

M-02-08 Draft 02-08-31

**CROSS-SECTORAL IMPACTS RELATED TO SUSTAINABLE FOREST
MANAGEMENT – POLICY AND LEGAL ASPECTS**

F r a n z S c h m i t h u e s e n

**Prepared for the Policy and Institutions Branch; Policy and Planning Division;
Forestry Department, FAO, Rome.**

Zurich 2002

OUTLINE

Summary	III
1 General Context	1
2 Relevant Policy Domains	5
2.1 Public Policies	5
2.2 Forest Policies	6
2.3 Policies Related to Sustainable Forest Management	8
3 Cross-Sectoral Policy Impacts	11
3.1 Scope and Typological Elements	11
3.2 Regional Policy Context	16
3.3 Available Information Sources	20
3.4 Review of Research Approaches	25
4 Policy and Legal Frameworks	30
4.1 Multilevel Policy Framework	30
4.2 International Legal Instruments	32
4.3 Policies at the Supranational Level	36
4.4 Policy Networks	40
Bibliography	48
Annex: Terms of Reference	56

List of Figures

Figure 1: Relationships Between Different Categories of Public Policies	6
Figure 2: Forest Policy Framework for Sustainable Forest Management	7
Figure 3: Public Policies with Impacts on Forestry and Wood Processing	9
Figure 4: Public Policies with Impacts on Sustainable Forest Utilisation	10
Figure 5: Typological Elements for Specifying Cross-Sectoral Impacts	13
Figure 6: Examples of Positive and Negative Policy Effects	16
Figure 7: Comparison of Research Designs	29
Figure 8: Public Decision Making at International, National and Local Levels	31
Figure 9: Forest Related Issues at International, National and Local Levels	32
Figure 10: International Instruments Adopted Prior to UNCED 1992	34
Figure 11: International Instruments Adopted at UNCED 1992	35
Figure 12: EU Policies and Regulations with Important Forestry Impacts	37
Figure 13: Example of Policy Network Addressing Natural Resources Development	41
Figure 14: Criteria for Assessing the Effectiveness of Policy Networks	42
Figure 15: Framework Explaining Behaviour of Forest Owners and Users	45
Figure 16: Classification of Policy Instruments	47
Table 1: Percentage of policies affecting forest in high and low income and forest cover countries	20

Summary

Important trends such as globalisation of the economy and of trade , internationalisation of environmental and nature protection, privatisation and a changing understanding of the role of the state, increased democratic participation of stakeholders concerned, a growing influence of non-governmental organisations in public decision making processes, as well as an increase and diversification of society's demand for forest goods and services form the context in which forest related public policies and cross-sector linkages in the domain of forestry develop. Its perspectives extend to a growing range of public and private actors interested in wood products as well as in other goods and services. Nature and landscape protection, maintaining biodiversity, and protecting cultural values associated with trees and forests are other issues at stake. Agenda 21 and the follow-up processes of Rio set the international framework for an emerging international regime on forest conservation and forestry development. They aim at a balance of economic, social and environmental factors as the primary aim of forestry development.

Many public policies and cross-sector linkages have to be considered in order to improve the frame conditions for sustainable forest resources management as part of changing and evolving land use patterns. If the effects of public policies on the forestry sector have mainly found attention so far, it is now time to investigate to what extent public forest policy objectives are of importance to and have effects on other policy domains within the global context of sustainable development.

Cross-sector linkages are defined as influences from public policies which have an immediate or indirect influence on the behaviour of land owners, forest users, governmental agencies and non-governmental organisations, and through such agents on forest land uses and sustainable forestry practices. The definition puts emphasis on policy formation and implementation processes. It enhances analysis of the combined outcomes and impacts from policies and regulations that address economic, social and environmental issues that determine political decisions on forests and forestry development

Investigations on cross-sector linkages in forestry have already been undertaken and need to be continued with more elaborated research designs such as natural resource accounts, econometric analysis, indicator frameworks, and impact studies. It is necessary to launch specific case studies at national, sub-national and local levels which provide more empirical information on success as well as on draw-backs in a given social, economic and political

context. Quantitative data based research is needed as much as qualitative analysis in order to provide more information on the nature, structure and functioning of different policies and cross-sector linkages.

If policy impacts related to the forest sector have been examined with an increasing interest, the same cannot be said with regard to the management of complex policy networks. There is a considerable interest to examine more consistently how co-ordinating mechanisms such as network management and inter-administrative co-ordination can be improved. This implies to reconsider the role of forest administrations and their ability to operate with success in a given policy and administrative setting.

At the national and local level the significant policy domains, the kind of linkages that are most important and the scale of positive and negative effects which result from them need to be examined. The criterion for selecting the major factors is the usefulness of new knowledge gained to the main stakeholders, to the representatives of national public administrations and to policy makers. The focus is on the actors involved, the instruments and procedures that influences their behaviour, and on the causal relationship between forest and other policy domains in both directions. New approaches in co-ordination mechanisms as well as the likely limitations of co-ordination need to be developed and implemented.

The paper reviews the changing context of sustainable forest management, the relevant policy domains, the scope of cross-sectoral policy impacts, and the policy and legal frameworks in which they operate. It is based on a previous working document by Schmithuesen, Bisang and Zimmermann which has been prepared in March 2001.

Key-Words: Forest Policy; Natural Resources; Multisectoral Policy Networks; Multilevel Governance; Public Policy Analysis .

1 General Context

During the last 10 years the conditions for policy-making have changed fundamentally as reflected in trends towards globalisation, multilevel policy-networks, privatisation, and increased democratic participation. International treaties and regulations add new dimensions to the existing patterns of governance at national, regional and local levels. The distinction between private enterprise and public administration becomes increasingly permeable. The private sector has to deal with the incorporation of external effects in management and public authorities start to work with models from business administration. Present trends in national and international politics have important consequences for forest conservation and forestry development (Humphreys 1996, FAO 1999, Michaelsen 2000, United Nations Forum on Forests 2001).

The civil society's expectations are high and extent to new issues and in particular to environment protection and sustainable development. People want politics to be transparent and responsive to their needs. They expect that measures taken by policy-makers and public administrations are effective and efficient and, moreover, that the number of regulations and overall public expenditure will be reduced. People also demand more information on economic and environmental issues and active participation in policy formulation and implementation processes. In such an environment policy-makers and civil servants need to take into account the wider context both in national and local as well as in the international dimensions. They have to be able to interact flexibly with a variety of actors, such as citizen's action groups, international organisations, private companies or public administrations from other domains.

Society's demands for goods and services from forests and the forest sector are changing and growing. Forests are expected to provide timber, to protect watersheds and soils, and to provide shelter from natural disasters. They are expected to host a wide range of rare species and offer a scenic backdrop for sportsmen and city dwellers seeking tranquillity and recreation. Newly created demands, such as the use of forests as carbon sinks, illustrate that the social meaning of forests is a dynamic one. It can be subject to rapid and unpredicted changes.

Sustainable forests management is only one option among several land-use alternatives. This means that there is competition between maintaining the forest cover and land clearing, and between the forest sector and other sectors of the economy. In fact in countries with a rapidly growing population the conversion of forests to other land uses is often a necessity and may,

if properly managed, contribute to the sustainable development of a society. However, the growing pressure on forest lands is to the disadvantage of many users and often the poorer part of the population. On the other hand, forested areas increase in other regions and countries and provide new opportunities for goods and services.

In such a context a framework of public policies with co-ordinated aims, strategies and instruments is essential in order to overcome complex problems and to develop more comprehensive solutions that correspond to the overall goal of sustainable development. Taking cross-sector policy impacts into account and approaching problems in a more integrative manner are key concepts for improving the effectiveness and efficiency of public policies, governmental action and administrative decisions and activities.

An important trigger for member states and the international community to focus on cross-sector impacts and policy linkages was the UNCED Conference 1992 in Rio de Janeiro. In Agenda 21 cross-sector approaches are seen as a prerequisite for the sustainable development of society. The separation of land management issues by various public policies is considered as a reason for the lack of a development which balances economic advancement, sustainable ecosystem management and environmental protection. A more comprehensive approach is advocated which integrates economic, social and environmental policy objectives. National governments and the international community are advised to pay more attention to cross-sector impacts and to develop more consistent public policy frameworks for sustainable development. Section 8.4 of the Agenda 21 calls specifically for a progressive integration of economic, social and environmental issues in policy formulation and implementation. The UNCED sees cross-sector approaches to be a necessary prerequisite for sustainable development.

The need for more co-ordination between sectors relevant to forestry development and forest resources conservation is underlined, for instance, in Chapter 11, Sec. 31(e) of Agenda 21 on combating deforestation. It is also advocated in Section 9 of the Non-Binding Instrument on Forests as adopted during the Rio Conference 1992. The concept that cross-sectoral policy impacts are to be considered more attentively in order to improve the state of forests and to foster sustainable forest management has subsequently been widely accepted and diffused in the 1990ies within the system of the United Nations and other international organisations.

The International Panel on Forests (IPF) and later the International Forum on Forests (IFF) called for inter-sector approaches and co-ordination mechanisms with any program and project affecting forests in one way or another were seen as necessary. Particularly issues

affecting land use, poverty, food security, energy needs and environmental protection are seen as important (Commission on Sustainable Development 1996, Intergovernmental Forum on Forests 1999). Enhancing policy co-ordination and fostering cross-sector co-operation is now a core element in the mandate of the United Nations Forum on Forests (ECOSOC 2000, United Nations Forum on Forests 2001).

The World Bank is another international actor that insists on a closer integration of forest related goals with external projects and programmes. Already in its 1991 policy paper, the World Bank stressed the need for adjusting to embrace goals of the forest policy in projects such as reforms of concession policies, forest revenue systems, fiscal, tax, and agricultural policies, infrastructure and land use planning procedures, and land tenure systems (World Bank 1991: 62). In its recent statements the Bank underlines the importance to contribute in the dialogue with governments to a more effective co-ordination of public policies and projects. A new and more comprehensive cross-sector approach is considered as of particular importance (World Bank's Forests Team 2000). The need for such measures is found in the observation that the Bank Group invests far more in external sectors frequently inferring in forests than it does in direct forest projects; and that “credits schemes favouring grazing, agricultural research and technology focuses on capital intensification in frontier areas, directed agricultural settlement, and the perpetuation of uneven land distribution (...) often have damaging effects on forests.” (World Bank's Forests Team 2000: 42).

The Bank wants to centre its focus on poverty alleviation, economic development, and protection of environmental values. Therein, it proposes to focus on action where the Bank can apply a comparative advantage, for example on analysing and co-ordinating policies and projects to ensure a cross-sector approach to sustainable forest management or on assisting governments to ensure that indirect and cross-sector impacts of policy and investments on high conservation and protection areas are minimised (World Bank's Forests Team 2000: 61).

The European Union provides an example for the diffusion of these concepts on a continental scale. A Council Resolution of December 15, 1998 on a Forest Strategy for the European Union identifies, inter alia, as a substantial strategic element “the need to improve co-ordination, communication and co-operation in all policy areas with relevance to the forest sector within the Commission, between the Commission and the Member States, as well as between the Member States”.

Under the title “Improving decision-making processes” the Agenda 21 states:

8.4 The primary need is to integrate environmental and developmental decision-making processes. To do this, Governments should conduct a national review and, where appropriate, improve the processes of decision-making so as to achieve the progressive integration of economic, social and environmental issues in the pursuit of development that is economically efficient, socially equitable and responsible and environmentally sound. Countries will develop their own priorities in accordance with their national plans, policies and programmes for the following activities:

- (a) Ensuring the integration of economic, social and environmental considerations in decision-making at all levels and in all ministries;
 - (b) Adopting a domestically formulated policy framework that reflects a long-term perspective and cross-sectoral approach as the basis for decisions, taking account of the linkages between and within the various political, economic, social and environmental issues involved in the development process;
 - (c) Establishing domestically determined ways and means to ensure the coherence of sectoral, economic, social and environmental policies, plans and policy instruments, including fiscal measures and the budget; these mechanisms should apply at various levels and bring together those interested in the development process;
- (Agenda 21, Chapter 8 (Integrating Environment and Development in Decision-Making), emphasis through the authors).*

Principal Functions of the United Nations Forum on Forests

2. [The Economic and Social Council] *decides also* that to achieve the objective, [the UNFF] will perform the following principal functions:

- (a) Facilitate and promote the implementation of the Intergovernmental Panel on Forests/Intergovernmental Forum on Forests proposals for action as well as other actions which may be agreed upon, including through national forest programs and other integrated programmes relevant to forests; catalyze, mobilize and generate financial resources; and mobilize and channel technical and scientific resources to this end, including by taking steps towards the broadening and development of mechanisms and/or further initiatives to enhance international cooperation;
- (b) Provide a forum for continued policy development and dialogue among Governments, which would involve international organizations and other interested parties, including major groups, as identified in Agenda 21, to foster a common understanding on sustainable forest management and to address forest issues and emerging areas of priority concern in a holistic, comprehensive and integrated manner;
- (c) Enhance cooperation as well as policy and programme coordination on forest-related issues among relevant international and regional organizations, institutions and instruments, as well as contribute to synergies among them, including coordination among donors;
- (d) Foster international cooperation, including North-South and public-private partnerships, as well as cross-sectoral cooperation at the national, regional and global levels;
- (e) Monitor and assess progress at the national, regional and global levels through reporting by Governments, as well as by regional and international organizations, institutions and instruments, and on this basis consider future actions needed; and
- (f) Strengthen political commitment to the management, conservation and sustainable development of all types of forests through: ministerial engagement; developing ways to liaise with the governing bodies of international and regional organizations, institutions and instruments; and the promotion of action-oriented dialogue and policy formulation related to forests;

ECOSOC 2000: 2, emphasis through the authors

2 Relevant Policy Domains

2.1 Public Policies

The term public policy designates the contents and choices made in specific fields or sectors as determined by dominant plans, goals and actions which regulate important issues of public concern (Parsons 1997: 16). In a state of law public policies are based on constitutionally founded competencies of the state, and are determined through laws, decrees, governmental regulations and rules, and decisions of public authorities. Public policy analysis describes these contents and explains them in relation to the prevailing institutional setting, the polity, and as influenced through political processes, the politics (Schubert 1991: 27).

A useful classification of major categories of public policies as well as of impacts and linkages that result from them can be made according to the goals and extent of public intervention. Policy domains may, for instance, be classified according to the tasks which the state respectively government are required to fulfil (von Prittwitz et al. 1994). The following three broad categories are to be distinguished:

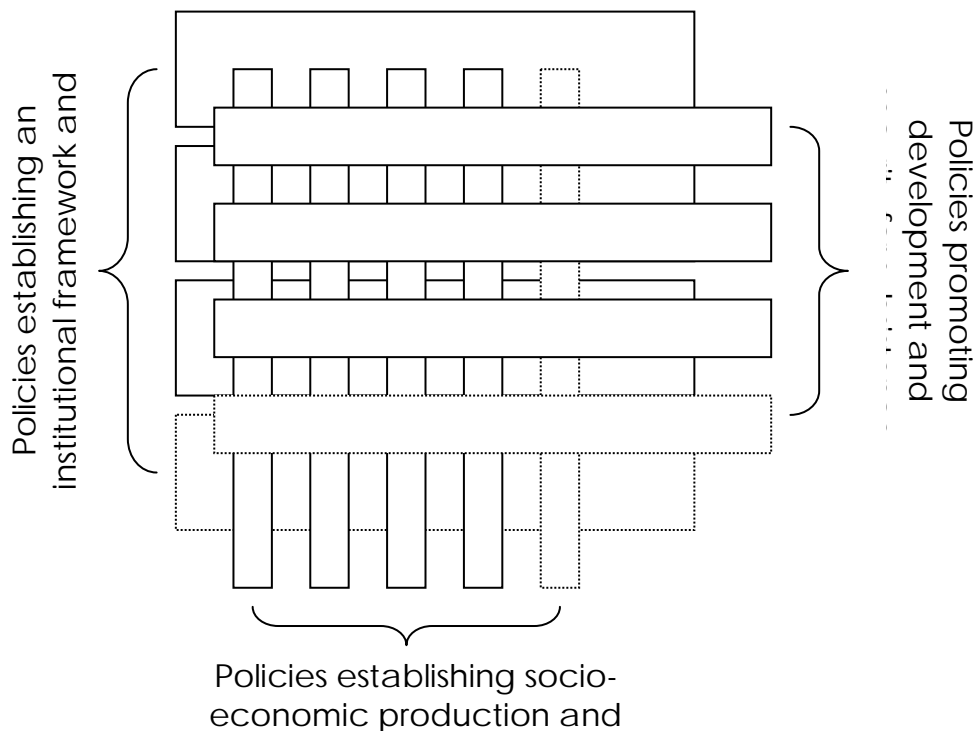
- The establishment of an institutional framework and of public security as for example through defense, foreign, constitutional or data protection policies;
- the establishment of a framework for social equity, economic production and cultural integration as for instance through economic, finance, infrastructure, migration or culture policies;
- the establishment of a framework for the promotion of development providing subsistence and well-being as for example through technology, environmental or educational policies.

