owned by the state and is managed by “Hrvatske šume”, limited company, Zagreb, while 2% of the growing is managed by other legal entities. Private forests account for 12% of the growing stock.

Total annual increment is 9.6 million m<sup>3</sup> and average allowable cut is 5.3 million m<sup>3</sup>. Annual increment in state forests is 8.1 million m<sup>3</sup> and average allowable cut is 4.9 million m<sup>3</sup>. Production has been steadily rising since the end of the war, from 2.6 million m<sup>3</sup> in 1995 to a planned 4.1 million in 2003, which is still less than pre-war level of production and allowable cut. Out of the planned quantity, 1,8 million m<sup>3</sup> is sawmill roundwood and the rest is pulpwood, fuelwood and wastewood.

The Republic of Croatia has a long and rich hunting tradition which forms part of our national cultural heritage. There is a wide variety of large and small game species. Of a total of 1,070 hunting grounds, 310 are state and 760 common. There are more than 54,000 registered hunters in the Republic of Croatia.

In the year 2000, the contribution of forest industry sector in GDP was 1.4%, with the furniture industry accounting for 0.5%, pulp and paper 0.4% and wood and wood products 0.5%. It has been estimated that the contribution of forests in GDP is additional 1% (source of data: Statistical yearbook of the Republic of Croatia 2002).

Forestry sector is a significant source of employment, especially in rural areas. In total, there are approximately 49,000 employed, out of which number 9,500 people work in company for forest management, 6,000 employees work as entrepreneurs for forestry works, 4,000 people are seasonal forestry workers, 11,500 people work in primary wood processing industry, 11,600 work in furniture industry and 6,250 work in pulpwood and paper industry.

Of the total production of 580,000 m<sup>3</sup> of sawnwood, exports account for 315,000 m<sup>3</sup>. Total imports of sawnwood amounted to 180,000 m<sup>3</sup>, of which 150,000 m<sup>3</sup> is coniferous wood. Forests and forest industry products, including wooden furniture, accounted for 7% of total exports in 2001, while imports represented 3.8%.

Forests are becoming increasingly recognised worldwide for their importance not only in relation to their multiple functions but also for their role in climate change. The Republic of Croatia is constantly present on the international forestry scene and has signed and ratified the majority of international agreements and conventions, which either directly or indirectly affect forest management. The list of major agreements and conventions includes:

- Convention on biological diversity;
- Convention on long-range transboundary air pollution;
- Convention on international trade in endangered species of wild flora and fauna;
- Convention on wetlands of international importance, especially as waterfowl habitats;
- International convention on plant protection;
- Kyoto protocol;
- Resolutions and General declarations of Ministerial conferences on the protection of forests in Europe;
- Convention on the conservation of European wildlife and natural habitats;
- EEC directive 79/409 on bird protection in Europe;
- EEC directive 92/43 on the protection of habitats of wild animal and plant species in Europe with the commitment to the establishment of ecological network Natura 2000;

By signing and ratifying these international agreements, The Republic of Croatia has confirmed its commitment to sustainable management of all forests and a shift away from the traditional concept of sustainable timber production and to giving equal importance to the environmental and social values of forests. The certificate that the Republic of Croatia received from Forest Stewardship Council (FSC) for 2,000,000 ha of forests under the management of Hrvatske šume, limited company, Zagreb,

is evidence of commitment of the Republic of Croatia to sustainable management of its forest resources. The process of creation of national forest certification standards is ongoing.

## 2. NATIONAL POLICY AND STRATEGY

National Policy and strategy is divided into the following areas:

- A. Management of Forest Ecosystems;
- B. Forest Administration and Legislation;
- C. Non Timber Products – Tourism, Hunting and Other Forest and Forest Lands Products;
- D. Timber Industry;
- E. Environment and Physical Planning;
- F. Education Research and International Co-operation; and
- G. Public Relations and Promotion.

Within each of these areas, there is a general introduction followed by policy considerations. The policy aim and specific strategic actions to reach an aim are then elaborated. Each action identifies the organisation or institution responsible for implementation. Where possible, partner organisations that can play an important collaborative role despite not being primarily responsible for implementation are identified. The actions are assigned one of three priority classes – Priority I: Immediate priority and to be implemented during the period 2003-2006, Priority II: Medium term priority and to be implemented during the period 2006-2008 and Priority III: Longer term priority to be implemented 2008 onwards.

It is important to point out that implementation documentation with terms of reference and specified costs will be elaborated according to priority class for each activity defined in the document.

*The overall policy aim is:*

Through sustainable management, use and comprehensive protection of forest resources and biodiversity increase the contribution to the national economy, applying research results, while respecting international trends and local community rights.

The aim of protection and preservation of biodiversity as well as sustainable management of forest resources and their sustainable utilisation also implies manner and scope of utilisation which does not result in their deterioration, but in reflecting their potentials with an aim of satisfying the needs and aspirations of current and future generations.

In the implementation of measures defined in the document through strategic activities by specific areas, priorities will be allocated in accordance with priority classes to activities related to the inventory taking of the condition in areas directly or indirectly linked to forestry and forestry sector. These activities are important for obtaining the realistic status and defining the significance of future steps and measures. Likewise, conservation of forest resources through the application of ecologically, economically and ergonomically acceptable technologies and through utilisation of other, non-timber products have been defined as being of utmost priority, which will in accordance to strategic orientation in this document have a growing role in the sector.

Adopting the trends in the developed world, forestry sector has one of the highest priorities in diminishing the effects of glasshouse gases, due to growing utilisation of biomass as energy source, which is a result of management, but also utilisation of volume of wood from the forests through primary processing.

Implementation of resolutions and conventions which are primarily concerned with forest protection and protection of other plant and animal life, as well as harmonisation of regulations and institutions with the corresponding ones in the European Union and developed countries, even before the creation of this strategy, are a high priority task defined not only by this document.

#### A. MANAGEMENT OF FOREST ECOSYSTEMS

Forests in Croatia account for 2.5 million ha or circa 43.5% of the land area and are acclaimed internationally for their close to nature composition on 95% of the forest area and also their great diversity of plant and animal life.

Forests, in addition to providing a valuable timber resource and employment, provide many other benefits. Forests are a valuable recreational and tourist resource and can add to the beauty and quality of rural and urban landscapes. Forests are important environment for the conservation of biodiversity, they are home to a wide variety of wildlife and flora and play an important role in the carbon cycle through sequestration and overall water management (drinking water, protection of water, protection from erosion). All of these benefits are only possible if forests and in particular forest ecosystems are managed in a sensitive and sustainable manner.

The National Biodiversity Strategy Plan aims to systematically chart and comprehensively plan for nature protection activities. Action plans are being implemented according to priorities and availability of human and financial resources. Together with this strategy, it will surely have major impact not only on forest but also on protection of surrounding nature, which is indeed a significant segment in the process of the Republic of Croatia becoming a member of the community of developed countries of the world.

The results of forest health monitoring in 2001 and 2002, showed a slight reduction in forest damage in the Republic of Croatia. Compared with the level of forest damage in Europe, Croatia is within the category of countries that are in the European average damage level.

Over the 1996-2000 period, fuel wood accounted for circa 8% of primary energy production in the Republic of Croatia. In March 2002, the Strategy for the Development of the Energy Sector was adopted and it identifies renewable energy resources as part of its overall strategy.

