Multifunctional forestry as a means to rural development (Multifor RD)
Country report Switzerland

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Multifunctional Forestry as a Means to Rural Development (MULTIFOR RD)

Country Report Switzerland

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Rasa, Centovalli, Canton Ticino

Zurich, February 2002
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1 Introduction, Context

Rural development aims to strengthen the livelihood base and the quality of life in rural areas by means of improving and/or restructuring the rural economy and by focusing on rural identity. It is generally assumed that forestry, often playing an important role in rural areas, can contribute to rural development to some extent. In this context the main objective of the project MultiforRD (Multifunctional Forestry as a Means to Rural Development) that was started in 1998 is to make a comparative study in nine European countries about the nature and dynamics of the landowners’ and public's attitudes towards forests and forestry. Furthermore, regional-specific strategies for multifunctional forestry to serve rural development shall be elaborated.

Within the MULTIFOR RD research set-up Switzerland is an external advisor because a lot of research in this field has been carried out and the consultants are backed by a broad basis of knowledge and information. An important example for these research activities is the COST – Action E3 project ‘Forestry in the Context of Rural Development’ which started in 1994 (Schmithüsen et al. 2000, chapter 3.1.1). The main objectives were to provide scientific and comparative data on the public perception of forests and forestry, the attitudes of farmers and forest owners towards forestry as a means for rural development and on the role of forests in protecting rural areas in mountain regions. COST E3 does not stress multifunctionality of forests and its contribution to rural development can only be assumed. Still, the potential of forestry in general is remarkable, keeping in mind that it is highly appreciated by the Swiss population (Zimmermann 1998). Furthermore, COST E3 built the basis for the study on ‘Social Demands on the Swiss Forest’ (SAEFL 2000, study presented in chapter 4.1) conducted in 1997.

According to the Technical Annex of MultiforRD, external advisors (from Switzerland and Finland) are supposed to participate in three workshops and to compile a country report concerning ongoing research on multifunctional forestry and rural development. Switzerland performs these tasks by participating in meetings (Freiburg, Bordeaux, Leitrim, Konitsa and Wageningen) with one or two representatives and further ad-hoc consulting. The present country report describes ongoing and recent research on multifunctional forests and its contribution to rural development. For reasons of better understanding and comparability with other country studies, Swiss specialities are briefly explained. In chapter two the report introduces to forestry and forest policy in Switzerland with regard to natural and legal conditions. Main chapter three presents the research results related to multifunctional forestry as a means to rural development recently carried out (or still ongoing) in Switzerland. The programmes are ordered by the survey method applied. Several reasons, such as prevalent connections and overlapping urban and rural areas, make it reasonable to talk about multifunctional forestry close to urban areas, too. Chapter four refers to the most important research on multifunctional forestry and the benefits of forests in urban areas. In chapter five a few examples of concrete measures are presented.

The task for Switzerland did not consist in working out a new project on multifunctionality of Swiss forests nor on the present or future contribution of Swiss forestry to rural development. The aim of this paper is to give an overview on research projects with a close connection to the two mentioned items. For this reason the present country report is more a compilation of existing data on forestry and rural development than a new study in this field.
2 General Conditions

SCHMITHÜSEN / ZIMMERMANN 1999, p.1 describe the natural conditions as follows:
“Switzerland can be divided into five regions with the following percentages of the territory (Figure 1): Jura (12%), Plateau (23%), Pre-Alps (16%), Alps (40%) an the Southern alpine slopes (9%). The diversity of climatic and soil conditions ranges from lowlands to alpine elevations. The rapidly changing topography in the Alps and the Jura mountains and the relief determined by the great valleys led to a large variety of landscapes and vegetation forms. Beyond the timber line mosses and lichens are found, and in a short distance a Mediterranean flora with chestnut forests dominates in the southern foothills. In higher elevations conifer forests are common whereas in the central part and in the Jura deciduous and mixed forests are a predominant.”

Figure 1: Major Regions of Switzerland


2.1 Swiss Forestry and Forest Policy

Landuse

Due to great regional variations in Switzerland almost 25% of the total area must be considered to be unproductive. 29% of the total surface area is forested out of which 31% are found in the Alps, 20% in the Central Plateau, 18% in the Jura, 17% in the Pre-Alps and 14% in the Southern Alpine Slopes. In relation to the size of the region, the forest cover percentage in the Southern Alpine Slopes is the highest (48%), followed by Jura (45%), Pre-Alps (32%), Central Plateau (24%) and the Alps (22%). Considering the population density which is the highest in the Central Plateau and the lowest in the Alps, these numbers speak for themselves.

Changes in the forested area: Between 1870 and 1996 the country's forest area increased from 770,000 to 1,200,000 hectares or by almost 60%. This evolution is the product of a very strict forest legislation preventing clearfelling and construction activities. Another reason for this increasing forest area may be seen in the fundamental change of structure in the Swiss agricultural system during the last 30 years.