Figure 1 illustrates the dependencies between the three categories. Policies of the first category have strong forward linkages with most other policy domains. The establishment of a constitutional political framework and of a public security system are fundamental to other policy areas as they provide the foundation for state interventions through guaranteeing the rule of law. Policies of the second category have strong backward links to the constitutional framework as well as important forward linkages to the sector and cross-sector policy programmes of the third category. It is obvious that economic and finance policies, for instance, influence many other policy areas. There are also important feed-backs from the third category of policy domains in as much as education, technology or environmental conditions determine economic productivity and income generation. Policies of the third category promoting development, security of subsistence and well being of people depend to a large extent on backward linkages to social and economic policies as well as on the constitutional framework that regulates for instance ownership rights and entrepreneurial

activities. Sector policy programmes also show a high degree of positive and negative connections among each other.

The fact that public policies are complementary and have a considerable number of linkages among each other has far-reaching consequences for the way in which states and governments are able to steer political decision and implementation processes. Many issues can in fact not be tackled by one single policy domain or body of specific legislation. Effective solutions for most societal problems have to be found through different agencies and actors as well as through co-ordination among the goals and instruments set out in different policy areas.

Figure 1: Relationships Between Different Categories of Public Policies



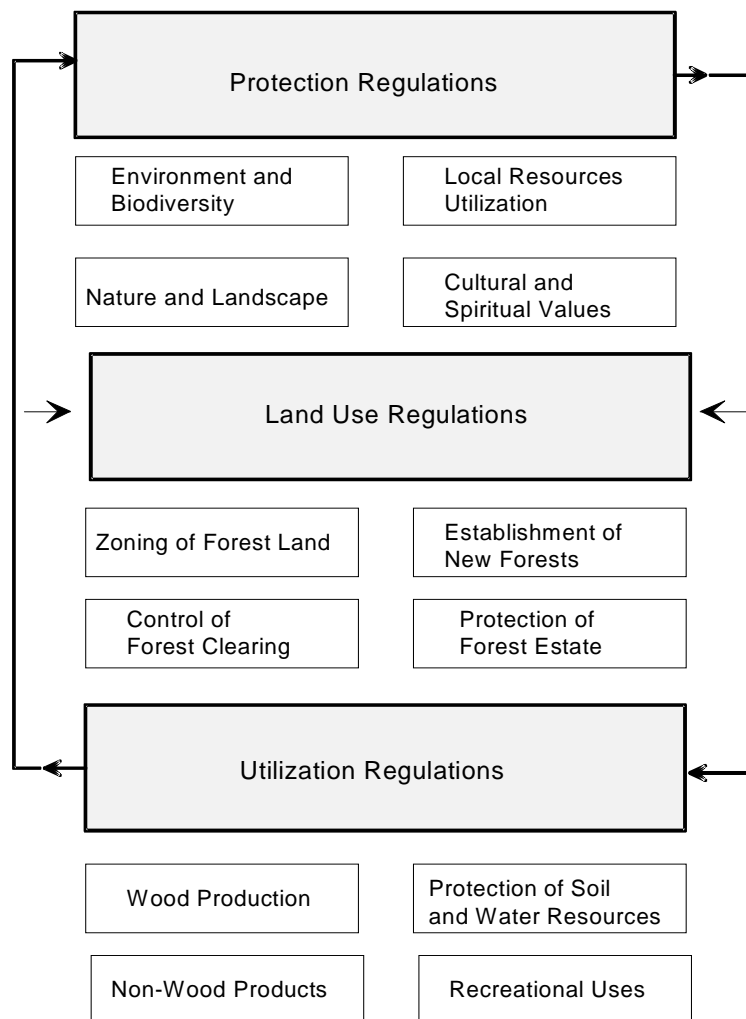
Source: von Prittwitz et al. 1994: 54

2.2 Forest Policies

Forest policies and laws balance land ownership rights against public interests associated with multiple forest uses and determine specific management standards for private, communal and state forest tenure. With regard to conservation and sustainable utilisation forest legislation provides different types of regulations (*Figure 2*). Protection regulations refer to measures on environment and biodiversity, nature and landscape protection, and restrictions associated with cultural and spiritual values. Land use regulations include zoning of the forest land,

control of forest clearing, protection of the permanent forest estate, and the creation of new forests through afforestation. Utilisation and management regulations determine responsibilities of forest owners with regard to sustainable production of wood and non-wood products, the protection of soil and water resources as well as public access to forests and recreational uses.

Figure 2: Forest Policy Framework for Sustainable Forest Management



The objectives of national forest policies have become more diversified and comprehensive and acknowledge both the importance of production and as well as of conservation. Their goals refer to the role of forests as multifunctional resources, to their economic potential, and to their importance in the environment. They address a variety of ecosystems, the need to maintain biodiversity, and the preservation of forest lands for reasons of nature and landscape protection. Forest regulations stipulate the need to balance timber production, recreational

uses and the protection of forests for soil and water conservation and against impacts from natural calamities.

An important aspect in recent forest policies are changes in the role of national, regional and local authorities. There is a trend to shift or delegate constitutional competencies in forestry matters to regional governments or to local entities. Where the national level remains responsible for forest conservation and development sub-national entities become more strongly involved in policy formulation and implementation. This provides, all together, more opportunities for participatory political decisions and for the negotiation of locally adapted solutions. Transfer or delegation of competencies allow for more participation of people in democratic decision-making processes in which they can express their specific interests and values associated with forest management and utilisation.

New policies focus on setting frame conditions by defining minimum requirements and performance standards. They confirm forest owner rights in using services offered by the private sector and promote contractual arrangements with third parties. Guidelines for best management practices are increasingly used. Implementing forest regulations implies precise demands on the tasks and services to be performed by administrations and public entities with more operational flexibility in managing human and financial resources. The allocation of financial resources in relation to specific targets based on global budgeting and/or service contracts necessitates the development of criteria of financial controlling. They measure efficiency (output/ input), effectiveness (attainment of objectives) and economy (real costs/ standard costs) based on best practices. On the whole modern forest policies have become more proactive than in the past and rely more widely on incentive and monitoring measures. This requires on the side of forest authorities more emphasis on process-steering and a shift from individual decisions and projects to comprehensive forestry programmes.

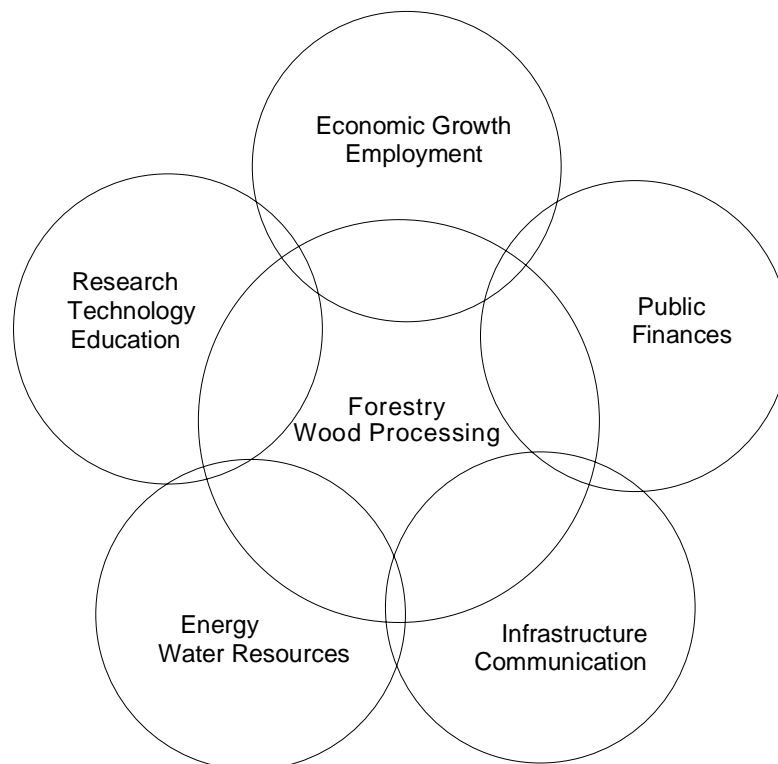
2.3 Policies Related to Sustainable Forest Management

Forest protection and sustainable forestry practices imply a high degree of public interests and are typical and prominent examples of political issues that are addressed by several policy domains. A range of public policies in their country specific combinations have substantial positive and negative linkages on the development and implementation of forest policy programmes. They have immediate and indirect influences on the behaviour of land owners, forest users, governmental agencies and non-governmental organisations. They foster or impede rational land uses and sustainable forestry practices. There is an increasing interdependence between forest policy, economic development policies and natural resources

and environmental policies. A of grouping of relevant policy domains may be based on the distinction between policies mainly related to forestry development and wood processing, and policies having an influence mainly on sustainable forest management.

Forestry Development and Wood Processing: The development potential of forestry and wood processing industry is influenced by factors such as population growth, economic growth, liberalisation of trade, new markets for forest products and the short and long term production potential of the large forest regions. An important factor is the price of energy which influences the relationship between processed wood products and competing materials. Public policies and laws determining macro-economic trends are of considerable importance. There is a general framework of cross-sector policies related to economic growth, employment and social affairs; energy and industry; research, technology development and education; infrastructure and communication which sets the conditions for the development of the forestry and wood processing sector (*Figure 3*).

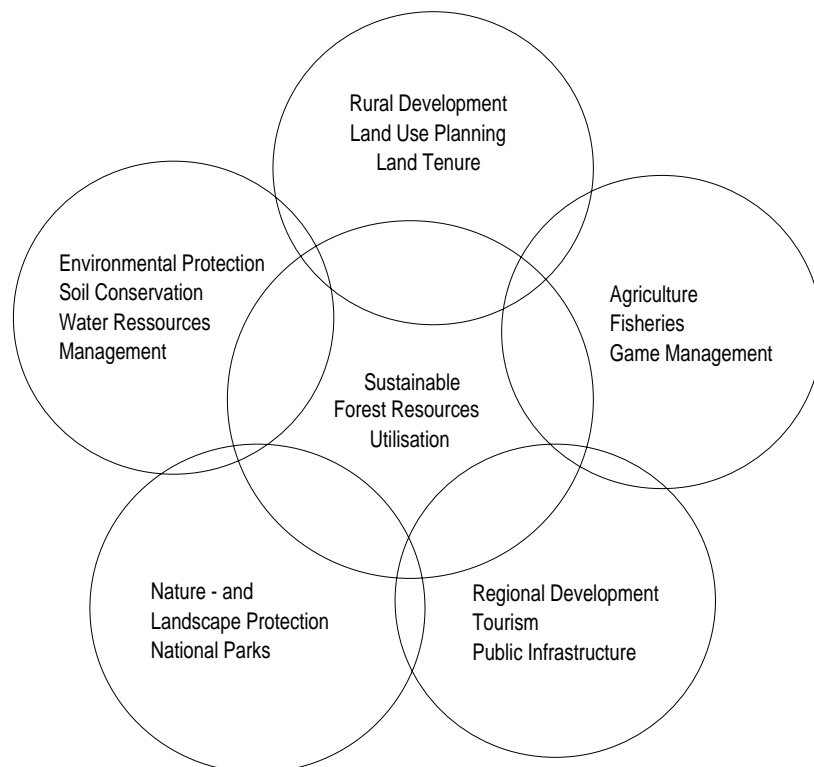
Figure 3: Public Policies with Impacts on Forestry and Wood Processing



Sustainable Forest Management: Relevant policy domains are cross-sectoral policies and laws that have emerged during the past 30 years related to environmental protection, nature- and landscape conservation, land-use planning and regional development. It also refers to policies and laws addressing specific sectors of the economy such as for instance regulations

on agricultural development, water protection and use regulations, fishery, hunting and wildlife conservation and, of course, forest policy and legislation (Figure 4).

Figure 4: Public Policies with Impacts on Sustainable Forest Management



A centre piece of the expanding network of environmental and natural resources legislation is nature and landscape protection. It has immediate and in many cases far reaching consequences for the status and use of various categories of forest lands as well as for current forestry practices. There may be considerable difference in regulating uses and management requirements. Legislation provides increasingly that forest management is subject to review and assessment with regard to nature conservation. It establishes a de facto, and in some countries a formal participation of conservation and user groups in decisional processes. Ecological and landscape inventories become an important source of information for public and private nature conservation organisations. The forest authorities are obliged to consider ecological and protection aspects with the same attention as they examine long and short term forest production, silvicultural and economic development objectives. This again encourage processes of consultation among governmental agencies that have competencies in regulating forestry matters, environmental protection, land-use planning and rural development.

The complexity of public policy domains addressing forests and forestry requires a thorough analysis of the compatibility of laws and regulations. The following aspects need particular attention:

- the implications of the expanding system of environmental and nature protection legislation on forest management;
- the degree to which the respective provisions support, or neutralise and obstruct each other;
- the scope for inserting in environmental protection laws specific provisions related to forest conservation and management;
- the impact of natural resources and rural development legislation on sustainable forest management;
- the need for modifications of forest management regulations in order to be compatible and to support such legislation.

3 Cross-Sectoral Policy Impacts

3.1 Scope and Typological Elements

Most problems in the real world relate to many different issues and don't respect the borders of a legally defined policy domains or formal competencies of governmental departments. Political decisions and impacts from one policy are dynamic elements which affect directly or indirectly other policies (Sabatier 1988: 23). Some policies have important *impacts* on other domains whereas others are less influenced from the outside and/or have fewer impacts on issues and problems in other areas. Cross-sector policy impacts can thus be defined as the supporting or impeding effects from one policy on another one. Some cross-sector impacts are the intentional result of a co-ordinated process of policy formulation. Other impacts of this kind have not been intended by policy makers and show their effects only during the implementation process.

Public interventions are, however, not always well co-ordinated and may lead to contradictory policy results. Decisions made in one public policy area have usually positive and negative *effects* and often unforeseen repercussions in others. In fact many public policies show strong impacts from decisions taken outside of their own field of competence. To a large extent the success or failure of a given policy depends on the supportive or impeding impacts that result from other policies. The understanding of the importance and directions of cross-sector effects among different public policies requires a thorough understanding of policy formation and implementation processes. It requires analysis of the combined outcomes and impacts from policies and legislation that address economic, social and environmental issues that influence forests conservation and forestry development

The intentional or factual cross-sector impacts that exist between different directions of public intervention lead to numerous linkages between different kinds of public policies. *Policy links* may be formally established through institutionalised processes of co-operation and public process-steering instruments. Other policy links operate in a less formal manner in as much as the implementing agencies as well as the addressees of different policy objectives try to manage controversial effects and to optimise complementary policy measures. An important distinction is to be made between forward linkages which result from general policy areas such as economic and social policies, backward linkages which emanated from specific policy fields, and lateral linkages which exist, for instance, among different sector policies.

At national level an increasing number of cross-sectoral impacts emanate mainly from the fact that public intervention and the tasks of governments and administrations have been and are still expanding in many fields. In industrialised countries political interventions have been extended from traditional fields such as public security, defence and communications to new areas such as trade, economic and social affairs, environmental protection and sustainable development. It also holds for developing countries and countries in transition to market economies where the state has diminished the tasks in some fields but faces new challenges and engagements in others. At international level new additional policy impacts arise at present from increasing activities of the world wide community within the system of the United Nations, from new continental and regional institutions which create binding agreements as well as legally not binding commitments which supplement national policy frameworks.

The following six *typological elements* are proposed in order to provide for a significant description and/or classification of cross-sectoral impact:

- the regional or local context in which the impacts are of importance;
- the type of policy domain or policy area from which the impacts emanate;
- the level of decision making for policy formulation and implementation;
- the type of policy instruments used;
- the direction in which the impacts operate;
- the valence or impacts in relation to a given policy objective.

Figure 5 gives an overview on the proposed typological elements of cross-sector linkages.

The indicated elements can serve as a checklist in order to examine the characteristics of positive and negative that result from different public policy programmes on forest conservation and forestry development. They facilitate comparative analysis in specific policy networks operating under different social, economic and ecological conditions.