#### POLICY CONSIDERATIONS

Although the health status of forests continues to improve (with the exception of fir and peduncled oak), the Republic of Croatia cannot afford to be complacent. There is no national inventory of forest habitats. Further work and research will be required if valuable forest habitats are to be maintained, enhanced and protected.

The Karst region represents a special case for forest management. The principal aims of management for the Karst areas are soil protection and water. Given the low volume of wood and value of timber, the region is not economically viable in the absence of state intervention.

Approximately 12% of the forests and forest lands are still inaccessible due to the contamination of land mines. This means that basic management tasks cannot be undertaken. Unless mine clearance is carried out, this portion of forests will lose its function.

This policy and strategy aims at preservation and improvement of forest system stability, health status and production potentials, regardless of ownership and former management regimes.

Current technology used in the forests relies on traditional methods and machinery. These are not always the most appropriate since there have been significant advances in the development of environmentally friendly technologies, especially in harvesting, transport and forest establishment.

*Policy Aim:* Optimal management of all forest resources in co-operation with interested parties.

**A1:** To preserve and promote habitat stability, forest health and productive capacity of stands

<b>Strategic actions</b>		<b>Priority</b>	<b>Responsibility</b>	<b>Partners</b>
A1.1.	To establish criteria and methods for the assessment of habitat condition and preservation	I	MAF, MEPPP	SRI, FF, FRI, FC, FA
A1.2.	To establish criteria for decision-making process relating to forest-management measures	I	MAF	SRI, FF, FRI, FO, FC, FA
A1.3.	To establish criteria for functional forest categorisation	I	MAF	SRI, FF, FRI, FC, FA
A1.4.	To provide financial support for adequate silviculture in defined functional forest categories	I	MAF, FC	FC, FO
A1.5.	To support certification of forest management and timber products and elaboration of a National Standard	I	MAF	MEPPP NGOs, FC, SRI, FA
A1.6.	Undertake an inventory of current habitat condition (based on GIS and defined criteria) and establish sample plots to monitor changes in habitat condition	II	MAF, MEPPP	SRI, FF, FRI, FC, MF
A1.7.	Support measures to improve seed husbandry and nursery production	II	MAF	SRI, FF, FRI, FC
A1.8.	To improve stand structure by the introduction of rare autochthonous species	II	MAF	MEPPP, FC, SRI, FO

**A2:** To implement 4E (ecological, ergonomic, economic, energy) favourable technologies in forestry

<b>Strategic actions</b>		<b>Priority</b>	<b>Responsibility</b>	<b>Partners</b>
A2.1.	Establishment of appropriate evaluation of 4-E technologies in forestry	I	MAF	SRI, FF, FRI, FC, FA, MEPPP
A2.2.	Support measures to provide the required training for the implementation of 4-E technologies	I	MAF	MEPPP, MF, FF, FS, FC, FA
A2.3.	To develop financial incentives to support the implementation of environmentally friendly technologies (i.e. bio-oils, cable railways)	II	MAF, MEPPP	MF, FC, FO

A2.4.	Development of work techniques and safety at work via capacity building, evaluation and verification	I	MAF	FF,FRI, FC, MST, MLWS, MES, CFA
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#### A3: To improve management system of karst region

Strategic actions		Priority	Responsibility	Partners
A3.1.	Sustainable utilisation of productive capacity of stands and the implementation of appropriate silviculture	I	MAF, FO, FC	SRI, FO, FC
A3.2.	The establishment of criteria for multipurpose utilisation of space – forests and forest soil	I	MAF, MEPPP	SRI, FC, FA, MC, MD
A3.3.	Support measures for the improvement of fire prevention and suppression and civil protection	I	MAF, MIA, FC, SI	CFA, LG, SAB, MD
A3.4.	Areas designated for forest management activities to be clearly delineated in physical plans	II	MEPPP, MAF	SRI, SAB, FA, MC, MT
A3.5.	Improvement of afforestation methods in karst regions	II	MAF, FC	SRI, FF, FRI
A3.6.	Identification of unused forest land favourable for tourist projects	II	MEPPP, MAF, MT	FC, FF, FRI, SRI

#### A4: To include mined forest areas into regular management

Strategic actions		Priority	Responsibility	Partners
A4.1.	In co-ordination with the Croatian Mine Clearance Centre decide on mine clearance priorities and de-mining methods in forests and forest land	I	MAF, CLMCC, MIA	MF, FC, LG, MD
A4.2.	Development of financing models for mine clearance in forests and forest land	I	MAF, MF,	ME, LG, CEO, FC, MD
A4.3.	Training of staff engaged in de-mining of forest and forest land	I	CLMCC	MIA, FC, MD

#### A5: To utilise biomass for energy

Strategic actions		Priority	Responsibility	Partners
A5.1.	Undertake an inventory of unused biomass as potential energy source	I	MAF, ME, MEPPP	SRI, FF, FRI, FC
A5.2.	Identification of unused land, selection of the most favourable species and technology for the establishment of plantations	II	MAF	SRI, FF, FRI, FC
A5.3.	In co-operation with other sectors, defining and achieving incentives for biomass based on the implementation of the Kyoto protocol	II	MAF, ME, MEPPP	SRI, LG, CEO, MF
A5.4.	Utilisation of biomass as a principal energy source in forested areas	II	MAF, MEPPP	ME, MF, MSMTC

## B. FORESTRY ADMINISTRATION AND LEGISLATION

### FOREST ADMINISTRATION

Forestry administration is a term which in this document refers to the Ministry of Forestry and Agriculture and State Inspectorate. Certain works are carried out, in accordance with legal regulations, Hrvatske šume, limited company, Zagreb and Forestry Research Institute Jastrebarsko.

In 1998, the inspection function for forests and hunting was transferred from the Ministry of Agriculture and Forestry to the State Inspectorate in line with overall Government policy.

As part of the Ministry of Agriculture and Forestry, Forest and Hunting Department was founded, consisting of two Divisions, one of which deals with forest management and hunting and the other responsible for forest protection, conservation of gene pools, forest seed husbandry and nursery production.

Public enterprise Hrvatske šume responsible for forest and forest land management was founded in 1991. In April 2002, following an amendment to the Forestry Act, public enterprise Hrvatske šume was established as a limited company, Hrvatske šume, owned by the Government of the Republic of Croatia. During 2001-2002, under the World Bank Coastal Forest Reconstruction Project, international consultants undertook a review of Hrvatske šume, limited company Zagreb and reported on options for its strategic development.

Forests in the Republic of Croatia are divided into management units, with each management unit having its own management plan elaborated according to sustainable management principles, which consider the forest as a renewable natural resource with marked general amenities, provided forest regeneration is enhanced, supplemented and improved where necessary. An overall management programme, "Forest management programme for 1996-2005" has been prepared for the whole of the Republic of Croatia. It contains management guidelines. All forests, irrespective of ownership, are subject to ten-year forest management plan.

Privately owned forests account for 461,137 hectares or 19% of the total forest area in Croatia and 11.7% of the growing stock. The number of owners is 599,056 and the average size of the property is 0.76 hectares. In practice, with some exceptions, private forests remain essentially unmanaged. The sector is characterised by

- (a) high degree of fragmentation not only in size of plots but also due to the fact that many owners reside in the cities,
- (b) lack of silvicultural skills and forestry tradition,
- (c) insufficient number of owner associations,
- (d) the majority part is degraded and major investments are needed.