Figure 5: Typological Elements for Specifying Cross-Sectoral Impacts

<p><i>Public Policy Domain</i></p> <ul style="list-style-type: none"> - Institutional Policy Framework - Sector Policy Framework - Development Policy Framework <p><i>Regional Economic and Ecological Context</i></p> <ul style="list-style-type: none"> - Population Growth and Density - Social Product and Per Capita Income - International Trade Relations - Importance of Forest Goods and Services - Environmental Conditions - Forest Ecosystems - Extent of Forest Area <p><i>Level of Policy Decision Making</i></p> <ul style="list-style-type: none"> - International - Supranational - National - Sub-national 	<p><i>Policy Instruments</i></p> <ul style="list-style-type: none"> - Regulative Instruments - Incentive Instruments - Information Instruments - Process-steering Instruments - Organisational Instruments <p><i>Direction of Impacts</i></p> <ul style="list-style-type: none"> - Impacts from other Policies to Forest Policy - Impacts from Forest Policy to other Policies - Reciprocal Impacts between Forest and other Policies <p><i>Valence of Impacts</i></p> <ul style="list-style-type: none"> - Positive Impacts - Negative Impacts - Neutral Impacts
--	--

Source: Schmithuesen, Bisang and Zimmermann 2000: 26

The *public policy domain* is an important criterion for analysing cross-sectoral impacts. Public policies establishing a general institutional framework provide the basis for more problem and issue oriented domains. They define the constitutional rules of state organisation and of the public and private sector and determine the degree of intervention of government and public administrations. They establish the procedural patterns for the involvement of people and interest groups in political processes and define rules for a settlement of societal conflicts. They include macro-economic policies; and more generally speaking policies on political governance and social conflict resolution. Public policies that relate to a determined economic sector or specific uses of natural resources imply often controversial objectives and produce contradictory impacts. Such policies need to be balanced in a broader context of sustainable development and land-use planning. Policies related to agriculture and forestry, energy and water resources, transport and public infrastructure, or to tourism range in this category. Public policies promoting development and precaution for subsistence refer, for

instance, to environmental, nature protection, technology and educational issues. These policies concern future development options of society and overlap quite often with more specific domains such as sector and land use policies.

Regional Economic and Ecological Context: Differences in population density, income opportunities or with regard to local government may provide quite a different context for the implementation of public policies within countries. There are also considerable differences in the way public policy regulations operate and the effects which they produce if one considers the conditions of temperate and boreal forest as compared to those of tropical lowland forests. The same is true if one compares the conditions of densely populated regions as compared to areas with a low population density. The conditions of the large mountain forest areas in the Alps, the Andes or the Himalayan area have to be addressed by other policy objectives and measures as compared with those that are of importance to the utilisation of trees and forests in semi-arid and arid zones.

Level of Policy Decision Making: It is necessary to distinguish and analyse the levels of decision making from which policy impacts result. Policy programmes originate from legislation and administrative decisions that are made on different levels of the state. According to the constitutional repartition of competencies national and sub-national levels; and levels of municipalities and local of communities can be distinguished. A considerable number of states have a federal structure which means that part of the constitutional competencies belong to the member states. An analysis of the prevailing governmental structure and respective responsibilities is essential in view of the growing trend to transfer or delegate national decision-making processes on forest resources management to the competencies of sub-national level and/or to local governments and institutions. On the other hand policy impacts which emanate from policy developments within the international community have gained more importance. This refers particularly to the impacts from international legal instruments adopted during and following the UNCED conference in Rio 1992. In addition important policy developments take place on the scale of continents or large regions leading to other supranational levels on which policy decisions are taken. The principle of subsidiarity as well as the principle of international commitment to sustainable development are driving forces which lead to an increasingly complex network of public policy impacts both at national and international levels.

Policy Instruments: Regulatory, incentive and informational instruments as well as state offer and persuasion play a specific role in implementing a given policy and produce different kind

of impacts. Regulative instruments keep their importance in particular with regard to protecting natural resources and environment. Incentives gain importance, for instance, to promote sustainable land uses, to provide for multiple use management and to maintain biodiversity and preserve endangered ecosystems. Compensatory payments to land owners for performing specific tasks in the public interest have become an important issue in integrated land management. Policies and regulations focus more and more on the determination of specific targets, precise commitments of the beneficiaries and accountability on proven results in relation to the committed public funds.

The *direction in which policy linkages operate* within a given policy network can be unilateral, reciprocal or neutral. Most of the available studies focus so far on the influences of external policies on forests and forestry. How forest policy objectives and instruments influence other policy domains has found until present less attention. However, positive cross-sectoral impacts from implementing forest policy objectives are an important input into an overall framework of sustainable land management. A recent study on Bhutan's biodiversity policy which shows that in this country major achievements in the domain of nature and landscape conservation result from a series of forest policy developments (Tsering 2000). A meaningful examination of policy linkages related to forestry demands a holistic perspective which considers both the impacts of other public policies on forest policy as well as forest policy impacts on other policy areas is thus called for.

Valence of Impacts: Cross-sectoral policy impacts may produce positive, negative or neutral effects in other domains. Whereas the reason which leads to a given impact may be politically justified the criteria for qualifying the impact as positive or negative is to be judged under the perspective of the policy domain where it occurs. A frequent situation is the one in which the valence of impacts produces positive effects for one policy domain and negative ones for other. Policy changes and co-operative arrangements are in such circumstances quite difficult to be obtained. A political arbitration between the various policy objectives combined with concrete efforts to find other policy solutions in order to avoid or to reduce the negative consequences is essential. *Figure 6* shows examples of positive and negative impacts that may result from a given policy domain.

Impacts which show positive effects for both policy domains provide opportunities for co-operation and alliances. A similar situation exists if impacts result in negative effects on both sides and where both domains will benefit from a change of policies. A positive valence on one side combined with a neutral effect on the other leave room for new approaches. Good

prospects for changes exist if negative effects in one policy area are combined with rather modest or neutral effects in the other. Altogether it is important to identify and analyse more systematically positive cross-sector impacts from different public policies which contribute to a more efficient and productive use of land and forest resources.

Figure 6: Examples of Positive and Negative Policy Effects

Policy Domain	Positive Effects	Negative Effects
Agriculture	<ul style="list-style-type: none"> - Soil Protection - Water Management - Wind Barriers - Rural Forestry - Agroforestry 	<ul style="list-style-type: none"> - Forest Clearing - Overgrazing - Soil Disturbance - Lack of Regeneration
Public Infrastructure	<ul style="list-style-type: none"> - Protection Forests - Stability Management - Stabilisation Works - Access to Areas 	<ul style="list-style-type: none"> - Forest Clearing - Increased Utilisation - Ecological Disturbance
Nature Protection	<ul style="list-style-type: none"> - Ecosystem Conservation - Natural Forest - Biodiversity 	<ul style="list-style-type: none"> - Restrict. Wood Product. - Management Obligat.. - Access Restrictions

3.2 Regional Policy Context

The combination of relevant policies and cross-sector impacts depends on particular forest ecosystems and the prevailing economic and social context. Both the physical conformation of the resources as well as the required combination of goods and services determine alternative land-use opportunities and the policy framework in which they are managed. A survey of relevant policies and cross-sectoral impacts according to broad ecological regions and socio-economic conditions has been undertaken by de Montalembert (1994, 1995). He distinguishes:

- temperate and boreal forests in industrialised countries with market economies;
- temperate and boreal forests in countries in transition to market economy;
- lowland forests in the humid tropics with high population density;
- lowland forests in the humid tropics with low population density;
- highland and mountain forest in tropical and temperate regions;
- forest and tree vegetation on arid and semi-arid lands.

Temperate and boreal forest in industrialised countries with market economies: In these countries the forest area is at present fairly stable and protected by effective forest regulations. In fact, there are regional trends of an increase in forest vegetation due to natural succession

and/or afforestation of abandoned or marginal agricultural lands. Important policy objectives are the protection of trees and forests in urban areas, the maintaining of biodiversity in areas with intensive forest production, and the promotion of multifunctional uses generating income and improvement of living conditions in rural areas. Cross-sector linkages arise from policies addressing urban and rural development; infrastructure and energy consumption; as well as environmental protection, and nature and landscape conservation. Traffic, energy, infrastructure, rural development and agricultural policies have important effects on the local distribution of forests. Environmental, nature conservation and landscape protection policies influence policy objectives concerning economic and sustainable wood production and the ecological variability of forests. Positive effects result from linkages between land use, environmental and forest policies. More difficult is the co-ordination between forest policy aims and the objectives of traffic, energy and infrastructure policies. Co-ordination problems are common between nature and landscape protection, game management, and intensive forest production.

Temperate and boreal forests in countries in transition to market economy: These countries face at present fundamental changes both in the general national policy framework as well as within the forestry and forest industry sector. Supplying forest products to rapidly growing demand of national markets, and earning foreign exchange through exporting timber and processed products are important factors within the take off of the national economy. A whole range of policy changes are induced through the restitution of forest lands to their former private and communal owners; the privatisation of wood harvesting, transport and wood processing; the privatisation of the end-markets for wood and forest products; and the creation of new marketing circuits between producers and consumers. Important cross-sector linkages result from policies on macro-economic development, privatisation of the industrial sector, land tenure and restitution, as well as from a new role of the state and of public agencies and forest administrations. At the same time the importance of policy linkages to sustainable natural resources management, rural and urban development, and environmental protection and nature conservation has gained considerable weight. In this respect we have similar developments as in countries with an established market economy system.

Lowland forests in the humid tropics with high population densities: Countries in the lowland humid tropics with high population densities face large scale deforestation due to the pressure for new agricultural and pasture lands, and due to strong demands to generate income from timber exports and industrial wood processing. Cross-sector linkages result from public policies which induce such developments respectively from those which could have positive

impacts on forest protection and sustainable forestry development. Major linkages are related to macro-economic, demography, infrastructure, and agricultural policies. Linkages to game management, nature protection and environmental policies exist and gain importance provided that effective national decisions to establish permanent production forests and protected areas have been taken. Positive co-ordination between macro-economic policies and forestry development objectives have so far been weak, and efforts to create more consistent policy networks, such as for instance through Tropical Forest Action Plans, have shown only modest results. As major land use developments are influenced by policy actors outside forestry this experience demonstrates the need to deal with forests in a broader national policy context. Cross-sector linkages between forestry, game management, nature conservation and environmental protection should be co-ordinated in more specific national forestry, rural development and landscape protection programs.

Lowland forests in the humid tropics with low population densities: In countries situated in the lowland humid zone with low population densities considerable areas of tropical forests still exist which show a comparatively low degree of human interventions. However, the process to make these forests accessible through large scale industrial forestry projects, resettlement and land colonisation through national development plans has gained momentum. Frequently too little attention is given to the sustainable development of these forest and to their importance with regard to benefits from non-wood forest products for generating income in favour of the rural population.

Highland and mountain forests in tropical and temperate regions: Highland and mountain forests cover large areas with important protective functions. Strong linkages exist between environmental and forest policies in order to maintain trees and other wooden vegetation for soil and water protection. In densely settled mountain regions the forest area consists frequently of wood-lots on land not suited for agriculture and trees planted around houses. They are part of traditional land-use systems with combined production systems such as agroforestry or sylvipasture land management practices. Cross-sector linkages to agriculture, rural development, landscape and biodiversity conservation, protection of communication and infrastructure, and increasingly tourist development need particular attention. In countries with mountain areas we find specific and usually stricter provisions that protect the forest cover and determine the sustainability of forest uses (Price 1990, Brooks 1997).

Forest and tree vegetation on arid and semi-arid lands: In arid and semi-arid regions trees and forest vegetation play a particularly important role in defusing negative effects of

droughts and in lowering the pressure on other land resources. Maintaining the protective as well as the productive functions of the vegetation is a pre-condition for sustainable use of these landscapes and a general objective of rural development and environmental policies. Cross-sector linkages exist primarily with agricultural water resource policies. Strengthening agencies managing forest vegetation and co-ordination with public services in charge of agriculture, water development and soil protection are necessary conditions to create and implement positive policy linkages.

Regional Variations: In a recent survey involving staff working within and outside FAO examples of cross-sectoral policy impacts have been reported (Broadhead 2001; Broadhead and Dubé 2002). Whereas the findings are not representative for that quoted policy domains and the regional entities they provide an interesting overview based on the professional assessment of the respondents. Over four times as many examples of public policy impacting forestry (71) were mentioned by the respondents than of forestry policy having an impact on other domains. The majority of the examples were from South and Central America (32%), Asia (27%) and Africa (11%). Table 1 shows the break-down of the examples given for countries with high/low forest cover respectively high/low income. Altogether 40% of the quoted cases referred to policies establishing the institutional framework, 38% were attributed to policies addressing specific economic sectors, and 22% referred to policies promoting development. In high-income countries a greater proportion of impacts are associated with special economic sectors that in low-income countries, where policies establishing the institutional framework are of greater importance.

Table 1. Percentage of policies affecting forests in high and low income and forest cover countries (zero values removed for clarity).

	High income, high forest cover	High income, low forest cover	Low income, high forest cover	Low income, low forest cover	TOTAL
Macro-economic	2.4		4.7	2.4	9.4
Privatisation/role of the state		1.2	3.5	2.4	7.1
Land use and tenure	1.2		2.4	1.2	4.7
Rural development	1.2		1.2		2.4
Social policy			4.7	1.2	5.9
Infrastructure					0.0
Trade	1.2	1.2	3.5	2.4	8.2
Structural adj. programs			1.2	1.2	2.4
Policies establishing the institutional framework	5.9	2.4	21.2	10.6	40.0
Cash crops	2.4		3.5		5.9
Subsistence crops	4.7	1.2	3.5	1.2	10.6
Livestock	2.4	1.2	2.4	1.2	7.1
Fisheries			1.2		1.2
Mining					0.0
Energy	2.4		1.2	1.2	4.7
Transport			2.4	2.4	4.7
Tourism					0.0
Industry	1.2				1.2
Water			2.4		2.4
Policies related to special economic sectors	12.9	2.4	16.5	5.9	37.6
Environmental	4.7	3.5	2.4	2.4	12.9
Nature protection	2.4	1.2	1.2	1.2	5.9
Technology			1.2		1.2
Education					0.0
International development			1.2	1.2	2.4
Policies promoting development	7.1	4.7	5.9	4.7	22.4
TOTAL	25.9	9.4	43.5	21.2	100.0

N.B. Totals may not tally with column values due to rounding errors.

Source: Broadhead and Dubé 2002

3.3 Available Information Sources

General Information: Several studies on public policies and cross sector linkages have been elaborated by or on behalf of the Food and Agriculture Organisation, FAO, and the United Nations Economic Commission for Europe. They examine public policies as relevant to the forest sector and stress the fact that their importance has to be identified in the context of a particular country and at a given time. A systematic identification of policy domains has been undertaken by de Montalembert (1994, 1995). He refers to macro-economic policies (fiscal, monetary, privatisation and public expenditure); population and social affairs; agriculture and livestock; land use and tenure; infrastructure; fisheries; trade; industry; energy; environment;

and tourism. A matrix indicating typical policy instruments, cross-sector linkages and likely socio-economic and environmental impacts is presented. Causal relations between sector policies and tropical deforestation have been analysed (Kaimowitz and Angelsen 1999). The authors provide a synthesis of major cross-sector linkages and make recommendations for policy makers in international organisations and at national level on how to take linkages into account.

A considerable number of studies review policy developments at national and sub-national levels and contain information on cross-sector linkages influencing forestry development. This is the case, for instance, for a series of forest policy papers that have been published for the African, Asian and Latin American region (FAO1993, FAO 1996, FAO 1998). More specifically with the legal framework in America, Asia, Africa and Europe deal the publication of the FAO Law Development Service (FAO1998, FAO 1999, Cirelli 1999, FAO 2001). Country papers have been prepared by members of the IUFRO Research Group on Forest Law and Environmental Legislation (IUFRO Research Group 6.1300 Bibliography Online). More recently the group has focused its work on legislation and public policies related to environmental, nature and landscape protection, and on their impact in implementing national forest policy programmes.

An important source of information are publications and reports which focus on specific external public policies and their positive and negative impacts on forests and forest resources management. Policy analysis has come forward from authors associated with multilateral development institutions and deals mainly with forestry issues in the tropics and subtropics (Repetto and Gillis 1988, World Bank 1993, FAO 1994, Contreras 2000).

A valuable source of information are country studies elaborated and distributed by CIFOR in collaboration with other international research institutes and non-governmental organisations (CIFOR Porex Listserver). Recent studies deal, for instance, with the role of national parks in maintaining tropical biodiversity (Bruner et al. 2001), land use and watershed management (Aylward forthcoming), land tenure and resource governance (Mandondo 2000), reforestation, environmental aspects and public incentives (Jagger and Pender 2000), paper production and environment (Abramovitz and Mattoon 2000), the political economy of pulp and paper (Barr 2000), and the impact of technological change on agriculture plantations respectively forest losses (Wunder 2000). Another context where policy linkages have gained considerable attention is the work of the International Panel on Climate Change (IPCC 2001).

Available Information on Developing Countries: Investigations on forest related public policies which deal with major issues and problems in the developing world have started already in the 1980ies to examine positive and negative influences that result from external policy programmes. This is particularly true with regard to causes of deforestation, a subject which has found considerable attention over the years. The emphasis on examining policies that affect changes of the forest cover can be shown by reviewing some of the leading publications addressing large scale deforestation processes in the humid forests of the tropics (Amelung and Diehl 1992, Angelsen and Kaimowitz 1999, Rudel et al. 2000).

In fact one of the key assumptions in this research is that deforestation in the tropics is primarily determined by broad socioeconomic developments such as population growth, changes in land tenure and large scale development of agriculture, and by the corresponding land development policies. An indication for this situation are the findings of one study conducted in the 1980ies for 40 tropical countries on the major reasons of deforestation. It estimates that around 86 to 94 percent of deforestation in the tropics are due to an increase in agricultural land uses, 2 percent due to infrastructure and development projects and the remainder, though less than 10 percent, due to unsustainable timber production (Amelung and Diehl 1992: 118). Changes of deforestation trends can consequently follow mainly from improving the economic and social conditions of the agricultural sector through appropriate policies, and much less from implementing forest policy objectives in an isolated manner.

Already in one of the first scientific studies which addressed systematically policy impacts as related to changes of the forest cover led to similar findings (Repetto and Gillis 1988). Their book, already published in the late 1980ies, shaped a new understanding in the following political debate on the conservation of tropical forests and influenced strongly subsequent research work. Based on a series of important country studies for Indonesia, Malaysia, the Philippines, China, Brazil and West Africa Repetto and Gillis showed that macroeconomic policies had a strong influence on speeding up the process of deforestation in all of the countries studied. This happened for example through income tax incentives for logging and processing firms, through tax subsidies like generous depreciation provisions or subsidies for agricultural land development, and through indirect subsidies in form of artificially cheap credits for large scale pasture development.

These policies –together with the trade policies of industrialised countries – favoured exports of raw materials and processed products both from the industrial forest sector as well as from the agricultural sector. Missing the opportunity of processing timber in their own country, the

nations did not only lose a considerable part of their primary forest cover but also billions of Dollars of revenues. Other policies found to exacerbate deforestation were related to resettlement and large scale development projects for public infrastructure such as new road systems or port installations. The findings also showed that such policies had important negative external effects on forests and sustainable forestry, because they failed to take into account the substantial positive economic contributions from a range of forest uses by the population and neglected the social and environmental costs from deforestation in the economic evaluation of development projects.

Other investigations with similar findings followed. A FAO/World Bank agricultural review demonstrated that migratory pressure on the tropical moist forests in Ecuador was due to poor land utilisation in other regions of the country (FAO and World Bank 1993). In Argentina, forests were converted to agricultural land due to poor macroeconomic policy that reduced job alternatives and increased the demand for subsistence agriculture and additional grazing of land (World Bank 1993). Inefficient industrial and fiscal policies in the Philippines were incentives for exporting logs in raw form rather than to convert them into processed forest products. Forestry missed the opportunity to earn additional income from added value to forest products and deforestation rose (FAO 1994). Irrigation and power generation policies in Sri Lanka aimed at reducing poverty and unemployment but diminished in fact considerably income opportunities from the forest sector (Abeywickrema 1987).

A more recent inquiry examines the reasons for the low deforestation rate and the regeneration of the forest cover in Gabon (Wunder 2000). The findings were that cross-sector linkages supported in a positive manner sustainable use of forest resources. As since the 1970ies, Gabon's economy strongly benefited from oil exports, the author inquired on the direct and indirect effects of oil income on forestry. The direct effects seemed to be rather small, as the construction of infrastructure for the petrol industry did not lead to a significant loss of the forest cover. On the other hand, the oil companies created jobs in industry and services, and generated investments in urban infrastructure. Due to decreasing revenues from export crops, low competitiveness of import-competing products, and high transport costs a large proportion of the younger rural population migrated into larger settlements and cities. Farming activities were reduced, the state's effort to support large-scale agro-industry development failed to a considerable extent, and transport infrastructure concentrated on the newly built railway. Pressures on the forest cover decreased and deforestation slowed down. In summing up these findings one has, however, to keep in mind the comparatively low population pressure that exists in the country.

In an analysis for Central America, agricultural, land tenure, infrastructure and road construction policies have been identified as the most important sector policies interfering with sustainable forestry and forest protection (Kaimowitz 1996, World Bank 1991: 33). In another publication on the causes of forest decline the author states that there is usually a complex combination of market failures, policy and institutional failures, social disparities and cultural factors at work (Contreras 2000: 20). He identifies government policies that in many cases influence the quantity and quality of forests. Transportation policies, in particular road construction, but also the construction of railways and water transport facilities do not account with the substantial impacts on forests through increased accessibility and changes in settlement patterns. Policies to gain additional agricultural and pasture land usually do not incorporate the costs of wood and non-wood products that cannot be harvested anymore due to the reduction in forest area. Policies that lead to greater land tenure inequality, land speculation and insecurity of land tenure make the poor poorer and force them to gain land through deforestation. For structural adjustment programmes and macro-economic policies, similar effects may be found. Another reason for forest clearings are concession tenures that offer incentives to a mere exploitation of timber without taking the costs for regeneration of the resources potential as well as social and ecological costs into account.

At present there is a clear trend towards country studies that analyse more explicitly cross-sectoral policy impacts with more comprehensive and sophisticated research approaches. Impacts are seen as being complex, varying in accordance with a particular social and economic context, and depending on the prevailing political situation. Of particular importance are policies related to macroeconomics, agriculture, transportation, mining, land tenure and planning and environmental protection. Instead of a merely descriptive approach research designs rely on empirical case studies, analysis of legislation and official planning and project documents, expert opinion panels and literature reviews. The newer the text, the more are impacts and linkages among public policies are made explicit and self-evident (Contreras 2000).

Available Information on North America and Europe: The documentation from North America confirms the considerable impact that results from environmental and nature protection policies on forest resources development (Schmithüsen and Siegel 1997, FAO 1998). Several reviews show, for instance, the network of environmental regulations at the Federal level in the United States as well as the particular relevance of air, water and soil protection policies; landscape and nature protection regulations; and laws that provide for a closer integration with renewable natural resources management at the national and local level

(e.g. Cubbage and Siegel 1997, Siegel 1997, Hickmann 1997, Gaddis and Cubbage 1997, Hodges 1997, Le Master et al. 1997). Important issues, both in the USA and in Canada, are forest management practices on public and private lands and the impact which results from policies addressing land ownership and land uses, public resources allocation and taxation, public land management versus privatisation, and local government (e.g. Wear and Steward 1997, Flick 1997, Luckert and Haley 1997, Wallace 1997, Hickman and Hickman 1997, Kaiser and Royer 1997, Siegel and Martus 1997).

Integrating forestry management and planning within the broader context of rural development, agriculture, landscape management and nature protection are major policy issue in European countries. In countries in transition to market economy, important cross-sector linkages in forestry result at present from privatisation and land tenure policies (Cirelli 1999). Countries in Central and Eastern Europe are particularly alert to adjust land tenure, wood processing and forest management practices to the rules of a market economy and to the standards set by the European Union (Glück et al. 1998, Csóka 1998). One of the driving forces that affects at present the forestry and wood processing sector is internationalisation with regard to competitive markets, international environmental standards, and sustainable management of forest resources. Policy linkages, and in particular those from environmental policy, are largely similar to those found in other industrialised countries.

A study on the policy context for forestry and forest industry development in Europe provides considerable material on policy impacts on forestry development and wood supply, wood-processing industries, international trade in forest products, and markets and demands for forest products (Peck and Descargues 1997). Emphasis is put on impacts that influence access to intermediate and end-use markets for wood and processed forest products. Prospects for access to raw-material supply, and possible impacts on major competitors and use of alternative materials and products are examined. A recent follow-up to this study has been undertaken by the ECE/FAO identifying major policy scenarios having an impact sustainable forest management and wood processing (UNECE/FAO 2002).

3.4 Review of Research Approaches

Research designs in survey methods and analysis techniques are based on quantitative methods such as analysis of national resource accounts and econometric modelling, and on public policy analysis usually in the form of case studies and expert panel inquiries. Research designs are, for example, different whether the issues to be investigated are descriptive ones or focus on causal relationships. They are different, too, if the findings relate to single cases or

are to be generalised (GAO 1991: 68-9). In this context it is important to ask how many variables have to be looked at. Holistic approaches start from the assumption that many issues and factors are connected in some way and should be studied in a comprehensive design. Reductionism on the other hand argues that problems and issues can be divided in different parts and analysed separately. What matters is the number of variables which usually lead to different choices on qualitative and quantitative research methods. Holistic approaches tend to be qualitative ones whereas reductionism usually leads to quantitative research methods.

Natural resource accounts (NRA) and environmental resource accounts: As discussed in a separate contribution, use quantitative and qualitative information on natural resources. (OECD 1994). In input-output tables indicating production, transformation and utilisation of forest resources throughout the economy are traced in quantitative physical terms. So far at least, specific national forest accounts have been mainly concerned with the linkages between forestry production and wood processing. They show to which sectors flow which quantities of wood and processed forest products. They have put little emphasis on a more detailed analysis of flows and linkages between the forest and other sectors. However, comprehensive and meaningful national forest accounts require quantitative information not only on wood production but on the full range of forestry services made available to other sectors as well as the resources that flow into the forest sector. This needs a fairly detailed and highly institutionalised data base.

Some studies model cause-and-effect relationships in complex *econometric analysis*. This approach has been used in order to assess the impact of trade liberalisation agreements on environmental policy (OECD 2000). Relevant models are, for instance, the computable general equilibrium (CGE) and the comprehensive model for policy assessment (COMPASS). The collection of adequate data is again at present the limiting point to such research.

Indicator frameworks. Following clearly specified criteria, a set of indicators can be used as a reference base in order to monitor important linkages and trends. This approach has been developed, for example, in order to assess the degree of integration of environmental concerns into transport policy (OECD 1999). In the case of forestry linkages such indicators could, for instance, assess the main factors of deforestation e.g. those due to agriculture, mining, forest fires etc. One could also evaluate positive impacts of public policies with indicators assessing the main factors of success in sustainable forest management, biodiversity in improved forestry practices, or in protecting reserved areas and national parks. The quality of the data

base that is available or that can be assembled decides on the quality and the usefulness of the findings.

Impact Studies: Policy Impacts affecting sustainable forest management and the forestry sector can be evaluated by using impact study designs. Relevant issues are, for instance: To what extent does an agricultural policy programme encourage respectively reduce the effects of deforestation? Do wildlife management programmes significantly impede or promote forest regeneration? What are the effects of policies on the privatisation of forest lands and forest management with regard to sustainable forest uses and forestry practices. Possible approaches of this kind are quasi-experimental, cross sectional or longitudinal designs (Rossi et al. 1988). The start for impact studies is usually based on a hypothesis on what the important linkages of a policy network are. It has to be confirmed or falsified during the investigation.

Case studies are defined as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context (1); when the boundaries between phenomenon and context are not clearly evident (2); and in which multiple sources of evidence are used (3)” (Yin 1989: 23). Case study designs have been chosen in most of the policy analysis that has been undertaken so far. They remain of importance considering the complexity in analysing interference among different public policies and their combined effects on forest conservation and forestry development. Case studies are appropriate in order to make evident and interpret policy processes that relate, for instance, to changes of forest area, of varying outputs from forestry goods and services, and of the impact of land-use systems on sustainable forest management. Case studies are also useful in order to demonstrate the positive impacts on policies focusing on rural development, public infrastructure and environmental protection that result from the management of protection forests, maintaining biodiversity through forest management systems close to nature, and from nature protection and park management.

The use of case studies allows gaining an empirical knowledge on the actually prevailing policy framework and its positive and negative driving forces by using multiple sources of evidence. This refers to official documents and legislative texts, available quantitative and qualitative information from other sources, as well as to opinions and judgements of the stakeholders directly and indirectly involved. A major aspect in using such a design in policy analysis is the challenge to compare and put into a common frame of interpretation findings from different information sources with varying content and quality. The necessity to develop weight factors for different kinds of data and observations is probably the limiting point in

using the results from case studies. This is particularly true if one wants to compare and evaluate studies that refer to distinct socio-economic and ecological conditions in order to draw more general conclusions.

Expert panels offer an opportunity to policy makers, professionals and stakeholders to present their views and use their experiences on what they consider as relevant policy linkages and the likely effects which they may generate. Such panels can be organised in face to face sessions with various participants or indirectly through written communication or e-mail exchanges. Usually several rounds of exchange of opinions and statements are needed to have sufficient time for summarising and comparing different views and for letting participants find a consensus through communicative validation on what they think key issues and possible conclusions (e.g. Hopple and Kuhlmann 1981, Linstone and Turoff 1975). As compared to studies elaborated by a single researcher forthcoming results have a chance to be more widely accepted in view of different opinions from a number of stakeholders. This is an important aspect in circumstances where very different and controversial problem, perceptions and concrete interests prevail. The critical point is to provide a meaningful composition of a panel and to find competent staff for organising the sessions and interpreting the findings. Expert panels require comparatively small inputs which is an advantage if only limited resources and data are available.

Criteria for Comparison: In comparing the usefulness of various research designs one can refer to criteria such as the necessary requirements to carry out a study, the significance and informative value of the findings, and the resources respectively the costs of the undertaking (*Figure 7*). The aim is to find a custom-tailored solution that serves to answer the issues at stake as precisely as possible, that shows a good cost-benefit ratio, and that can be conducted with the available resources and accessible data.

For the requirements one can state that quantitative studies need previous knowledge of the type of relevant policy linkages and their likely effects as well as sufficient and confirmed data. Findings are restricted to quantifiable policy linkages. Qualitative research designs do not necessarily require an intensive previous knowledge on the nature and structure of the policy context. Quantifiable information and the data are one element of the research. Expert panels require less detailed knowledge of the empirical background of the investigation since a considerable part of it comes forth during the research process itself. This is different with case studies which need to be conducted by researchers that are familiar or can familiarise themselves with the subject or field of investigation.

Figure 7: Comparison of Research Designs

	<i>Requirements</i>	<i>Significance</i>	<i>Costs</i>
National Resource Accounts	Main linkages must be known Main linkages with institutionalised and documented sectors Main linkages are quantifiable flows of resources, i.e. high data quality needed Expertise in systems of national accounts	Stronger for intra-sectoral linkages, less differentiated for cross-sectoral linkages Impact of variables can be estimated	High
Econometric modelling	Main linkages must be known Main linkages with institutionalised and documented sectors Main linkages are quantifiable flows of resources, i.e. high data quality needed Econometric expertise	Complex linkages can be studied Impact of variables can be estimated	High
Indicator framework	Main linkages must be known Main linkages are quantifiable in single indicators, i.e. medium data quality Expertise in measurement and statistics	Strong for monitoring a few linkages over time Estimation of the impact of single variables less precise than below	High
Impact study	Main linkages must be known Both quantitative or qualitative approaches are feasible, i.e. flexible on data quality Expertise in quantitative data analysis and policy evaluation	Strong for illustrating linkages Estimation of the impact of single variables less precise than above	Medium
Case study	Main linkages must not be known Linkages can but don't have to be quantifiable, i.e. flexible on data quality Expertise in qualitative social research Field experience recommended	Strong for illustrating complex and indirect cause-and-effect relationships Estimation of the impact of single variables only roughly	Medium
Expert panel	Only experts as source of information needed Expertise for selecting experts and staff for administration of panel needed	Less subjectivity through communicative validation Estimation of the impact of single variables only roughly	Low

Source: Schmithuesen, et al. 2001

With regard to significance and informative value case studies, expert panels and econometric modelling are the explicit ones. They may provide valuable information on direct and indirect policy linkages, a fairly detailed picture of all of different factors at work, and of the various actors involved. Indicator frameworks and quantitative impact assessment are useful in order to illustrate the influence of certain variables in the policy network and to monitor their performance. Due to a widely spread faith in the significance of numbers studies that quantify linkages are likely to have more attention from the public and within the circles of policy-makers and analysts than qualitative research. However, one has to keep in mind that quantitative investigations may risk to fail in presenting the overall context and the empirical complexity of the whole web that usually results from cross-sector linkages. Considering the significance of National Resource Accounts it appears that they are at least until present of less informative value since their information tend to be limited to wood flows in the forest and wood processing sectors.