Within the Ministry of Environmental Protection and Physical Planning (MEPPP), the Nature Protection Division is responsible for all protected areas including national parks, nature parks, protected landscapes and park forests. Forests within national parks are managed by the National Parks Service, which is integral part of the Ministry of Environmental Protection and Physical Planning. Nature parks are managed by forestry company but with complying with the conditions for nature protection incorporated in management programs issued by the Ministry of Environmental Protection and Physical Planning

### POLICY CONSIDERATIONS

Major concern is overlapping of responsibilities of the Ministry of Agriculture and Forestry, Ministry of Economy, Ministry of Environment Protection and Physical Planning and "Hrvatske šume", limited company. The influence of forestry administration on physical planning is weak. There is a lack of co-ordination with other administrations on national and local levels, which can result in conflicts.

There is concern among the forestry experts regarding the transition of forest and hunting inspection to the State Inspectorate. It is a normal practice in Europe for the state supervisory function to reside with the ministry responsible for forestry and hunting. This arrangement is seen as providing better control and co-ordination and it is necessary to introduce expert forestry and hunting inspection in the Ministry of Agriculture and Forestry as soon as possible, as a part of the process of planned state administration reform, at the latest.

State forests managed by Hrvatske šume represent an exceptionally valuable national resource and have the potential to make positive contributions not only to rural development but also to the social well-being of all citizens of the Republic of Croatia. The restructuring study highlights the need for Hrvatske šume, limited company Zagreb, to reorganise its activities and to adapt to free market conditions and become more efficient. Ignoring main recommendations of the study could result in Hrvatske šume, limited company, Zagreb, becoming economically unviable with consequent impact on the quality of forest management and development and growth of the forest industry sector.

Despite the fragmented nature and relatively small average holding, private forests have the potential to contribute more in terms of wood production and other forest services. It is highly unlikely to happen unless remedial actions are put in place as for example incentives for the establishment of owner associations, introduction of government subventions for management of private forests. There is one association that provides a useful model and indicates that such associations can work. There is one owners association on the territory of Medvednica (Sljeme), which includes 360 owners, who own 200 ha, which represents an average holding of 0.55 per owner, and it can serve as a useful model and evidence that associations like this can function.

Current format and regulatory requirement for forest management plans are based on large management units and are not suited to small average private owner holding.

## LEGISLATION

Forests and other activities concerning forests and forest lands are regulated by the Forest Law (Official Gazette no. 52/90), approved in 1990 and amended in 1993, 1997 and 2002. The law defines general objectives and organisation of public intervention in the sector and establishes financial mechanisms including (i) obligation on all forest owners to invest 15% to 20% of the income from wood sales for simple biological reproduction\* and additional 3% for extended biological reproduction\*\*, (ii) obligation for all commercial and industrial companies in Croatia to pay 0.07% tax on their turnover, which is transferred to Hrvatske šume, limited company Zagreb, to finance investments in forest improvement with an aim of protection of forest amenities, including restoration of degraded forests in the karst areas, restoration of degraded forests and forest research.

Other legal acts which have direct impact on the sector include:

- Law on Forest Seeds and Planting Materials;
- Law on Environmental Protection;
- Law on Nature Protection;
- Law on Plant Protection;
- Law on Fire Protection;
- Law on Hunting;
- Law on Water;
- Law on Financing Water Economy;
- Law on Public Roads;
- Law on Protection Against Natural Hazards.

## POLICY CONSIDERATIONS

The law prohibits selling of state owned forests or forest lands to third parties or granting concession(s) for management of these resources. It is strategically important for the long-term development of forestry sector that state assets remain the property of the government. This will ensure that multiple forest amenities are available to society and public purpose activities are maintained and funded.

Many of the recommendations arising from the restructuring study on Hrvatske šume, limited company Zagreb, cannot be implemented under current legislation. The existence of regulatory and legislative framework is important not only for the strategic development of Hrvatske šume, limited company Zagreb, but also for the overall forestry sector.

Although the European Union has no specific forest legislation, as forest laws are subject to the principle of subsidiarity, planned accession of the Republic of Croatia will include requirement that all relevant directives and regulations pertaining to the practice of forestry e.g. forest regenerative material, forest protection, environmental impact assessment and forest inventory information are transposed into national legislation.

Over the past 10 years, the majority of countries in Europe have either amended as is the case in European Union countries or rewritten their forest legislation as is the case for transition countries. Their experience in redrafting forest laws has shown that the drafting of sound and workable law requires genuine involvement of all categories of stakeholders. Without this involvement, the prospects of the existing laws to reflect reality are slim.

Currently any physical or legal entity can be established as forestry contractor, even if they have no professional qualification, competence or training. The quality and competence of forest contractors directly impacts on the activities in forests and forest lands. Many countries require either that forest contractors be registered or obtain national competency certification for their activities. It is necessary to insist on forestry contractors to be registered legal entities and to own certificate for their activities. In order to implement the aforementioned and taking into account the experiences of other professions, the establishment of forestry chamber becomes a necessity.

Current forestry legislation does not comprehend clearly defined regulations covering management or harvesting of non-timber forest products and services. The principle of sustainable forest management, to which Croatia is committed, requires that non-timber forest products and services be managed on a sustainable basis.

## FORESTRY ADMINISTRATION

B1: Efficiency and rationalisation of forestry administration as a basis for sustainable forest management and creation of required human resource level within the sector

Strategic actions		Priority	Responsibility	Partners
B1.1.	Improve the co-operation between state administration bodies to facilitate appropriate natural resource management	I	Gov.	MAF, MEPPP, ME,MD
B1.2.	Return the forestry and hunting inspection to the MAF	I	Gov.	MAF, SI
B1.3.	Draft and implement regulations to allow for the implementation of main findings of the Restructuring Study	I	Gov., MAF	ME, FC, MF

B1.4.	Support and promote measures to stimulate private entrepreneurship in the forestry sector	I	MSMTC	MF, ME, MAF, FC
B1.5.	Undertake an inventory and total economic valuation of forest resources and delineate between agricultural and forest land	I	MAF	SRI, FF, FRI, FC
B1.6.	Establish a service for special purpose forests and non timber forest products	II	Gov., MAF	MEPPP, SAB, MD
B1.7.	Strengthen the forest guard service by giving them increased authority in the prevention of illegal activities in forests	II	MAF, SI	MIA, FC, FO, MJ

#### B2: Stimulate enlargement of private forest plots and associations of private forest owners

Strategic actions		Priority	Responsibility	Partners
B2.1.	Simplify management plans for private forests and secure funds for their implementation	I	MAF	MF, SRI, FF, FRI, FC, FO, FA
B2.2.	Establish additional extension services to provide technical guidelines and facilitate associations of private owners	II	MAF	MF, FO, FC, FA
B2.3.	Support and promote measures to ensure the sustainable management in private forests	III	Gov., MAF	SRI, FF, FRI, FO, FC

### LEGISLATION

#### B3: Legal framework that will facilitate efficient implementation of the strategy

Strategic actions		Priority	Responsibility	Partners
B3.1.	Supplement the legal regulations with instruments needed for the implementation of the strategy	I	Gov., MAF	SI, MIA, MEPPP, MJ, ME
B3.2.	The drafting and revision of laws to be prepared by well-balanced expert groups and public participation encouraged through NGOs and public invitations for submissions	I	MAF	MEPPP, MJ, ME, SAB, NGOs, FA
B3.3.	Include in legislation, provisions for monitoring to be regulated to supervise effects and decide on adequate measures should they be necessary	I	MAF	MEPPP, SI
B3.4.	Eliminate the possibility of forest and forest land concession and selling of state forest land	I	Gov., MAF	MJ, ME, SAB
B3.5.	Regulate by law that the surface of forest areas has to remain the same or be increased (i.e. forest areas lost due to road construction should be replaced by new forests on non forest land)	I	MAF, MJ, MEPPP	SAB, CEO, LUS, FC, MMAC

#### B4: Harmonisation of the laws

Strategic actions		Priority	Responsibility	Partners
B4.1.	Establish an expert group(s), which will through a participatory approach, harmonise all laws pertaining to or regulating common areas of interest.	I	MAF	MEI, SI, MEPPP, MJ, NGOs, MIA, MC
B4.2.	Comparison and harmonisation of forestry related regulations with EU forestry regulation and adoption of EU guidelines	II	MAF, MEI,	MEPPP, MJ, SAB, FC

#### B5: Licensing of contractors

Strategic actions		Priority	Responsibility	Partners
B5.1.	Define requirements and criteria for licensing forestry contractors	I	MAF	FC, FS, CFA, FRI, FA
B5.2.	Establishment of Chamber of Forestry for implementation of licensing	II	MAF	FA, CFA
B5.3.	Establishment and implementation of licensing system for forestry contractors	II	MAF	FC, FS, CFA, FF, FRI, FA

#### B6: To adapt and harmonise legal regulations with the requirements for the incorporation of forest ecosystem into the development of tourism

Strategic actions		Priority	Responsibility	Partners
B6.1.	Harmonise legal measures that regulate the relationship between tourism development and forest ecosystems management	II	MT, MAF	CTA, MEPPP, MJ, MIA

#### B7: To create an appropriate legal framework for the development of non timber forest and forest land products

Strategic actions		Priority	Responsibility	Partners
B7.1.	Incorporate provisions into legal framework which facilitate the development and utilisation of non timber forest and forest land products	II	MAF	MEPPP, ME, MSMT, MH
B7.2.	Co-ordinate supervision regarding the implementation of regulations related to the utilisation of non timber forest and forest land products	II	SI, MAF, MST	MEPPP, MJ, FC, FO, MT

### C. NON-TIMBER PRODUCTS

#### TOURISM, HUNTING AND OTHER FOREST AND FOREST LAND PRODUCTS

The vision for tourism outlined in national tourist strategy (*Croatia in the 21<sup>st</sup> Century*) is that over the next 15 to 20 years the Republic of Croatia will become, in terms of quality and range of its overall tourism product, the most desirable and most successful tourist destination in Europe. One of the strategic objectives to achieve this vision is to enlarge the scope and improve the quality of Croatian

tourism and the focus should be on the development of special aspects of tourism, especially health tourism, rural and hunting tourism.

Forestry sector is well positioned to contribute to the success of the tourist strategy of the Government of the Republic of Croatia. Forests and forest land occupy some 43% of the total land area and are recognised not only in the Republic of Croatia but also internationally for their natural qualities and diversity of plant and animal life.

In recent years there has been continued growth in Europe in eco-tourism and in tourism products focusing on forests and forest related activities.

The Republic of Croatia has a long and rich hunting tradition which forms part of our national cultural heritage. Due to the great natural diversity of site conditions, the Republic of Croatia is home to a wide variety of small and large game species. Natural and well preserved site conditions represent a rich, stable resource favourable for hunting management development. Site conditions are not endangered by population pressure, wood production, agriculture or other activities.

Conditions for hunting vary from region to region throughout the Republic of Croatia. While considered satisfactory in the counties of Medjimurje, Varazdin, Istria and Primorsko-goranska, in other parts of the country mainly due to the impact of the war, much can be improved with reference both to game species and hunting infrastructure.

Non-timber forest products e.g. mushrooms, forest fruits, honey, medicinal plants, foliage and wild flowers, can be a valuable source of revenue for local communities. Compared to other European countries, non-timber forest products sector is underdeveloped and unregulated. Sustainable forest management embraces also the management of these products.

#### POLICY CONSIDERATIONS

Despite the fact that forests and forest land occupy over 40% of the mainland area and their natural type qualities and beauty, forests are not included in tourist supply. The geographic spread of forests and their potentials for tourism, especially the growing market for specialist products like eco-tourism and photo safari etc. makes them a suitable vehicle for rural development and employment. This potential cannot be realised without investment in infrastructure, training and collaboration with tourist organisations. Such development would support and be in line with the national tourism strategy.

The ultimate goal of game management is the protection and preservation of both the biological and environmental balance, together with ensuring sustainable populations of quality game species. For a variety of reasons, of which war and its impact are one of the most significant ones, game populations are less than optimal. There is scope of available interventions which could increase the number of large and small game populations. Despite the satisfying status of hunting infrastructure, so necessary for hunting tourism, improvements in this area are necessary if foreign hunters are to be targeted. The hunting market in Europe is very competitive and Croatia must be able to compete with services offered by countries with well developed marketing and close links with other tourism products and services.

Hunting is subject to VAT at 22%, while organised tourism is subject to zero rate of VAT. The nature of hunting tourism is such that the majority of hunters come as either individuals or as part of very small groups. It is necessary to change current organisation of hunting tourism in such a way as for it to become organised tourism regardless of the nature of visitors, i.e. individual tourists or groups.

Some 12% of forest area is contaminated with land mines and this is in addition to non-forest areas within the hunting grounds which are also contaminated. The safety of tourists and hunters is of paramount importance if the potential for hunting and tourism is to be developed and marketed.

While there is some information on the numbers and quality of game, there is no national inventory. Such an inventory will be necessary if the hunting sector is to plan its future development.

There is a growing consumer awareness of the value of natural products. Consumers in Europe have demonstrated their willingness to pay premium prices for these products. In the Republic of Croatia there are no national information on either the quantity or quality of not-timber forest products. Such information are necessary for evaluating their true potential, which presents opportunities for local communities to harvest and market these products. The development of local industries centred around non-timber forest products would assist in the stabilisation of rural communities.

*Policy Aim:* Hunting and forest ecosystems to be optimally incorporated into tourism supply and, other forest and forest land products be incorporated in forest and forest land management

## TOURISM

C1: To identify and evaluate the existing tourism potential of forest ecosystems

Strategic actions		Priority	Responsibility	Partners
C1.1.	Undertake a study to identify and evaluate the tourism potential of forest ecosystems	I	MT, MAF	CTA, FC, HGK, SRI

C2: To create and promote specific tourism products of forest ecosystems

Strategic actions		Priority	Responsibility	Partners
C2.1.	Develop market for forest tourism attractions (i.e. products and services need to be identified and marked on tourist maps, tourism in nature and hunting tourism included in promotional materials, schools in nature, etc.)	I	MT, MAF,	CTA, HGK, LUS, NGOs, FA
C2.2.	Incorporate forest ecosystems potential in tourism development plans and forest management plans	II	MT, MAF,	CTA, HGK, FC, LUS

C3: To contribute to rural development

Strategic actions		Priority	Responsibility	Partners
C3.1.	Develop rural employment through stimulation of forestry related trade	I	MSMTC, MAF	CEO, MOMPS, LUS
C3.2.	Utilisation of forestry facilities by local institutions	II	FC	MT, MAF, LUS, MC