Considering the required resources respectively the cost of various research designs one may state that all of them need different kinds of expertise and that the costs will depend on many factors and vary considerably. As a general rule the costs of national resources accounts, econometric modelling, and indicator frameworks will be rather on the high side whereas impact and case studies or expert panels will be in the medium or lower range. Comparing the strengths and weaknesses of alternative approaches one should try to combine some of their relative advantages and informative values. Investigations can start with case studies and lead to quantitative impact analysis or to econometric modelling at a later stage. Qualitative studies can provide recommendations for quantitative monitoring over longer periods of critical effects that result from particularly relevant policy impacts.

4 Policy and Legal Frameworks

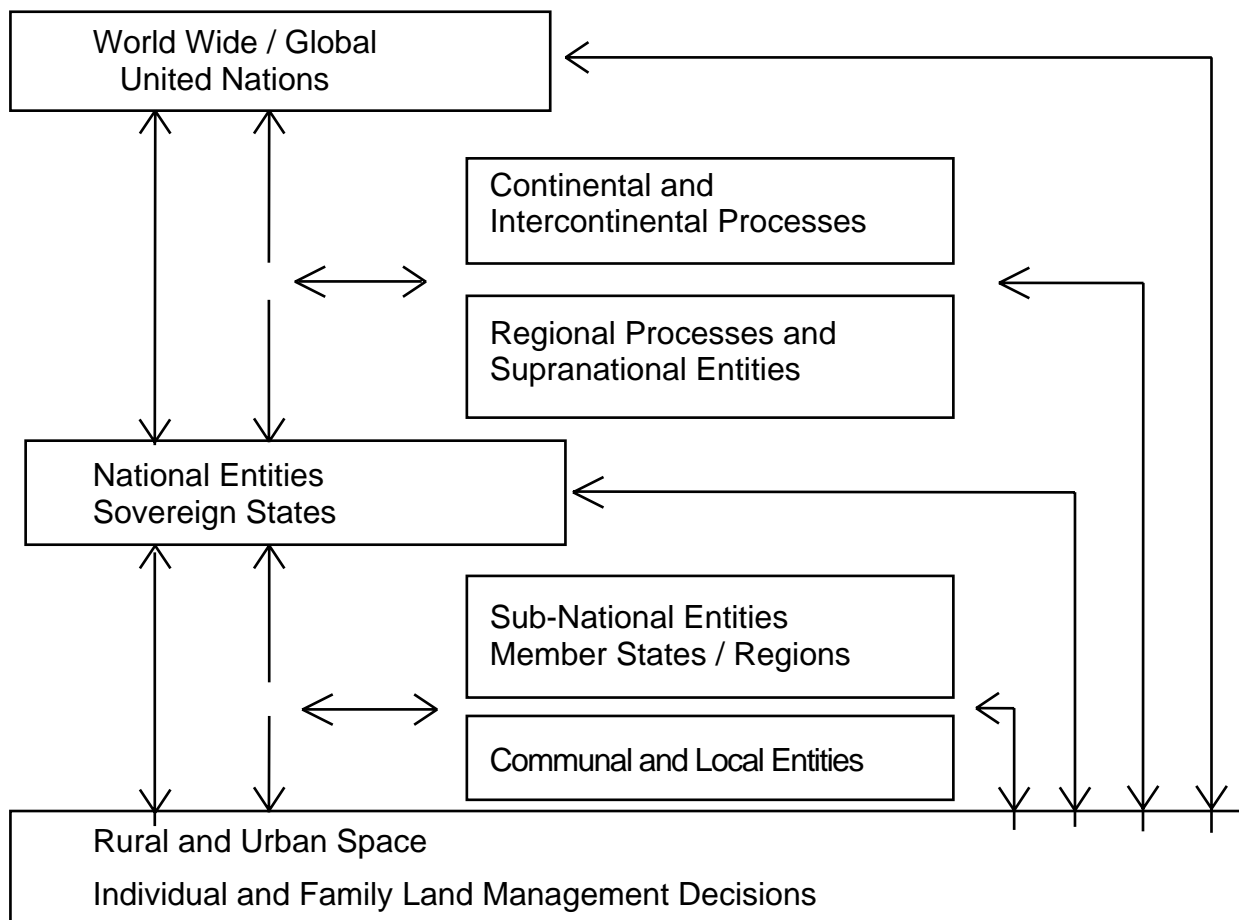
4.1 Multilevel Policy Framework

A substantial expansion of international law on environment and development has occurred during the last twenty years. Agreements have been adopted to encourage countries to accept commitments towards a more sustainable use of natural resources. This has enabled governments to institutionalise world-wide and regional co-operation, and to establish confidence-building processes (FAO 2002).

The commitments of international forest-related instruments have to be seen within the context of multilevel policy frameworks (*Figure 8*). An increasing range of world-wide,

continental and regional processes involving the UN as well as multilateral and supranational entities form at present the international system. International and supra-national agreements and instruments reflect primarily global or continental concerns. Multi-level governance versus simple structures of centralisation or decentralisation is discussed by Benz 1999. He argues that policy-making in complex multi-level governance offers new opportunities to develop more consistent solutions that satisfy different social groups and policy actors. Ober 1999 analyses the interdependence of international, national and local initiatives for sustainable forest management.

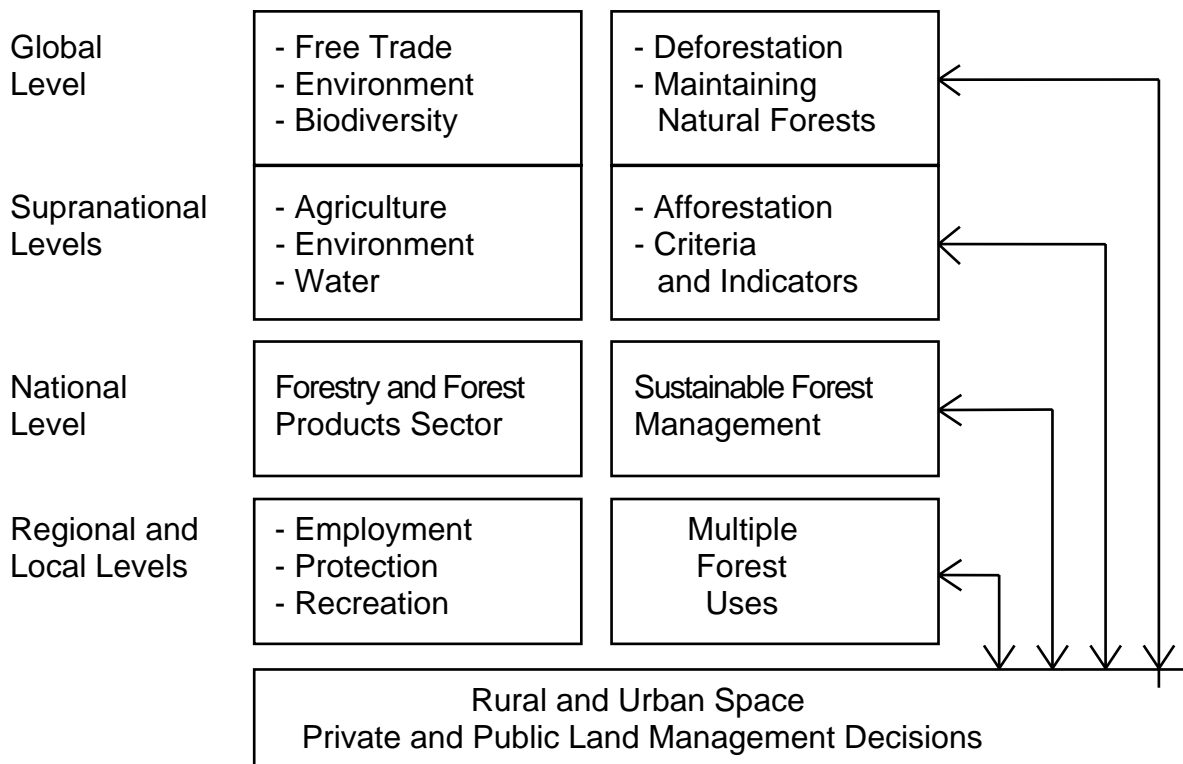
Figure 8: Public Decision Making at International, National and Local Levels



The issues at stake vary at different levels of the policy network (*Figure 9*). At the global level free trade, environmental protection and biodiversity are dominant subjects. Forest-related aspects are increased industrial uses through access to new areas, reduction of large-scale deforestation, and maintenance of a minimum proportion of natural forests. At the supra-national level major issues are structural changes in agriculture, and the protection of environment and of water resources. Afforestation of marginal lands and criteria and

indicators for sustainable forest development are of importance. At the national level, emphasis is on forestry and wood processing as productive sectors of the economy, and on the regulation of forest management practices. At local levels multiple forest uses providing employment, protection and recreation are of immediate concern.

Figure 9: Forest Related Issues at International, National and Local Levels



4.2 International Legal Instruments

International legal arrangements have to balance a wide range of divergent interests of governments. This is particularly true when dealing with forests and forestry, which involve environmental protection problems at a global scale, and at the same time, issues of economic and social development that are of considerable importance at national and local levels. They have, at least in their initial stage, frequently the character of soft law, meaning that they are general on purpose and provide opportunities for individual countries to determine their own approach in choosing appropriate solutions to common problems. They leave options with regard to implementation, instead of formulating precise and binding commitments. Apart from establishing legal certainty, international agreements have the role of providing working tools flexible enough to accommodate competing interests, changing situations, and evolving scientific and technical knowledge. Mechanisms facilitating a gradual adoption of responsibilities, can thus produce concrete and implementable results on the long run.

The development of international law on environment and natural resources utilisation is characterised by the establishment of enabling mechanisms. They support countries with a lower level of advancement in certain policy areas in order to agree step-by-step to the adoption of new instruments and to facilitate compliance with legally binding commitments. This has been the case, for instance, with the Montreal Protocol, where a special fund was set up to finance projects addressing the reduction or phasing out of ozone depleting substances. Another mechanism to allow for gradually increasing commitments is the use of subsidiary instruments such as the Kyoto Protocol implementing the Climate Change Convention.

International Instruments Adopted Prior to UNCED: Some international instruments were adopted prior to the Rio Conference in 1992 (*Figure 10*). A common feature is that they focus on particular issues and problems and that most of them originated within specialised agencies of the UN. They refer to specific aspects of protecting biodiversity such as the Convention on International Trade in Endangered Species (CITES), and the Ramsar Convention which protects wetlands of international importance. Other agreements address cultural and social issues needing attention on a world wide scale such as the UNESCO Convention on the World Cultural and Natural Heritage and the ILO Convention concerning Indigenous and Tribal People. The International Tropical Timber Agreement refers to trade and forest resources utilisation and operates under the UN Trade and Development Conference.

CITES is intended to control or limit international trade on endangered species of wild fauna and flora. With very cumbersome and sophisticated procedures, endangered species of trees may fall under the regulations of this convention. Two problems with CITES are it addresses only those species that are endangered, and even then its approach is not comprehensive since it only refers to import and export of such species. The Ramsar Convention imposes on contracting parties the obligation to formulate and implement their planning so as to promote the conservation and wise use of wetlands within their boundaries. The biological relation between wetlands and forestry ecosystems is well known. And it is possible to think that by protecting wetlands, some forestry ecosystems will also be protected. But for practical purposes, this link is only implicit, and there is nothing in this legal instrument that addresses forestry issues directly.

The emphasis of the UNESCO Convention is on the protection of natural and cultural heritage of outstanding universal value from the historical, aesthetic, ethnological, anthropological, scientific, geological or natural point of view. This instrument has a mechanism that enables

the establishment of "recognised sites", which may receive support under the convention. As in the previous case, it is possible to think that by protecting sites of universal value, the international community may have the chance to protect some forest sites, but there is nothing in this legal instrument that addresses forestry issues in particular. The ILO Convention establishes the obligation for state organisations to develop jointly with interested peoples, a co-ordinated and systematic action to protect the rights of indigenous peoples, and to ensure their integrity. The ILO Convention contains provisions for the protection of land-use rights of indigenous peoples as well as their traditional knowledge base. Such protection is an important action and an indispensable prerequisite for sustainable uses of forests owned by indigenous communities.

Figure 10: International Instruments Adopted Prior to UNCED 1992

Convention on International Trade in Endangered Species of Wild Fauna and Flora, CITES, 1973
 Convention on Wetlands of International Importance, Especially as Waterfowl Habitat, Ramsar Convention, 1971/1982/1987
 Convention for the Protection of the World Cultural and Natural Heritage, UNESCO, 1972
 Convention Concerning Indigenous and Tribal Peoples in Independent Countries, ILO, 1989
 International Tropical Timber Agreement, 1983/1994

International Instruments Adopted during UNCED 1992: The 1992 UNCED Conference dealt with the environment and development from a global perspective and includes forests and forestry (*Figure 11*). Three legally binding instruments (conventions) were agreed to during UNCED. In addition the conference adopted two instruments specifically related to forests that are comprehensive by intention but not legally binding. There is at present a gap between the non-binding legal instruments on forest protection and management and the formal obligations from conventions with broader objectives. This situation makes it difficult to translate global objectives into consistent national policies on forests and to develop international collaborative efforts in the forestry sector.

The Convention on Biological Diversity establishes as objectives: "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into

account all rights over those resources and to technologies, and by appropriate funding". Many provisions can be found among the obligations of the Convention, that are of relevance to forests, including: to develop national strategies, to undertake identification and monitoring of components of biological diversity, to establish systems of protected areas, to facilitate access to genetic resources, to provide access to technology and biotechnology, to protect the knowledge of traditional and indigenous communities, and to provide financial resources for developing countries. The fulfilment of these obligations is in many respects relevant to forests and forestry. The Convention does not address forestry-related issues in terms required by Chapter 11 and The Forest Principles. It does not take into account the multiple roles and values of forests, and in particular their productive development potential as renewable resources.

Figure 11: International Instruments Adopted at UNCED 1992

- Rio Declaration on Environment and Development
- Framework Convention on Climate Change
- Convention on Biological Diversity
- Convention to Combat Desertification

- The Forest Principles
- Agenda 21, Chapter 11: Combating Deforestation

The objective of the Framework Convention on Climate Change is "the stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The Convention recognises the ecological role of forests as carbon sinks. In implementing greenhouse gas reductions, countries are encouraged to improve the conditions, either by increasing the amount of land under forest cover, or at least by conserving existing forest areas. The Convention to Combat Desertification puts emphasis on land uses, with special provisions for the problems of African countries. It refers in particular to the protection of traditional knowledge, and to trade practices that may cause desertification. As in the case of other conventions, forests are implicitly addressed by several provisions of the Convention, but there is no systematic consideration of them.

The three conventions contain provisions that recognise the need of financial resources to support activities under each convention. They emphasise the need to undertake research and development in order to understand the processes that lead to the achievement of their various

objectives. At several occasions they recognise the interaction between trade activities and their objectives.

Chapter 11 of Agenda 21 and the Non-legally binding Statement of Principles for a Global Consensus on Management, Conservation and Sustainable Development of all Types of Forests (The Forest Principles) recognise the environmental, social and economic importance of forests and forestry, and suggest dealing with them comprehensively. Both texts show, that the weight given by the international community to forests has changed in qualitative and quantitative terms. They reflect the political will to approach issues in an integral manner which recognises the many uses, as well as the multiple values associated with forests. The principal limitation of Chapter 11 and the Forest Principles is the lack of mechanisms to address the problems. They mention frequently the need for additional financial resources and technologies to support countries in their efforts to implement the recommendations. But there are no commitments to provide for financial transfers or to facilitate access to appropriate technologies. International co-ordination is advocated, but its implementation is left to the good will of governments and multilateral or bilateral agencies. There is a strong emphasis on exchange of information on global or regional forest developments, but again, adequate mechanisms, such as a conference of the parties, are missing.

4.3 Policies at the Supranational Level

An interesting example for multiple policy impacts at a supranational level is that of the European Union (Cirelli and Schmithuesen 2000). It operates through Community Council Regulations and Decisions which are to be implemented by the member states either as direct EU regulations or by transfer into and adjustment of prevailing national policies and regulations. The EU not having specific competencies in forestry matters has nevertheless adopted numerous measures in other policy domains that have immediate and largely positive impacts on forests and forest management. *Figure 12* shows relevant policy domains and major impacts on forests and the forestry sector which result from them.