## HUNTING

C4: To develop the sector of hunting on the principles of balanced development

Strategic actions		Priority	Responsibility	Partners
C4.1	Undertake and maintain a national inventory of the hunting resource	I	MAF	SRI, FF, FRI, CHU, FA

C4.2.	The preparation and implementation of management plans with an aim of establishing game stock balanced by species, age, sex and trophy structure	I	MAF	SRI, FF, FRI, CHU
C4.3.	The clearance of mines from hunting grounds and associated infrastructure	I	MAF	MF, FC, CHU, MD
C4.4.	Define the criteria for concessions of hunting grounds with regard to the dominant game species	II	MAF	MF, FC, CHU, MD
C4.5.	Improve game-keeper service to ensure the protection of game and other animals	II	MAF, MIA, SI	MF, CHU, SRI, FF

C5: To enhance the development of hunting tourism as part of the tourism offer

Strategic actions		Priority	Responsibility	Partners
C5.1.	Include hunting tourism into the offer of tourism agencies and the development of alternative offers (i.e. photo safari, etc.)	I	MT, CTA	CTAA, CHU, FC, FA
C5.2.	Organise hunting tourism services in line with organised tourism	I	MAF	MAF, CTA, CHU
C5.3.	Elaboration of cadastre of the value of hunting grounds according to criteria for sufficient infrastructure for hunting tourism	II	MAF, MT	SRI, CHU, CTA
C5.4.	Promote establishment of large and small game breeding farms	II	MAF	CHU, MOMPS, CEO

#### NON-TIMBER FOREST AND FOREST LAND PRODUCTS

C6: To utilise other forest and forest land products in accordance with the principles of sustainable forest management

Strategic actions		Priority	Responsibility	Partners
C6.1.	Identify, evaluate and define the management principles for all non timber forest and forest land products	I	MAF, MEPPP,	SRI, FF, FRI, FC, SAB
C6.2.	Undertake a national inventory of non-timber forest and forest land products	I	MAF	SRI, FF, FRI, FC, FO
C6.3.	Promote the economic utilisation of value added non-timber forest and forest land products	I	MAF, ME	MSMTC, LUS, CEO
C6.4.	Evaluate and assess the potential for the development of urban forestry	II	MAF	SRI, FF, FRI, FA

#### D. TIMBER INDUSTRY

The wood industry sector is characterised by a large number of small companies and a relatively small number of large-scale manufacturers. In 2001 there were 530 sawmills with only 96 of them having

more than 24 employees. Furniture industry is similar with only 48 of the 234 companies employing more than 24 and the top ten companies accounting for 83% of revenue for the sector.

Industry of wood processing in the Republic of Croatia shows negative economic trends in the last ten years, which is manifested in diminishing production, overall revenue, exports, number of employees and rising losses.

However, the quality of infrastructure, raw materials, workforce and tradition of marketing on specific markets and reached level of privatisation (almost all companies have been privatised) in the industry of wood processing is satisfactory, which is good basis for assessment of development prospects, but insufficient for initialising a new development cycle in this branch of industry.

Technology has lagged behind other countries in Europe, especially in the sawmilling and furniture sectors. There are three pulp and paper enterprises producing refined mechanical pulp, paper, carton, corrugated paper etc. and one small particleboard mill producing product for the home market.

Hrvatske šume, limited company, Zagreb, is dominant supplier of roundwood to the Croatian timber industry and supplies over 94% of the roundwood used. This situation will continue indefinitely into the future, due to the scale, quality and fragmentation of private forest supplies.

Total installed capacity in the sawmilling industry is estimated at 6.3 million m<sup>3</sup> of logs on an 8-hour shift basis based on a survey by Croatiadrvo and while this may be an overestimate, it is some 3 times more than the annual allowable cut in our forests.

The industry and exports have traditionally depended on Europe, particularly the Italian market. Raw material and products exported to Italy are further processed and to other European markets.

Main method of procurement of roundwood by the sawmill industry is by annual and five-year contracts. Public auctions account for only 10% of all roundwood sold to the sawmills. The use of contracts has increased significantly since 1996.

Prices are reviewed annually and approved by the Ministry of Economy. Prices have remained fixed for the last five years and have not responded to end market movements. All roundwood is harvested directly by HŠ or by contractors.

## POLICY CONSIDERATIONS

The industry can be characterised by low barriers to entry, given the relative ease to acquire second hand machinery from countries such as Italy. In addition, the industry is fragmented, which prevents the development of competitive advantage in terms of scale and market penetration.

The interface between Hrvatske šume, limited company, and the industry is characterised by low market information flows. An example of this low level of information exchange is that the sawmills are given no detailed annual plan of production in terms of species and assortments. In this environment, it is difficult if not impossible for the sector to plan ahead.

This centrally planned approach, where timber prices are set by the Ministry of Economy with no reference to either market developments or demand/supply for roundwood, has significant impact on the competitiveness and performance of the industry and on the ability of Hrvatske šume, limited company, to match supply with demand. For the future it will be important to establish clear and transparent market relations in the sale of roundwood along the lines of partnership between Hrvatske šume, limited company, and end users of the raw material.

In a current situation where Croatian exports to southern Europe are further processed and re-exported to higher value added markets reduces the net contribution of the sector to the national economy. Domestic industry has the potentials for developing direct trade links with these end use markets. Certification of forests and wood-processing industry chain is a useful tool in this process.

The Republic of Croatia is a marginal supplier to international markets and its products and supply potential are relatively unknown among buyers apart from a few exceptions. Experience of other countries has shown that developing a strong positive market image for a new exporter is a process which takes years of systematic and persistent effort by the industry.

The factor of exceeding the rated capacity of the sawmills and estimated annual allowable cut is almost three. This situation is untenable in the long run and some rationalisation will have to occur with increased emphasis on those companies that can add value and demonstrate an ability to operate efficiently.

While the National Forestry Policy and Strategy has identified the timber sector as one of its main priorities, the issues that have been determined in terms of actions can only be considered as a first step. Creation of separate timber industry strategy could, in this respect, be invaluable.

*Policy Aim:* To develop and sustain a flexible timber industry, competitive on international markets and capable of optimal utilisation of raw material assortments.

D1: Address institutional needs

Strategic actions		Priority	Responsibility	Partners
D1.1	Prepare a specific timber industry strategy	I	ME	MAF, FA, HGK, FF
D1.2	Support the development of institutional capacity to implement timber industry strategy	I	ME	MAF ,FA, HGK ,FF, FC, FA

D2: Quality recognisable on the market

Strategic actions		Priority	Responsibility	Partners
D2.1.	Support the establishment of monitoring timber and timber products markets	I	ME	FO, HGK, MAF, FC
D2.2.	Promote measures for the creation of a recognisable trademark for Croatian timber and timber products.	II	ME, CCC	MF, MOMPS
D2.3.	Promote initiatives for the implementation of the highest quality standards	II	ME, MAF	HGK, FO, SIS, FF
D2.4	Intensifying quality control of delivered raw materials and imported finalised products and harmonisation of legislative regulations which define the quality control issues	I	SI	

D3: High level of production of final products

Strategic actions		Priority	Responsibility	Partners
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D3.1.	Promote and explore measures for stimulation of maximum finalisation of raw material	I	MF, ME	SRI, FF, HGK
D3.2.	In collaboration with the timber industry, develop a range of measures to create an enabling environment for introduction of new technology and investments in final product manufacture.	I	ME	HGK, MOMPS, MF
D3.3.	Establish a program of permanent research and development activities suited to the needs of the sector.	II	ME	HGK, FF, SRI

#### D4: High level of raw material utilisation

Strategic actions		Priority	Responsibility	Partners
D4.1.	Align the production and use of timber assortments with technical and market trends	I	MAF, ME	HGK, SRI, FF
D4.2.	Support measures for the development of permanent training and education in technology, markets and use of raw material.	I	MST, ME	SRI, FF
D4.3.	Develop a strategy to address the inefficiencies in the timber supply chain including the optimal allocation of raw material between production location and end user location.	II	ME, MAF	HGK, FF, SRI, FO, FC
D4.4.	Support and promote measures that will maximise the revenue from and the utilisation of raw materials	II	ME, MST	FF, SRI, HGK

#### D5: Compliance with the international standards

Strategic actions		Priority	Responsibility	Partners
D5.1.	Adapting and aligning Croatian standards to relevant European and international standards for timber and timber products.	I	SIS	ME, MAF, HGK, FF

#### D6: To join the primary capital market

Strategic actions		Priority	Responsibility	Partners
D6.1.	Develop and elaborate an investment program for the sector with clearly identified projects.	I	ME	MF, HGK, MSMTC
D6.2.	Promote the transition to private ownership	II	ME, MSMTC	HGK, SAB
D6.3.	Promote production of value added products through taxation policy	II	MF	ME, HGK

#### D7. Well organised timber assortment market

Strategic actions		Priority	Responsibility	Partners
D7.1.	Abolish the state control of prices for timber assortments	I	MAF	MAF, FC MF, HGK

D7.2.	Develop a timber sale system suited to free market and industry needs	I	MAF, ME	FF, HGK, FC, FO, FA
D7.3.	Improve the quality of design and product development to optimise the utilisation of raw material.	I	ME	HGK, SRI, FF
D7.4.	Methods for promotion of export of final products	I	ME	MF, MAF

## E. ENVIRONMENT AND PHYSICAL PLANNING

Forests in general, and forests in the Republic of Croatia in particular, are a highly beneficial resource and have a very significant impact on environment due to their natural status. From the viewpoint of ecology, forests through their hydrological role on water resources in the region have a very effective impact, through their water protection role they have an impact on purification and ensuring drinking water, they also have an anti-erosion and anti-emission impact through purification of polluted air, they have a significant impact on the climate due to their capacity to diminish weather extremes and during dry season they increase air humidity.

Sociologically speaking, forests increase tourist turnover, they are beneficial for physical and psychological well-being of people, provide space for recreation and are beautiful 'ornament' in the landscape.

Within a combined ecological-social group of forest influences, forests serve as gene-pool protection, they ensure great biological diversity, during photosynthesis they release oxygen and combine carbon, which is beneficial for "atmosphere glasshouse effect" because the quantity of carbon dioxide in the atmosphere is lowered in such a way and, in addition to previously mentioned and from the viewpoint of general nature protection, the impact of forests in the region they occupy in the Republic of Croatia, which amounts to more than 40% of mainland area, is huge.

By maintaining natural forests on 95% of the territory of state forests, by maintaining and promoting their amenities and by conservation and regeneration of forests destroyed by degradation, by preserving biological diversity of landscapes, forest ecosystems and plant and animal species in Croatian forests, Croatian forestry has created conditions which were recognised as outstanding and awarded with FSC certificate, which confirms that forest management carried out in Croatia is economically sustainable, socially responsible and ecologically acceptable.

The State Water Directorate is responsible for administrative and other issues related to integrated management of water resources and water-management systems. Hrvatske Vode (Croatian Waters) under the water act undertakes activities related to the management of national, regional and local waters. These two institutions are directly responsible for integrated water management in Croatia. The Ministry of Environmental Protection and Physical Planning (MEPP) is responsible for issues related to general environmental policy including the correlation of water issues with other environmental issues and for harmonising the regional physical development and planning. Due to the area they occupy, forests have a significant role in the protection and provision of water resources for the benefit of the country as a whole. This important function is recognised in the Forest Law and in the Water Act.

Approximately 10% of the territory is under some sort of protection. There are more than 300 protected areas, including eight national parks, ten nature parks and two strict reserves. Annually, fire destroys from 3,000 to 68,000 ha of forest, as was the case in 2000. More than 70% of forest fires start in adjoining disused agricultural land. Fire protection represents a significant expenditure annually for state owned forests and in 2002, Hrvatske šume, limited company, spent 131 million kunas on fire protection.

The Ministry of Interior is responsible for the implementation inspection over forest fire protection measures. The responsibility for fire management and protection is in the process of being transferred to the local authorities as part of the government’s policy on decentralisation to local authorities. This process is scheduled to be completed by 2004 but a solution for the transition period needs to be found. The Coastal Forest Reconstruction and Protection Project, which is supported by a World Bank loan, included a number of important elements relating to forest fire protection e.g. purchase of equipment, construction of fire roads and training. .

**POLICY CONSIDERATIONS**

In theory there is an opportunity to reconcile the conflicts arising from different land use claims during the preparation of physical plans. In practice this does not happen. Regarding implementation, each competent body operates autonomously - e.g. Hrvatske šume, limited company, Zagreb, is in charge of forest management, the Ministry of Agriculture and Forestry is in charge of agricultural land, forests and forest land, while the bodies of the local government provide construction sites with the necessary infrastructure, etc.

Although the sector of physical planning has influence on forests and the infrastructure which is a service of forested areas, it does not sufficiently recognise the expertise or input of forest management. It is in the national interest that all stakeholders and land uses are adequately represented during the physical planning process.

Even though forests are recognised as providing an important public activity in the area, when dealing with water protection and provision of water resources, forests are subject to water charges depending on the area they occupy. While recognising the validity of the argument that state owned forests should make positive contribution to the state, this form of taxation is not perhaps the ideal mechanism given the fact that Hrvatske šume, limited company, Zagreb, already incurs significant expenditure in ensuring that forests provide water benefits for the national welfare.

Forests within national parks are managed by the National Park Service. There have been many concerns regarding the level of forest management expertise in these areas and in areas where forests prevail in parks, that the current administrative arrangements can represent a duplication of resources. It is necessary to readdress the option of forest company to manage those protected areas in which forest is a fundamental phenomenon.

During the public consultation phase of the National Forestry Policy and Strategy, concern was expressed regarding the criteria used for the establishment of protected areas. Of the many lessons for the Republic of Croatia arising from recent changes in forest and protected areas legislation in other European countries is the need to enhance the transparency and accountability of the decision-making process e.g.. criteria for protected areas and basis for their management.

Fire continues to be a threat to forests in the Republic of Croatia, especially in coastal areas. Local forestry operative bodies should be involved in the process of transfer of responsibility for implementation of overall revision of procedures and issues related to forest protection. The issue of open-space fires is outside the framework of this strategy and thus deserves a separate strategy.