Figure 12: EU Policies and Regulations with Important Forestry Impacts

Policy Domain	Regulation	Forest Related Impacts
Agriculture	1096/88	Setting aside of excess agricultural land.
	2080/92	Support scheme for forestry measures in agriculture; financial support to afforestation costs and maintenance; Compensation of income losses; Investment aid improvement of woodlands; National and regional multiannual programmes.
Rural Development	1257/99	Structural Fund with specific provisions on forestry; Support for the maintenance and development of economic, ecological and social forest functions. Funding of afforestation, harvesting and processing of forest products Establishment of forestry associations
Nature Conservation	92/43	Network of protected areas (Natura 2000).
Environment	3528/86	Forest Protection against atmospheric pollution; Forest health report based on uniform inventories; Support to field experiments and pilot projects.
	2158/92	Reduction of forest fire outbreaks; Funding of monitoring and information campaigns; Classification of risk areas and preparation of forest fire protection plans; Funding of uniform reporting system.
Trade	867/90	Processing and marketing of forestry products;
	68/89	Classification of roundwood;
	66/404	Marketing of forest reproductive material.
Policy Links	15/12/98	Council Resolution on EU Forestry Strategy; Sustainable forest management, subsidiarity; Co-ordination of relevant EU policies.

Source: Cirelli and Schmithuesen 2000: 22 ff.

The evolution of Community actions shows an increasing consideration in several policy domains given to common action in the field of forestry. The complementary measures require member States to take this into account in various ways, for example, by preparing programmes to be funded, by adapting data collection procedures or adapting national policies and regulations. An important aspect is the EU funding of forestry activities in order to support the attainment of policy objectives related to agriculture, rural development, nature conservation and environmental protection.

Financial incentives are made available as structural measure or by specific regulations supporting forestry measures in agriculture. An example of the latter was Council Regulation (EEC) No 1096/88, which established a Community scheme to encourage the cessation of farming by compensating farmers who set aside for a minimum of five years at least 20% of land in order to reduce excess agricultural production. An additional grant was allowed if such land was devoted to forestry production. Council Regulation (EEC) No 2080/92 establishes a Community aid scheme for forestry measures in agriculture, covering both production and protection-oriented projects. The scheme comprises contributions to cover part of afforestation costs and maintenance costs during the first five years. Payments are made to compensate income losses to farmers due to taking agricultural land out of production. Investment aid for improvement of woodlands is granted as well. Member States must submit national or regional multi-annual programmes which set out more specific conditions subject to approval by the Community. Zonal afforestation plans, reflecting the diversity of socioeconomic and ecological conditions of agricultural structures are accepted.

More recent policy measures of the Community's "Structural Funds" for the period 2000-2006, Council Regulation (EC) No 1257/1999 include specific provisions on silviculture. The Regulation considers forestry as an integral part of rural development and provides support for the maintenance and development of the economic, ecological and social functions of forests owned by private persons or municipalities in rural areas. Measures eligible for funding include environmentally compatible afforestation and investments to improve the value of forests or the harvesting and processing of forest products. New are financial incentives for the establishment of associations of forest holders that help their members to improve sustainable and efficient forest management. Financial contributions are made to cover part of planting costs, maintenance costs for a period of up to five years, and to compensate loss of income to farmers for a maximum period of twenty years.

A significant contribution to the protection of forests' biodiversity is Council Directive (EEC) 92/43 on the conservation of natural and semi-natural habitats and wild flora and fauna (Habitat Directive). The objective of the Directive is the creation of a European network of protected areas ("Natura 2000") to be progressively set up by the member countries.

A number of policy measures emanate from environmental policy measures. Council Regulation (EEC) No 3528/86 on the protection of the Community's forests against atmospheric pollution establishes a Community scheme to protect forests one of the objective being the safeguard of the productive potential of agriculture. Member States are committed to and may obtain financial support for preparing regular reports on forest health on the basis of uniform inventories. The scheme also supports field experiments and pilot projects. A Committee on Forest Protection provides advice and assess the proposed measures presented by member governments.

Important environmental policy measures refer to forest fire control. Council Regulation (EEC) No 2158/92 on protection of the Community's forests against fires establishes a funding scheme for regular monitoring and information campaigns based on yearly programmes submitted to the Commission. Member States are obliged to classify their territory according to the degree of forest-fire risk. In high and medium risk areas protection plans to reduce fire risk respectively to combat outbreaking forest fires are to be prepared. Funding is also available for a uniform system of monitoring and reporting.

Other EU regulations refer to common standards for the collection of forestry data and the establishment of a common forestry information and communication system covering the existing situation of woodlands as well as developments in afforestation, and in harvesting, processing and marketing of forest products. With regard to trade policy Community regulations refer to processing and marketing of forestry products (Council Regulation EEC No 867/90), to the classification of roundwood (Council Directive EEC No 68/89) and to the marketing of forest reproductive material (Council Directive EEC 66/404).

With a Resolution of 15 December 1998 the Council of the European Communities has adopted a forestry strategy for the European Union. The strategy is foremost a policy co-ordinating instrument. It identifies as strategic elements sustainable forest management, the principle of subsidiarity, the participation in international processes, and the need to improve co-ordination within the Commission in policy areas relevant to the forest sector. It also stresses the need to co-ordinated activities between the Commission and member States, and to encourage participatory approaches involving more closely non-governmental

organisations. The common strategy, however, does not constitute a substantive forest policy framework to be applied in a uniform manner in the member States. The harmonisation of the forest laws, for instance, is only required with respect to few issues, such as data collecting procedures, classification of roundwood, reproductive materials, and fire protection procedures.

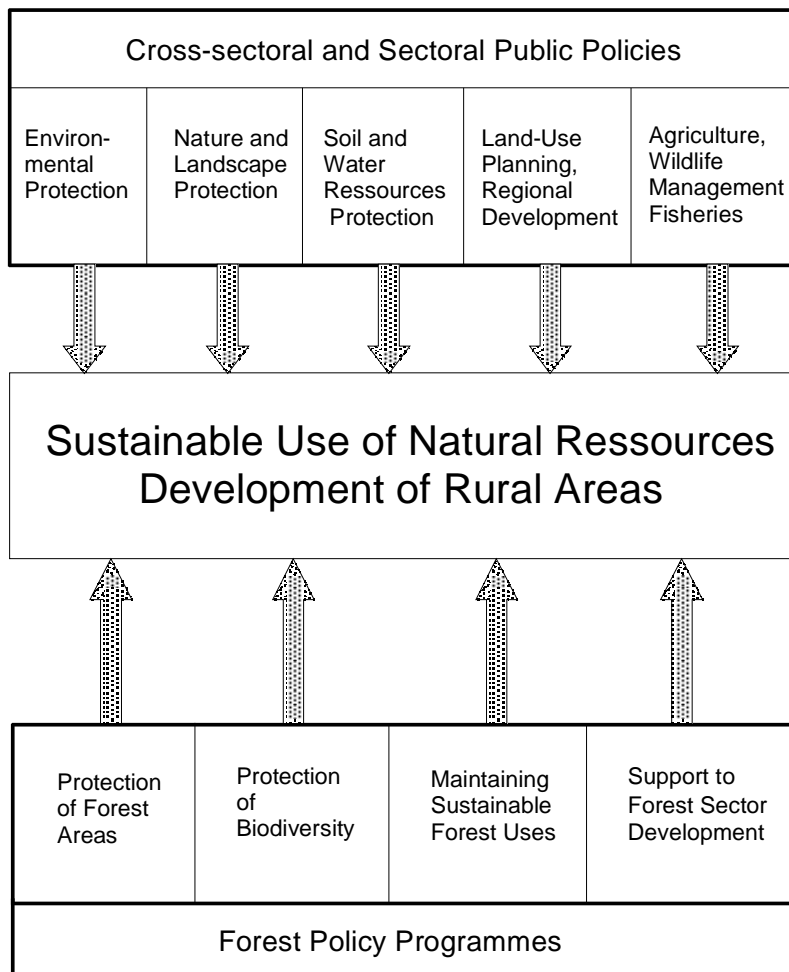
4.4 Policy Networks

Networks. The term network is used for complex situations where many actors work together without being submitted to a clearly determined hierarchy. It is the relationship between the various actors involved that is of particular interest. With the words of Hanf and Scharpf (1978: 12) “the term “network” merely denotes (...) that policy making includes a large number of public and private actors from different levels and functional areas of government and society”. Typically political networks in a democratic societies show pluralist and neo-corporate structures. Pluralist structures mean that many interest groups compete for influence in public decision making. Neo-corporate structures refer to a situation with few influential interest groups which negotiate compromises with public authorities and administrative agencies.

The role of states and governments is not only to be seen in direct interventions in society, but increasingly as a mediator between different societal actors (Mayntz 1992). Network management thus refers to any purposeful attempt to guide political interventions and to coordinate decision-making processes among a large number of private and public actors with often controversial interests in different policy areas and at various levels of government. Managing policy networks is a difficult and complex task which often requires mediation and alternative conflict resolution techniques.

The understanding of networks is based on an insight into which policy objectives are interconnected. *Figure 13* shows as an example a combination of objectives addressing sustainable use of natural resources and development of rural areas. It relates environmental and natural resources development to the more specific policy goals of forest development. Network analysis examines the consequences which follow from existing links for political steering processes. It refers to the relations between actors and stakeholders that are concerned by and/or in a position to influence political decisions. This includes, for instance, governmental agencies, private firms, private and public associations, non-governmental organisations, or key persons and personal leadership.

Figure 13: Example of Policies Addressing of Natural Resources Development



Relevant criteria for assessing the effectiveness of policy networks that offer a co-ordinated framework for natural resources development and sustainable forest management are the following ones (*Figure 14*):

Consistency: requires the compatibility regulations with constitutional values and democratic rules, with public policies addressing land-use, economic development and environmental protection, and in accordance with international commitments and multilateral agreements.

Comprehensiveness refers to the policy objectives with regard to forest protection and forestry development, to different types of forest tenures, and to the rights and responsibilities of various categories of forest owners.

Subsidiarity: relates to the role of forests as national, regional and local resources as well as to the double role of forests as private production means that may be used according to the decisions of land owners, and as resources that yield numerous benefits to the community.

Applicability: refers to the policy framework as a whole and to the role of public administrations. It depends on clearly established responsibilities and tasks, and to appropriate forms of participation of forest owners and interest groups in regulating forest

uses and management practices. Co-ordination of competencies among public entities is an important aspect in evaluating the applicability of policies and regulations

Figure 14: Criteria for Assessing the Effectiveness of Policy Networks

Consistency	Compatibility with Constitutional Values and Democratic Rules Compatibility of Forest Policy with other Land Management Policies Accordance with International Commitments and Multilateral Agreements
Comprehensiveness	Policy Objectives Forest Tenures Rights and Responsibilities of Landowners
Subsidiarity	Multiple Role of Forest Resources Private Use and Management Rights Public Interest in Sustainable Forest Management Regulations, Incentives and Support Measures
Applicability	Framework and Co ordination Public Administrations Responsibilities and Involvement of Land Owners Participation of Stakeholders Planning, Monitoring and Evaluation Procedures

Measures of Co-ordination: Co-ordination mechanisms and network management include several possible approaches with different policy outputs and outcomes. The following institutional aspects are relevant:

- Co-ordinated planning and consultation procedures;
- Inter-ministerial co-ordination mechanisms;
- Establishment of public fora for informal or formal exchanges between different stakeholder groups;
- Establishment of effective co-ordination procedures among public administrations,
- Allocation of resources to governmental departments and units commensurate with their responsibilities and cross-sector linkages;

In order to seize potentials and boundaries of co-ordination, it is helpful to use Scharpf 's distinction between positive and negative co-ordination. In positive co-ordination actors try to optimise the utility of all activities to be envisaged. They evaluate the options and likely commitments of all actors and parties involved and choose what they consider the optimal solution to them. A prerequisite for positive co-ordination is that the participating actors share a clear understanding of the advantages and disadvantages which may accrue to each party. Actors that are bound to have to accept disadvantages should be compensated in order to keep

them as partners in a longer term co-operation. Multilateral co-ordination needs to be institutionalised and has to provide a guarantee that the focus is on issues of common interest that are to be negotiated. To maintain and develop the already existing co-ordination and co-operation patterns is of considerable interest since the creation of new policy networks is usually quite costly.

Negative co-ordination on the other hand implies the reduction of the degree of inferences from one agency with the competencies of other units. A comparatively frequent case is negative co-ordination on a bilateral level with only two agencies or actors. It requires the precision of the responsibilities and the terms of activities of the interfering actor by limiting his sphere of intervention to his constitutional and/or administrative mandate. Negative co-ordination is unlikely to promote new solutions but helps to clarify the competencies of government and administration as consistent with the objectives and instruments of the prevailing public policies.

Administrative co-ordination is complementary element to the establishment of organisational structures. It cannot replace the formal distribution of competencies and resources among governmental agencies. Co-ordination functions well if it generates additional benefits for at least one of the involved partners. It is effective and smoothly operating if the majority of the partners, be it within the administrations or in combination with external interest groups, can rely on policy objectives and linkages with positive effects. However, one has to be aware of the limits of inter-administrative co-ordination, especially if important and largely controversial interests shape the content of different public policies and if cross-sector linkages have largely impeding or contradictory effects. Administrative co-ordination procedures have limited potential and become easily inoperable if competencies and resources are unequally distributed or if the redistribution of responsibilities and resources is at stake. In such a situation political and/or hierarchical decisions on a higher level within government are required. Decisions from outside will be more effective and enable the actors involved to develop a more rational and efficient way to co-ordinate various policy goals and policy instruments (Scharpf 1993 20-22, 76, 89-91).

National Forest Programmes (NFP) are actually promoted as co-ordination and planning instruments at the national and sub-national level. Their purpose is to reach the goals of sustainable forest development use through a holistic approach different from previous sector planning procedures. Within NFP, inter-sector approaches are seen as a necessary core element (CSD 1997: § 10). This reflects lessons learned from formerly developed policy and

planning instruments, and in particular from the Tropical Forestry Action Plan (TFAP). Experiences with such action plans at country level have shown that many actions failed to halt, for instance, deforestation because the approach, and the objectives and instruments concentrated too narrowly on forest sector policies only (Humphreys 1996: 44).

So far, knowledge and experiences on how to deal with cross-sector policy impacts within the framework of National Forest Programmes is limited. Recommendations made by FAO stipulate that such programmes need a multidisciplinary effort to become successful, that professionals in different fields and with different land use experiences should be associated during their preparation, and that cross-sector linkages have to be taken into account (FAO 1996: 18, 34). Examples for national co-ordination mechanisms such as a high-level inter-ministerial co-ordinating bodies are proposed (FAO 1996: 31-2). The importance is stressed to develop effective administrative procedures, to elaborate a well structured, transparent and accessible information and data base, and to establish procedural arrangements for a continuing dialogue among stakeholders (FAO 1996: 47).

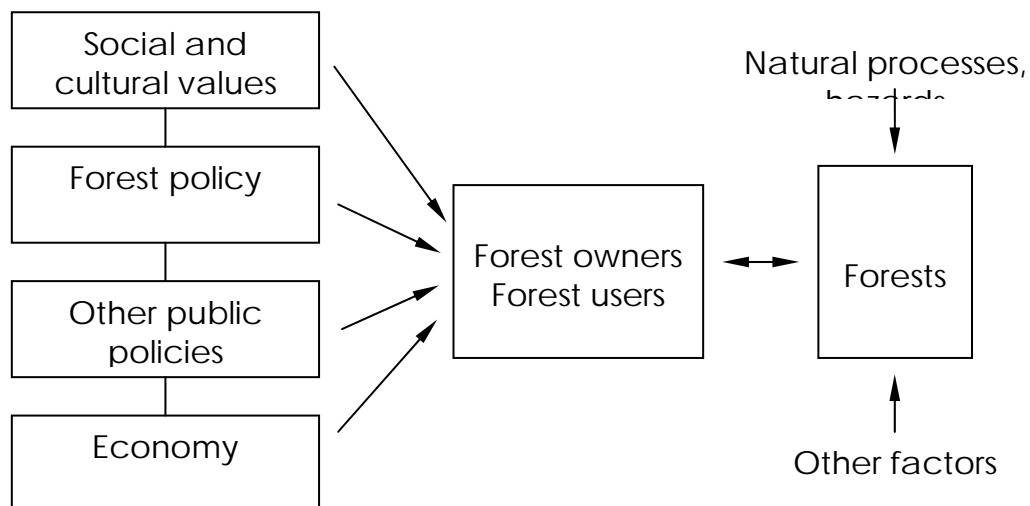
Interagency Co-ordination: A current is that sector responsibilities remain with the competent government units but administrative procedures and regular meetings are institutionalised to inform, negotiate and decide on cross-sector issues (Knoepfel 1995). An independent unit is charged to organise, moderate and mediate the meetings. A second option is to bridge the gaps between different administrations by implanting cells in other relevant departments. A forestry cell, for instance, in a land use office will be in a position to explain and advocate the rationale of requirements for sustainable forestry development. If the new procedures prove viable in the administrative environment, a review of the repartition of competencies and responsibilities may be appropriate. As a third option is to handle specialised issues in a less downright manner, for example through filling vacancies with staff from other professional backgrounds. This is a rather informal but sometimes effective way to increase the knowledge and understanding for the potential and requirements of cross-sector relations.

Role of Land Owners and Forest Users: Land owners and land users play a key role as actors in natural resources management networks. In fact many of the related public policy objectives as well as positive and negative cross-sectoral impacts which result from them influence strongly individual land management decisions and the behaviour of the users. Impacts of different public policies on the behaviour of forest owners and users forms the primary cause-effect relation (Knoepfel et al. 1997: 103). Impact means in this context not only influences on identifiable actions but t also lack of influence in orienting or changing

behaviours of the target addressees. Some behaviours are particularly important to observe like forest clearing, timber harvesting, uses of non-wood products, utility of forest services, management practices, and biodiversity conservation and nature protection. The key issue is to determine what public policies mean exactly in a given context and to what extent they exercise positive and negative impacts they have on land owners and users on forest owners, and ultimately on the state of forests and natural resources management.

Figure 15 presents the corresponding framework. Focussing on an actor-centred approach the behaviour of forest owners and forest users is considered as a key determinant for evaluating the impact of public policies on the state, use and management of forests. The particular characteristics of the prevailing ecosystems determine to a large extent the scope of action and establish a reciprocal relationship between the state of forests and land owners and users. The state of the forest is also considerably influenced by natural processes and hazards. Socio-economic factors that influence the actions of forest owners and users are indicated on the left side of the figure. They are determined by social and cultural values, national and local economies, desired good and services as economic outputs, and by public policies and their effects and impacts. All of these factors are interwoven with each other.

Figure 15: Framework Explaining Behaviour of Forest Owners and Users



Source: Schmithuesen, Bisang and Zimmermann 2001: 43

Policy Outcomes: Of interest in the present context are the outcomes of forest policy but also of other public policies having impacts on the state and development of forests. How are

environment and natural resources management influenced through the behaviour of forest owners and users which are addressed by the objectives and instruments of the relevant public policies? The answer to this question characterises in fact the actual net effects of a policy network related to forests and forestry (Rossi and Freeman 1993: 214). Important effects to be observed are, for instance, the size and distribution of forest land, the stand volumes maintained, the variety of flora and fauna, and the sustainability of forestry practices.

Choice of Policy Instruments: A distinction is to be made between policy instruments related to public regulation, market intervention, market facilitation, and to persuasion and information (Merlo and Paveri 1997, Le Master 2002; *Figure 16*). The use of policy instruments presently in a process of change, putting more emphasis on financial incentives, persuasion and participatory procedures than on regulation. Labelling, for example, aims to influence the behaviour of timber customers by making the external costs of products more transparent. Another trend is to seek voluntary agreements between land owners and the public sector for the establishment of nature protection zones by compensating them for income losses from alternative uses. As measures can be more effectively if implemented by many stakeholders who understand and agree on them, procedural and persuasive instruments are more widely used. Regional planning, the Local Agenda 21, and other participatory and co-ordination mechanisms are important policy steering instruments in this context.

Shift from Regulation to Joint Management Responsibilities: A shift from state control to legislation which favours new forms of joint management involving forest owners, the private sector, non-governmental organisations and public authorities takes place at present. Legislation sets a frame for defining the requirements and performance standards of the parties concerned. It supports efforts to develop co-operative forms of decision-making and contractual arrangements with third parties. Guidelines for best management practices, procedures for mediation and the exchange of information become institutionalised. Public authorities are increasingly involved in process-steering and in implementing more comprehensive programmes of land management. Negotiated activities on a contractual basis replace direct governmental intervention and require a more precise determination of targets, outcomes and impacts of public policies.

With a shift to more collaborative policies informational and persuasive instruments gain considerable weight. Monitoring and evaluation of concrete results in implementing a given policy are required in order to ensure greater involvement of citizens and stake-holder groups in policy decision making processes. Process steering and organisational instruments are of

particular importance in order to provide for a more consistent policy framework. They regulate organisational structures and competencies of public administrations, as well as communication between governmental services and non-governmental organisations. This implies, for instance, the designation of lead agencies, the organisation of public hearings, and environmental assessment and evaluation procedures. There is an increasing tendency to separate more clearly the regulatory function of public administrations from their role as managers of land and natural resources.

Figure 16: Classification of Policy Instruments

Regulative Instruments	Property Rights Status of Forest Lands Resource Protection Management Obligations Land Owner Responsibilities Planning/Programming
Market Intervention	Public Land Management Public Purchases Public Insurance Programmes Public Compensations Public Incentives and Grants Taxation Policies Public Infrastructures
Market Facilitation	Marketing Boards and Contractual Arrangements Prices and Tariffs Management Agreements Marketing of Environmental Goods and Services
Persuasion/Information	Public Education and Information Dissemination Extension, Advice and Technical Assistance Information Gathering and Research

Source: Merlo and Paveri 1997; Le Master et al. 2002 (modified)

Financial Arrangements for Multiple Forestry Outputs: Sustainable uses of forests mean that the rate of resource consumption and the environmental impacts which follow from it are a constitutive part of management decisions. The use of forests is not a mobilisation of production inputs and consumption values without costs. Sustainable forestry practices require re-investment or new investments to maintain and increase productivity and an adjustment of use intensities to the available potential. This needs a legitimate basis for arbitration between many economic and social interests.

Public policies and regulations that favour an adequate transfer of resources, are instrumental for generating a combination of private and public benefits and for developing the potential of the rural space. They set frame-conditions for interactions between land owners, immediate beneficiaries and public entities in accordance with the principle of subsidiarity. Rural policies have to be concerned with multiple outputs and services from productive land management and natural resources conservation requiring different sources of financing (Pratt and Preston 1998). In addition to market proceeds, this may include contributions from user groups, as well as incentives and compensations from different levels of the political community. Such an approach leads to a sharing of financial commitments, which is consistent with the economic realities of multiple-use forest land management.

Bibliography

- Abeywickrema, N. (1987). "Forestry Sector Policies and their Impact on Implementation of Irrigation Power Generation Programmes". FAO, Rome.
- Abramovitz; J.N.; Mattoon, A.T. (2000). "Paper Cuts - Recovering the paper Landscape". Worldwatch Paper 149
- Amelung, T. and Diehl, M. (1992). "Deforestation of Tropical Rain Forests. Economic Causes and Impact on Development", Vol. 241. Mohr, Tübingen.
- Angelsen, A. and Kaimowitz, D. (1999), "Rethinking the Causes of Deforestation: Lessons from Economic Models", World Bank Research Observer, 14, 73-98.
- Aylard, B. (forthcoming). "Economic Analysis of Land-use Change in a Watershed Context".
- Barr, Ch. (2000). "Profits on paper - The Political Economy of Fiber, Finance, and Debt in Indonesia's Pulp and Paper Industries". In: Barr, Ch.: Banking on Sustainability - A Critical Assessment of Structural Adjustment in Indonesia's Forest and Estate Crop Industries. CIFOR and WWF, Macroeconomics Program Office.
- Barr, Ch. (forthcoming). "Will HPH Reform Lead to Sustainable Forest Management? - Questioning the Assumptions of the "Sustainable Logging" Paradigm in Indonesia". In Colfer, C.J.; Pradnja Resosudarmo, I.A., eds, (forthcoming): Which Way Forward? - Forests, Policy and People in Indonesia. Resources for the Future, Washinton, D.C.
- Benz, A. (1999): Multi-Level Governance. In: Glück et al., eds, 1999. Formulation and Implementation of National Forest programmes. Vol. I Theoretical Aspects, 73 - 84; EFI Proceedings No. 30, European Forest Institute, Joensuu, Finland.
- Bradburn N. M. and Sudman, S. (1988). "Polls and Surveys: understanding what they tell us" Jossey-Bass, San Francisco.
- Broadhead, J. (2001). "Cross-Sectoral Policy Impacts in Forestry – Exmaples from within and outside FAO". Forestry Department, FAO, Rome.
- Broadhead, J.; Dubé, Y.C. (2002). "Cross-sectoral Policy Impacts in Forestry". Working Document (forthcoming)

- Brunner, A.G.; Gullison, R.E.; Rice, R.E.; da Fonseca, A.B. (2001) "Effectiveness of Parks in Protecting Tropical Biodiversity". *Science* 291: 125-128-
- Buttoud, G. (1998). "Les politiques forestières", Vol. 3335. Presses Universitaires de France, Paris.
- CIFOR. Center for International Forestry Research: Poley Listserv - D. Kaimowitz
- Cirelli, M. T. (1999). "Trends in Forestry Legislation: Central and Eastern Europe". *FAO Legal papers Online* Nr.2; Rome: <http://www.fao.org/Legal/default.htm> .
- Cirelli, M.-T.; Schmithüsen, F. (2000). "Trends in Forestry Legislation: Western Europe" *FAO Legislative Study*, Rome, Online Nr. 10: http://faolex.fao.org/faolex_eng/index.html
- Commission on Sustainable Development (1996). "Forests in the Global Political Debate. The Intergovernmental Panel on Forests: its mandate and how it works". United Nations, New York <http://www.un.org/esa/sustdev/ecn17ipf1996-ifp.htm> .
- Commission on Sustainable Development (1996). "Implementation of Forest-Related Decisions of the United Nations Conference on Environment and Development at the National and International Levels, including an Examination of Sectoral and Cross-Sectoral Linkages. Progress in National Forest and Land-Use Plans.". United Nations, New York <http://www.un.org/documents/ecosoc/cn17/ipf/1996/ecn17ipf1996-8.htm> .
- Commission on Sustainable Development (1997). "Report of the Ad Hoc Intergovernmental Panel on Forests on its fourth session (New York, 11-21 February 1997). E/CN.17/1997/12" United Nations Commission on Sustainable Development, New York.
- Communities, European (1999), "Council Regulation (EC) No 1257 of 17 May 1999 on Support for Rural Development from the European Agricultural Guidance and Guarantee Fund (EAGGF) and amending and repealing certain Regulations", *Official Journal of the European Communities*, 80-102.
- Contreras, A. (2000). "Selected Forest Institutional Issues in Africa. Draft for Comments" *FAO/World Bank*, Rome/Washington D.C.
- Contreras, A. (2000). "The Underlying Causes of Forest Decline" *CIFOR*, Bogor.
- Csóka, P. (1998). "Forest Policy Activities in the Countries in Transition in their Preparation for the EU" In: Glück, P., Kupka, I. and Tikkanen, I. (eds.) *Forest Policy in the Countries in Transition - Ready for the European Union?*, Vol. 21. European Forest Institute, Joensuu , pp. 9-20.
- Cubbage, F. W. and Siegel, W. C. (1997). "The Impact of Federal Environmental Law on Forest Resource Management in the United States" *IUFRO World Series* Volume 7: 93-108; IUFRO Secretariat, Vienna. .
- Cubbage, F., O'Laughlin, J. and Bullock, C. *Forest Resource Policy*, 1993 ed. John Wiley & Sons, New York/Chichester .
- de Montalembert, M.-R. and Schmithüsen, F. (1993), "Policy and Legal Aspects of Sustainable Forest Management", *Unasylva*, 44: 3-9.
- de Montalembert, M.-R. (1994). "Cross-sectoral Linkages and the Influence of External Policies on Forest Development" *Second Meeting of the Malaysia-*

- Canada co-sponsored Intergovernmental Working Group on Global Forests, Ottawa , pp. 23.
- de Montalembert, M.-R. (1995), "Cross-sectoral Linkages and the Influence of External Policies on Forest Development", *Unasylva*, 46, 25-37.
- ECOSOC (2000). "Draft Resolution. Report of the fourth session of the Intergovernmental Forum on Forests", Vol. E/2000/L.32*. United Nations Economic and Social Council, New York.
- FAO (1993). "Forestry Policies of Selected Countries in Asia and the Pacific", FAO Forestry Paper Nr. 115, Rome.
- FAO (1994). "The State of Food and Agriculture 1994". FAO, Rome.
- FAO (1996). "Forestry Policies of Selected Countries in Africa": FAO Forestry Paper Nr. 132, Rome.
- FAO (1996). "Formulation, Execution and Revision of National Forestry Programmes. Basic Principles and Operational Guidelines" Food and Agriculture Organization of the United Nations, Rome.
- FAO (1998). "Forestry Policies in the Caribbean and Latin America". FAO Forestry Paper No. 137/1 and 137/2, Rome.
- FAO (1998). "Trends in Forestry Law in America and Asia". FAO Legislative Study No. 66, Rome. (French and Spanish Version published in 1999)
- FAO (1999). "State of the World's Forests". Food and Agriculture Organization of the United Nations, Rome <http://www.fao.org/forestry/FO/SOFO/SOFO99/sofo99-e.stm> .
- FAO (2000): "Pulp and paper capacities. Survey 1999-2004". United Nations Food and Agriculture Organisation, Rome.
- FAO (2001). "Trends in Forestry Law in Africa and Europe". FAO Legislative Study No. 72, Rome.
- FAO (2002). "Law and Sustainable Development Since Rio: Legal Trends in Agriculture and Natural Resource Management". FAO Legislative Study No 73, Rome.
- FAO/ECE/ILO (2000). Public Participation in Forestry in Europe and North America. Joint Committee Team of Specialists on Participation in Forestry, Working Paper 163; Sectoral Activities Department, International Labour Office, Geneva.
- Flick, W.A. (1997). "Ecosystem Management as American Law". IUFRO World Series Volume 7: 193-203; IUFRO Secretariat, Vienna.
- Gaddis, D.A.; Cabbage, F.W. (1997). "A century of Wetland Protection and Legislation in the United States - Dredging Navigational Rivers to Preserving Flatwoods Fundtions and Values", IUFRO World Series Volume 7: 144-161; IUFRO Secretariat, Vienna.
- GAO (1990). "Case Study Evaluations" United States General Accounting Office. Program Evaluation and Methodology Division, Washington D.C.
- GAO (1991). "Designing Evaluations. GAO/PEMD-10.1.4" United States General Accounting Office-Program Evaluation and Methodology Division, Washington D.C.