*Policy Aim:* The establishment of protected areas and their management regime on the basis of clear criteria and in accordance with international standards

E1: Forest and water management harmonisation

<b>Strategic actions</b>	<b>Priority</b>	<b>Responsibility</b>	<b>Partners</b>
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E1.1.	Undertake a review of water charges model for forests and forest land	I	Gov.	MAF, MEPPP, FO, FC, FA
E1.2.	Establish a new relationship and protocol between forestry and water authorities	I	Gov.	MAF, MEPPP
E1.3.	Harmonise forest land and water resources management plan	II	MAF, MEPPP	SRI, FC, FO
E1.4.	Undertake a study and analysis to determine the impact of agricultural activities on forest ecosystems (land melioration, agricultural technical measures, pesticides, etc.)	II	MAF	SRI, FF, FRI, FA

#### E2: Inter-sectoral co-ordination in protected areas management

Strategic actions		Priority	Responsibility	Partners
E2.1.	Elaborate criteria for designation and management of protected areas according to international standards	I	MEPPP	MAF, PIPA, SRI, FA, MC
E2.2.	Prepare guidelines for inter-sectoral co-operation in protected areas	I	MEPPP, MAF	SRI, FF, FRI, NGOs, FA, MC
E2.3.	Design and implement mechanisms to engage local communities in the decision-making process	I	MEPPP	MAF, LUS, SAB
E2.4.	Involve forestry professionals in the management of protected areas where forests are the main land use	I	MEPPP	MAF, PIPA, FC, FF, FRI, FA
E2.5.	Undertake an inventory of biodiversity and adjust the boundaries of protected areas and zones based on inventory findings	II	MEPPP	MAF, SRI, FF, FRI, FC, MC

#### E3: Forest fire protection

Strategic actions		Priority	Responsibility	Partners
E3.1.	Prepare a National Strategy for forest fire prevention and afforestation of burnt forest areas	I	MAF, MIA, MEPPP, MD	SRI, FF, FRI, CFA, LUS, FC, NGOs, FO, MF, FA

#### E4: To involve forestry professionals in the elaboration of physical plans

Strategic actions	Priority	Responsibility	Partners

E4.1.	Introduce regulations to ensure involvement of forestry professionals in the elaboration of physical plans	I	MEPPP MAF	FA, SRI, MIA
E4.2.	Define criteria for land use changes to prevent fragmentation or permanent damage to forest ecosystems (i.e. mines, roads, canals)	I	MEPPP MAF	SRI, FF, FRI, FC, MMAC
E4.3.	Expand the scope of Law on Forests to include provision for regulating forestry matters in physical plans	I	MAF	MEPPP, CEO, SAB, FA
E4.4.	Improve the register of land use changes (information accessibility should be improved - GIS based)	II	MAF	MEPPP, SRI
E4.5.	Include results of national forest and forest land inventory data into studies required for physical plans and management	II	MAF, MEPPP	SRI, FF, FRI, FO, FC, FA, MC

## F. EDUCATION, RESEARCH AND INTERNATIONAL CO-OPERATION

The Faculty of Forestry at the University of Zagreb, provides forestry education and training for graduate and post graduate studies. There are two main departments, one for forestry and the other for wood technology. Annually some 120 new students are admitted, although in recent years there has been a marked decline in line with the downturn in the forest sector.

Vocational secondary education in forestry is provided in a relatively large number of schools – there were nine in 2002, as well as five schools for carpenters and timber designer. These schools are under the authority of the Ministry of Education and are organised on a county level. Hrvatske šume, limited company, Zagreb, is registered to provide education and capacity building for its workers and provides a number of in-house courses.

Capacity building for emergency interventions is carried out in College for Fire-Fighting and Civil Protection and in other authorised institutions.

The Ministry of Education and Sports, Institute for Education and other interested institutions are engaged in intensive preparations for the unification and modernisation of three-year schools.

The majority of forestry research is undertaken by the College of Forestry in Zagreb, Forest Research Institute in Jastrebarsko, Institute for Adriatic Culture in Split (Department of Land Reclamation on Karst) and the Centre for Scientific Work of the Croatian Academy of Science and Arts. In 2000, there were 105 forest scientists and researchers (51 PhDs and 54 masters of Science and postgraduates).

Current research activities include silviculture, forest planning, ecosystems, forest husbandry, nursery and plantations, protection of forest ecosystems, biomass and water monitoring and many others. Research results and findings are published in scientific and specialist journals e.g. Journal of Forests and reports of the Forest Research Institute, Jastrebarsko.

Funding for research comes from two sources: Ministry of Science and from the OKFS fund administered by Hrvatske šume. Ministry of Forestry and Agriculture needs to get involved in financing important in science oriented forestry projects

The signature of the Republic of Croatia on many international agreements, accords and conventions has placed an additional responsibility on forestry research and education sector. Croatian scientists

and researchers have participated and currently participate on international projects and organisations e.g. IUFRO, FAO, EPPO, European Forestry Institute, etc. However, the level of participation has, by international standards of other European countries, been low.

## POLICY CONSIDERATIONS

Forest research and development, as well as other sectors in forestry, have experienced cuts in the budget. Funding is a limiting factor and it will continue to be one in the foreseeable future. The potential for international funding has not been fully exploited, partly due to language barriers but also due to inexperience of the requisite application procedures and insufficient allocation of resources to identify and follow up on funding sources.

Given the fact that financial resources will continue to be limited, even in the presence of some international funding, it will be important to allocate these scarce resources to areas which have been prioritised and which will maximise the benefit to the sector. Experience from other European countries has shown that modern forest research requires that scientists and researches have good project management skills.

While education at graduate and postgraduate level is regarded as being to a high standard, it is based on very traditional values and approaches. The needs of the forestry sector are changing annually and it is important that the education system adapt its programmes to meet these changing needs e.g. information technology, foreign language skills and marketing.

Furthermore, if the Republic of Croatia is to take full advantage of European Union funded education exchange programmes, accreditation to the European Credit Transfer System will be necessary.

The White paper on education prepared for the strategy *the Republic of Croatia in the 21<sup>st</sup> Century*, views costs relating to education and training as an investment rather than an expense. It is important to point out significance of co-operation between Ministry of Education and Sports, Ministry of Science and Technology and Ministry of Agriculture and Forestry in areas related to education, because this co-operation is either very limited or does not exist at all.

It is likewise necessary to plan grants and employment for gifted and excellent pupils and students with an aim of successful future implementation of the strategy.

Communication of research results relies on very traditional methods. It does not address the needs for the implementation of results at operational level or the varying information needs across the sector.

*Policy Aim:* To adapt education and research to the needs of modern forestry

### F1: Improvement in co-operation on scientific-research projects

Strategic actions		Priority	Responsibility	Partners
F1.1.	Establish inter-departmental body within the MAF responsible for the co-ordination of priority research needs and findings	I	MAF	MH, MF, SRI, FF, FRI, CFA
F1.2.	Identify and secure budget funds for co-financing participation in international projects	I	MAF, MST, MF	SRI, FF, FRI, FA
F1.3.	Increase investment in scientific-research and development in line with European norms	I	MST	MAF, MF, SRI
F1.4.	Encourage the involvement of forestry institutions in multi-disciplinary projects	I	MST	MAF, MEPPP, CFA

F1.5.	Develop mechanisms that will motivate commercial sector to co-finance research (i.e. sponsorship, etc.)	II	MAF, MF	SRI, FO , SAB
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#### F2: Improve international co-operation between schools, universities and forestry institutions

Strategic actions		Priority	Responsibility	Partners
F2.1.	Identify opportunities for and encourage participation in international exchange programmes	II	MST, MES	FS, FF, SRI, FRI, MAF, Š
F2.2.	Improve accessibility of scientific data (i.e. journals, internet, etc.), particularly for students and pupils	II	MST, MES	FRI, FF, FS, AFFS, SRI
F2.3.	Facilitate student and pupil organisations to source funds for international co-operation	II	MST, MES	MAF, MF, MEI