- Glück, P., Kupka, I. and Tikkanen, I. (1998). "Forest Policy in the Countries with Economies in Transition - Ready for the European Union?" EFI Proceedings, Vol. 21. European Forest Institute, Joensuu , pp. 171.
- Hanf, K. and Scharpf, F. W. (1978). "Interorganizational Policy Making: Limits to Co-ordination and Central Control" Sage, London.
- Hickman, C.A. (1997). "Federal Protection of Threatened and Endangered Species - Implications for Forest Resource Management in the United States". IUFRO World series Volume 7: 116-132, IUFRO Secretariat, Vienna.
- Hickman, C.A.; Hickman; M.R. (1997). "Legal Limitations on Governmental Regulation of Private Forestry in the United States". IUFRO World Series Volume 7: 291-304; IUFRO Secretariat, Vienna.
- Hodges, D.G. (1997). "A Review of Federal and State Law Affecting the Use of Prescribed Fire for Silvicultural Operations in the Southern United States", IUFRO World Series Volume 7: 162-169; IUFRO Secretariat, Vienna.
- Hopple, G. W. and Kuhlmann, J. A. (1981). "Expert-Generated Data. Applications in International Affairs". Westview Press, Boulder .
- Humphreys, D. (1996). "Forest Politics. The Evolution of International Co-operation" Earthscan, London.
- Intergovernmental Forum on Forests (1999). "Report of the Intergovernmental Forum on Forests on its third session". United Nations, Geneva
<http://www.un.org/esa/sustdev/iff3.pdf>.
- IPCC (2001). "Climate Change Impacts, Assessment, and Vulnerability - A Summary for Policymakers". International Panel for Climate Change.
- IUFRO Research Group 6.1300: Forest Law and Environmental Legislation – Current Bibliography Online: <http://iufro://boku.ac.at/iufronet/d6/hp61300.htm>
- Jagger, P.; Pender J. (2000). "The Role of Trees for Sustainable Management of Less-Favored Lands - The Case of Eucalyptus in Ethiopia". EPTD Discussion Paper Nr. 65; International Food Policy Research Institute, Washington D.C.
- Jorgensen, D. L. (1989). "Participant Observation: a Methodology for Human Studies", Vol. 15. SAGE, Newbury Park.
- Kaimowitz, D. (1996). "Livestock and Deforestation. Central America in the 1980s and 1990s: A Policy Perspective" CIFOR, Jakarta.
- Kaimowitz, D., Byron, N. and Sunderlin, W. (1998). "Public Policies to Reduce Inappropriate Tropical Deforestation" In: Lutz, E., Binswanger, H., Hazell, P. and McCalla, A. (eds.) Agriculture and the Environment. Perspectives on Sustainable Rural Development. World Bank, Washington D.C. , pp. 302-22.
- Kaimowitz, D. and Angelsen, A. (1999). "The World Bank and Non-Forest Sector Policies that Affect Forests".
- Kaiser, F.H.; Royer, J.P. (1997). "The Appropriate Role of U.S. Government Programs in Fostering U.S. Forest Investment". IUFRO World Series 7: 329-335; IUFRO Secretariat, Vienna.
- Knoepfel, P. (1995). "New Institutional Arrangements for a New Generation of Environmental Policy Instruments: Intra- and Interpolicy Co-operation" In:

- Dente, B. (ed.) *Environmental Policy in Search of New Instruments*. Kluwer Academic Publishers, Dordrecht , pp. 197-233.
- Knoepfel, P., Varone, F., Bussmann, W. and Mader, L. (1997).
 "Evaluationsgegenstände und Evaluationskriterien" In: Bussmann, W., Klöti, U. and Knoepfel, P. (eds.) *Einführung in die Politikevaluation*. Helbing & Lichtenhahn, Basel, Frankfurt am Main , pp. 78-118.
- Knoke, D. and Kuklinski, J. H. (1982). "Network Analysis" Sage, Beverly Hills.
- Knoke, D. and Kuklinski, J. H. (1991). "Network Analysis: Basic Concepts" In: Thompson, G., Frances, J. and Levacic, R. (eds.) *Markets, Hierarchies and Networks: The Coordination of Social Life*. Sage, London , pp. 173-182.
- Le Master, D.C.; O'Leary, J. T. Sample, V.A. (1997). "Forest Service Response to Changing Public Values, Policies and Legislation During the Twentieth Century in the United States", *IUFRO World Series Volume 7*: 43-76; IUFRO Secretariat, Vienna.
- Le Master, D.C.; Block, N.E.; Owubah, C.E. (2002): "Selection of Policy Tools in Multilevel International Networks". In: *Forest Law and Environmental Legislation - Contributions from the IUFRO Research Group 6.13; Forest Science Contributions No 27*, Swiss Federal Institute of Technology, Zurich.
- Limacher, S., Kübler, D., Kissling-Näf, I. and Zimmermann, W. (1999). "Sustainability Assessment of Swiss Forest Policy. Background Report" Chair of Forest Policy and Forest Economics, Zürich.
- Linstone, H. A. and Turoff, M. (1975). "The Delphi Method. Techniques and Applications". Addison-Wesley, Reading .
- Liss, B.-M. (1999). "The Role of the Tropical Forests Action Programme and National Forest Programmes in Sustainable Forest Development" In: Glück, P., Oesten, G., Schanz, H. and Volz, K.-R. (eds.) *Formulation and Implementation of National Forest Programmes. Volume I: Theoretical Aspects, Vol. 30*. European Forest Institute, Joensuu , pp. 26-38.
- Luckert, M.K.; Haley, D. (1997). "Problems Governments Face when Designing Forest Tenure Systems – An Overview of Canadian Tenures". *IUFRO World Series Volume 7*: 217-228; IUFRO Secretariat, Vienna.
- Mandondo, A. (2000). "Forging (un)democratic Resource Governance Systems from the Relic of Zimbabwe's Colonial Past. Institute of Environmental Studies/University of Zimbabwe and CIFOR.
- Mayntz, R. (1992), "Modernisierung und die Logik von interorganisatorischen Netzwerken", *Journal für Sozialforschung*, 32, 19-32.
- Mayring, P. (1990). "Qualitative Inhaltsanalyse: Grundlagen und Techniken" Deutscher Studien Verlag, Weinheim.
- Merlo, M.; Paveri, M. (1997): "Formation and Implementation of Forest Policies: A focus on the Policy Tools Mix". In: *Policies, Institutions and Means for Sustainable Forestry Development, XI World Forestry Congress, Antalya, Turkey*.
- Michaelsen, T. (2000). "National Forest Programmes in the IPF/IFF Process" In: Europe, M. C. o. t. P. o. F. i. (ed.) *The Role of National Forest Programmes in the Pan-European Context. Presentations and outcomes of the NFP workshop*

- organised by the MCPFE in Tulln/Austria, 13-14 September 1999. MCPFE. Liaison Unit, Vienna , pp. 11-14.
- Nohlen, D., Schultze, R.-O. and Schüttemeyer, S. S. (1998). "Lexikon der Politik. Band 7. Politische Begriffe". C.H.Beck, München , pp. 744.
- Obser, A. (1999): Patterns of Nested "Institutional Governance" in National Forest Management – The Case of Criteria and Indicators of Sustainable Forest Management. In: Glück et al., eds, 1999. Formulation and Implementation of National Forest programmes. Vol. I Theoretical Aspects, 197-213, EFI Proceedings No. 30, European Forest Institute, Joensuu, Finland.
- OECD (1994). "Natural Resource Accounts: Taking Stock in OECD Countries", Vol. 84. OECD, Paris.
- OECD (1999). "Indicators for the Integration of Environmental Concerns into Transport Policies" Working Group on the State of the Environment, Paris.
- OECD (2000). "Assessing the Environmental Effects of Trade Liberalisation Agreements: Methodologies" OECD, Paris.
- Parsons, W. (1997). "Public Policy. An Introduction to the Theory and Practice of Policy Analysis", paperback ed. Edgar Elgar, Cheltenham.
- Peck, T. J.; Descargues, J. (1997). "The Policy Context for the Development of the Forest and Forest Industries Sector in Europe" United Nations Economic Commission for Europe, New York and Geneva.
- Peck, T.; Descargues, J. (1997). "Le context politique pour le développement du secteur de la forêt et des industries forestières en Europe", Forstwissenschaftliche Beiträge Nr. 18; Professur Forstpolitik und Forstökonomie, ETH, Zurich.
- Repetto, R. and Gillis, M. (1988). "Public Policies and the Misuse of Forest Resources". Cambridge University Press, Cambridge and New York , pp. 432.
- Rossi, P. H. and Freeman, H. E. (1993). "Evaluation. A Systematic Approach", fifth ed. SAGE, Newbury Park.
- Rossi, P. H., Freeman, H. E. and Hofmann, G. (1988). "Programm-Evaluation. Einführung in die Methoden der angewandten Sozialforschung" Enke, Stuttgart.
- Rubin, H. J. and Rubin, I. S. (1995). "Qualitative Interviewing: the Art of Hearing Data" Sage, Thousand Oaks.
- Rudel, T. K., Flesher, K., Bates, D., Baptista, S. and Holmgren, P. (2000), "Tropical Deforestation Literature: Geographical and Historical Patterns", *Unasylva*, 51, 1-12.
- Sabatier, P. A. (1988), "An Advocacy Coalition Framework of Policy Change and the Role of Policy Oriented Learning therein", *Policy Sciences*, 21, 129-168.
- Scharpf, F. W. (1993). "Co-ordination in Hierarchies and networks" In: Scharpf, F. W. H. (ed.) *Games in Hierarchies and Networks*. Campus/Westview, Frankfurt u.a. , pp. 125-165.
- Scharpf, F. W. (1993). "Positive und negative Koordination in Verhandlungssystemen" In: Héritier, A. (ed.) *Policy-Analyse. Kritik und Neuorientierung*, Vol. 24. Westdeutscher Verlag, Opladen , pp. 57-83.

- Schmithüsen, F.; de Montalembert, M.-R. (1991). "Current Trends in Forest Policies". Position Paper 10th World Forestry Congress; Revue forestière Française, Hors Série Volume 7: 9-18, Paris.
- Schmithüsen, F. (1995). "Evolution of Conservation Policies and their Impact on Forest Policy Development – The Example of Switzerland". The Commonwealth Forestry Review: Special Issue on Forestry and Nature Conservation; Volume 74 (1): 45-50.
- Kaimowitz, D., Byron, N. and Sunderlin, W. (1998). "Public Policies to Reduce Inappropriate Tropical Deforestation" In: Lutz, E., Binswanger, H., Hazell, P. and McCalla, A. (eds.) Agriculture and the Environment. Perspectives on Sustainable Rural Development. World Bank, Washington D.C. , pp. 302-22.
- Schmithüsen, F. and Siegel, W. C. (1997). "Developments in Forest and Environmental Law Influencing Natural Resource Management and Forestry Practices in the United States of America and Canada. Selected Contributions submitted to the IUFRO Research Group 6.13.00 Forest Law and Environmental Legislation". IUFRO Secretariat and Chair of Forest Policy and Forest Economics, Vienna and Zurich , pp. 375.
- Schmithüsen, F. (2000). "The Expanding Framework of Law and Public Policies. Governing Sustainable Uses and Management in European Forests". In: Schmithüsen, F., Herbst, P. and Le Master, Dennis C. (ed.): Forging a New Framework for Sustainable Forestry: Recent Developments in European Forest Law". IUFRO World Series Volume 10. IUFRO, Vienna, pp. 1-27.
- Schmithüsen, F.; Herbst, P.; Le Master, D.C., Eds, (2000): Forging a New Framework for Sustainable Forestry – Recent Developments in European Forest Law. IUFRO World Series Volume 10; IUFRO Secretariat, Vienna.
- Schmithüsen, F.; Bisang, K.; Zimmermann, W. (2001): Cross-sectoral Linkages in Forestry – Review of Available Information and Considerations on Further Research. Paper Prepared for the Policy and Institutions Branch, Policy and Planning Division; Forestry Department, FAO, Rome. 56 pp. (unpublished)
- Schubert, K. (1991). "Politikfeldanalyse" Leske & Buderich, Opladen.
- Siegel, W.C. (1997). "The Interaction of State and Federal Water Quality Legislation in the 133-143; IUFRO Secretariat, Vienna.
- Siegel, W.C.; Martus, C.E. (1997). "Local Government Forest Ordinances in the United States". IUFRO World Series Volume 7; IUFRO Secretariat, Vienna.
- Tarasofsky, R.G., (1995): The International Forest Regime – Legal and Policy Issues. IUCN/WWF, 1995
- Tsering, Decheng (2000). "Biodiversity Policy in Bhutan". Doctoral Thesis at the chair of Forest Policy and Economics. Swiss Federal Institute of Technology, Zürich.
- UNECE/FAO (1996). "European Timber Trends and Prospects: Into the 21st Century", Vol. 11. United Nations, Geneva.
- UNECE/FAO (2002): Study on Scenarios with Major Impacts on the European Forest Sector. United Nations, New York and Geneva. (forthcoming)
- United Nations Conference on Environment and Development (1992). "Agenda 21" UNCED, Rio.

- United Nations Forum on Forests (2001). "Suggestion for a Multi-Year Programme of Work of the United Nations Forum on Forests", Vol. 1. United Nations Forum on Forests, New York.
- von Prittwitz, V., Wegrich, K., Bratzel, S. and Oberthür, S. (1994). "Politikanalyse" Leske und Budrich, Opladen
- Wallace, J.-L. (1997). "Evolution of Timber Revenue Policies on Crown Land in the Province of Ontario/Canada". IUFRO World Series Volume 7: 273-290; IUFRO Secretariat, Vienna.
- Wear, D.N.; Steward, F.J. (1997). "Determining Timber Harvest Levels and Selling Public Timber in the United States". IUFRO World Series Volume 7: 170-192; IUFRO Secretariat, Vienna.
- World Bank (1991). "The Forest Sector". World Bank, Washington D.C.
- World Bank (1993). "Argentina - Forestry Sector Review". World Bank, Washington D.C. .
- World Bank (1998). "Forest Policy Implementation Review and Strategy. Initiating Memorandum" World Bank, Washington D.C.
- World Bank's Forests Team (2000). "Toward a Revised Forest Strategy for the World Bank Group, Draft Discussion Paper, December 24, 2000, with an Introductory Note from the World Bank's Forests Team" World Bank, Washington D.C.
- Wunder, S. (2000). "Oil Wealth and the Fate of the Forest: Gabon (Draft)". CIFOR, Bogor.
- Wyss, S. and Zimmermann, W. (1997). "Kohärenz durch Kooperation und Koordination. Ansätze und Fragmente der politikwissenschaftlichen Theorie und empirische Beispiele aus der Regional- und Umweltpolitik", Vol. 168. IDHEAP, Chavannes-près-Renens
- Yin, R. K. (1989). "Case Study Research. Design and Methods", revised edition ed., Vol. 5. Sage, Newbury Park, London, New Delhi

Friday, 03 August 2001

Terms of Reference

Conceptual Paper on Main Impacts of Public Policies on Forestry

1. Context

The influences of other sectoral policies on the development of the forestry sector have been recognized for many years. One of the basic principles of the Tropical Forests Action Programme in 1985, and later on, National Forest Programmes, was a holistic and intersectoral approach. In other words, forests need to be considered in the context of sustainable land management, environment and social stability. The Forest Principles agreed upon at UNCED in 1992, called for intersectoral means of dealing with pressures and demands imposed on forest ecosystems and resources from influencing policies and factors outside the forest sector. Discussions on the causes of deforestation and forest degradation in the context of the works of the Intergovernmental Forum on Forests (IFF) and currently the United Nations Forum on Forests (UNFF), have also referred to external influences.

Considering the increasing interest and awareness of the influences of external policies on the development of the forestry sector, at the global, national or local levels, and the lack of formal and systematic information on these policies or their impacts and the need for increased intersectoral coordination, FAO Forestry Department decided to include in its Medium Term Plan (2002-2007) the Major Output "Strengthened cross-sectoral linkages between forestry policies and other national policies", with a view to:

- improving understanding among government institutions/staff and public of the relationships and impacts of different sectoral policies,
- improving formulation/implementation of forestry policies and plans,
- improving institutional linkages/partnerships among related sectors,
- developing mechanisms to evaluate externalities/internalities of sectoral policies.

Major expected outputs of this effort are:

- production of a preliminary background paper in early 2001,
- preparation of country case studies in 2001,
- organization in 2002 of a seminar/workshop to discuss main findings and conclusions of background paper and country case studies,
- production of a FAO Forestry Paper on the subject in 2003.

FAO Forestry Policy and Institutions Branch (FONP) has commissioned in 2000-01 the preparation of a background paper on Cross-sectoral Linkages in Forestry. At the second meeting and working session of the (informal) Interdepartmental Task Force on Cross-sectoral Linkages in Forestry, 24-25 May 2001, it was recommended

to use findings and conclusions of the background paper to prepare a conceptual paper that will better focus on main issues and impacts of external policies, and to provide examples of these, drawing from FAO and other organizations or partners information and experience. In addition, the Forestry Policy and Institutions Branch is proposing to prepare in 2001, a limited number of country case studies. The purpose of these case studies will be to focus on specific regional or local context like mountain development, miombo forest, amazon forest or arid/semi-arid forest area.

The present consultancy is concerned with the preparation of a **conceptual paper** that will focus on main impacts of public policies on forestry in the context of sustainable rural development.

2. Mandate

Under the overall guidance of the Director of FAO Forestry Policy and Planning Division, the supervision of the Chief of FAO Forestry Policy and Institutions Branch and the technical monitoring of the Informal Interdepartmental Task Force on Cross-sectoral Linkages in Forestry, the consultant will:

- prepare and submit a detailed outline of the conceptual paper at the beginning of the consultancy;
- on the basis of the agreed upon detailed outline, submit draft chapters as they become available in order to allow for a continuous technical monitoring dialogue;
- participate in and link with related discussions in the context of EFSOS;
- submit a final draft of a substantive report and subsequently a final report.

3. Profile of Author

Economist or Policy analyst with more than ten years of experience in policy analysis and planning at national and sectoral levels, as well as in policy measures or instruments for effective conservation and management of forest benefits towards sustainable development.