#### F3 Implementation of international commitments, conventions and resolutions

Strategic actions		Priority	Responsibility	Partners
F3.1.	Adapt research projects to the needs of the sector and on the basis of 3-5 year planning periods	I	MST	SRI, FF, FRI, CFA, FC
F3.2.	Enhance institutional capacity of ministries and SRI to implement commitments under international conventions and resolutions	I	MAF, MST	MEI, MF, SRI
F3.3.	Evaluate the cost and secure funds for the implementation of international commitments	I	MF	MAF, MST, MEI, SRI

#### F4: Project management system

Strategic actions		Priority	Responsibility	Partners
F4.1.	Capacity building for scientists and researchers in project preparation, project management and evaluation	I	SRI	FF, FRI, CFA, FC
F4.2.	Computerise and link libraries of the University, Research Institute, forestry company and other relevant institutions	I	MST, FC	MF, MAF, SRI, FF, FRI
F4.3.	Establish data bases of international forestry projects and link them to the existing databases	II	MST	SRI, FF, FRI, CFA, FC

#### F5: Improve technical and human resources capacity of scientific institutions

Strategic actions		Priority	Responsibility	Partners
F5.1.	Carry out analysis of the staff structures within forest education and research organisations	I	MST	SRI, FF, FRI, FS
F5.2.	Equip the scientific institutions with modern research technologies and train the staff to use them	I	MST	SRI, FF, FRI, FS, FC
F5.3.	Improve the methods of transfer of results of scientific institutions to the end users	I	FC, FF, SRI	SRI, FF, FRI, FC, H

F5.4.	Devise a system of scientific promotion (for example, evaluate papers and works presented on international conferences)	II	MST	SRI, FF, FRI, FS
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#### F6: Curricula development

Strategic actions		Priority	Responsibility	Partners
F6.1.	Carry out analysis of the existing curricula at all levels and adapt them to the needs of the forestry profession and EU programmes, as well as with European Credit Transfer System	I	MST, MES	FF, FS, AFFS
F6.2.	Enhance forest education and training through the use of invited lecturers from research institutions and other relevant organisations	I	MST, MES	SRI, FF, FRI, FS
F6.3.	Co-ordinate the needs of the forest sector with the education sector	I	MAF, MST, MES	FF, FS, AFFS
F6.4.	Improve the quality and scope of language courses and computer science courses	I	MST, MES	FF, FS

### G. PUBLIC RELATIONS AND PROMOTION

Forests in the Republic of Croatia play a number of important and diverse roles including recreation, wildlife, biodiversity, tourism, soil and water protection, wood production and hunting. There is no calculation of the costs associated with providing the range of general forest amenities, which society has come to expect.

The expectation of the public, particularly among urban dwellers, is that forests will be managed primarily to deliver social and environmental benefits, even if this means that forests cannot attain their full wood production potentials. There is a further expectation, that forests will be managed on a sustainable basis and in a way which is as close to nature as possible.

The historical role of forestry and foresters in creating and managing this national asset is neither understood or appreciated. Instead of having a positive image of forest management and foresters having positive image, they are often looked upon with suspicion and are associated in the public with timber harvesting (or exploitation) and hunting

The experience of Western European countries is that as living standards increase and basic economic expectations are fulfilled, there is a greater demand for non-market amenities from forests including recreation, landscape enhancement and nature conservation. Notwithstanding that systems to create and protect such amenities are well developed in the Republic of Croatia and the level of such amenities to society is already comparatively high, pressure to deliver further non-market benefits will increase over time.

#### G1: Public relations and promotion

Strategic actions		Priority	Responsibility	Partners
G1.1.	Establish a PR/communication plan for forest sector to meet all sector interests	I	MAF	MEPPP, FA, FC, FO, NGOs, MC
G1.2.	Implement the PR plan including program to increase public awareness	I	MAF	MEPPP, FA, FC, FO, LUS, MC

G1.3.	Implement the training program in PR/PA and communication across the sector	I	CFA	MAF, FO, FC
G1.4	Establish continuous communication with local authorities		MAF	CFA, FO,

### POLICY CONSIDERATIONS

The role and importance of forestry is not known or appreciated by the public. There are many misconceptions about Croatian forests.

In light of social changes and increasing role of the public, Croatian forestry needs to become more transparent and to adequately present its results, achievements and specific qualities. It should also improve the level of promotion on international market, pointing out that forestry sector has an international FSC certificate.

If the perception that the public has of foresters is negative, they will look to other sources for information and opinions. NGOs are seen as a good source of information because they are regarded as driven by higher motivation. It is important to achieve best agreement possible with reasonable and significant NGOs on forestry policy and practices and to agree to disagree on a professional basis on issues where consensus cannot be reached.

### 3. MONITORING THE IMPLEMENTATION OF NATIONAL FORESTRY POLICY AND STRATEGY

The National Forestry Policy and Strategy is not designed as a static document but will change and adapt over time in response to the needs of the sector, economic environment and overall Government policy.

Monitoring and implementation will be undertaken by a Policy Review Group to be appointed by the Minister of Agriculture and Forestry. This group will be representative of the many stakeholders in forestry and related sectors and will provide an annual report on the status of implementation.

### 4. FUNDING FOR NFPS

The funding requirement for Priority I activities is estimated as being between \$3.5 to 4 million per annum for the four year period 2003 to 2006. The assessment of funds needed was carried out on the basis of calculation-assessment for each specific activity stated in the Strategy. The realisable benefits are many and include creation and stabilisation of employment in rural areas, harmonisation of regulatory framework both within the Republic of Croatia and in line with *acquis*, development of added value and import substitution, and safeguarding of natural resources. An additional benefit is that once adopted by Government, the NFPS will facilitate the channelling of funding from international donors.

### LIST OF ABBREVIATIONS USED IN TABLES

SI	State Inspection Authority
SIS	State Institute for Standardisation
CLMCC	Croatian Land Mine Clearance Centre
CHU	Croatian Hunting Union
CFA	Croatian Forestry Association
CTA	Croatian Tourist Association

CFA	Croatian Fire Association
PIPA	Public Institutions of Protected Areas
LG	Local Government
MEI	Ministry of European Integrations
MC	Ministry of Culture
ME	Ministry of Economy
MD	Ministry of Defence
MMAC	Ministry of Maritime Affairs and Communications
MSMTC	Ministry of Small and Medium-Size Trading Companies
MJ	Ministry of Justice
MES	Ministry of Education and Sport
MAF	Ministry of Agriculture and Forestry
MT	Ministry of Tourism
MIA	Ministry of Internal Affairs
MFA	Ministry of Foreign Affairs
MEPPP	Ministry of Environmental Protection and Physical Planning
MST	Ministry of Science and Technology
MLSW	Ministry of Labour and Social Welfare
MH	Ministry of Health
NGOs	Non-Government Organisations
FC	Forestry companies
AFFS	Association of Forestry Faculty Students
FA	Forestry Associations (Croatian Forestry Association, Academy for Forestry Science)
FF	Forestry Faculty
FRI	Forest Research Institute
FO	Forestry Organisations
FS	Forestry Schools
SAB	State Administration Bodies
CTAA	Croatian Travel Agency Association
Gov.	Government of the Republic of Croatia
SRI	Scientific Research Institutions, Institute for Adriatic Cultures and Land Reclamation
EB	Employment Bureau
CEO	County Economy Offices
CCC	Croatian Chamber of Commerce