1 SCHMITHÜSEN / ZIMMERMANN 1999, p.2-3/6, summarised and translated.
### Figure 2: Land use in Switzerland

<table>
<thead>
<tr>
<th>Land use</th>
<th>sqkm</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest, woods</td>
<td>12,716</td>
<td>30.8</td>
</tr>
<tr>
<td>Cultivated land</td>
<td>9,873</td>
<td>23.9</td>
</tr>
<tr>
<td>Mountain farming</td>
<td>5,378</td>
<td>13.0</td>
</tr>
<tr>
<td>Settlements</td>
<td>2,791</td>
<td>6.8</td>
</tr>
<tr>
<td>Rivers/lakes</td>
<td>1,740</td>
<td>4.2</td>
</tr>
<tr>
<td>Other unproductive areas</td>
<td>8,787</td>
<td>21.3</td>
</tr>
<tr>
<td><strong>Total area</strong></td>
<td>41,285</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: [http://www.statistik.admin.ch/stat_ch/ber02/eufr02.htm](http://www.statistik.admin.ch/stat_ch/ber02/eufr02.htm)

### Figure 3: Forested Area

<table>
<thead>
<tr>
<th></th>
<th>Total surface area</th>
<th>Forest area</th>
<th>National Percentage of forest land</th>
<th>Percentage of forest land</th>
<th>Per inhabitant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>sqkm</td>
<td>ha</td>
<td>%</td>
<td>%</td>
<td>ha</td>
</tr>
<tr>
<td>Switzerland</td>
<td>41 285</td>
<td>1 204 047</td>
<td>29</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td>Jura</td>
<td>4 748</td>
<td>212 351</td>
<td>16.3</td>
<td>45</td>
<td>0.21</td>
</tr>
<tr>
<td>Central Plateau</td>
<td>9 888</td>
<td>241 664</td>
<td>18.4</td>
<td>24</td>
<td>0.06</td>
</tr>
<tr>
<td>Pre- Alps</td>
<td>6 339</td>
<td>203 172</td>
<td>17.9</td>
<td>32</td>
<td>0.25</td>
</tr>
<tr>
<td>Alps</td>
<td>16 763</td>
<td>375 989</td>
<td>33.6</td>
<td>22</td>
<td>0.58</td>
</tr>
<tr>
<td>Southern Alps</td>
<td>3 546</td>
<td>170 871</td>
<td>13.9</td>
<td>48</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Source: [http://www.statistik.admin.ch/stat_ch/ber07/etfr07f.htm](http://www.statistik.admin.ch/stat_ch/ber07/etfr07f.htm), Surface Distribution (modified).

### Ownership Distribution

The total forest area in Switzerland amounts to 1.2 million hectares. According to the second forest inventory (1993-1995) this area is slightly growing. 73% of the forest surface is publicly and 27% is privately owned (public forest is owned by Federation, Canton or Municipality).

### Figure 4: Ownership Distribution of the Forests in Switzerland in Percent (1996)

- **Publicly owned forest**: 3,881 public forest enterprises
- **Privately owned forest**: Over 250,000 private owners (the average forest size per owner is 1.2 ha)

2.1.1 Forest Resources

**Tree Species and Age Class Distribution**

Almost three quarters of the total growing stock of Swiss forests consist of conifers. The most important species in economical as well as ecological terms are Norway spruce, silver fir and beech. A more detailed overview gives Figure 5.

**Figure 5 **Tree Species

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>No. of stems</th>
<th>Growing stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conifers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway spruce</td>
<td>40</td>
<td>49</td>
</tr>
<tr>
<td>Silver fir</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Pine</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Larch</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Swiss stone pine</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other conifers</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>Total conifers</strong></td>
<td><strong>61.4</strong></td>
<td><strong>74.3</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Broad-leaved</th>
<th>No. of stems</th>
<th>Growing stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beech</td>
<td>19</td>
<td>16</td>
</tr>
<tr>
<td>Maple</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Ash</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Oak</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Sweet chestnut</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Other broad-leaved trees</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total broad-leaved trees (over 40 species)</strong></td>
<td><strong>39</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

Source: [http://www.statistik.admin.ch/stat_ch/ber07/etfr07f.htm](http://www.statistik.admin.ch/stat_ch/ber07/etfr07f.htm), Tree Species in Swiss Forests (modified)

**Growing Stock**

“Between 1986 and 1996 the total growing stock in stemwood with bark increased by 42 million cubic metres to a total of 418 million cubic metres of which two thirds (63%) are in the diameter classes between 30 and 60 cm. The growing stock in stemwood without bark, excluding dead or down trees, is around 388 million cubic metres. In comparison with other European countries the growing stock volume per hectare is exceptionally high.” (SCHMITHÜSEN / ZIMMERMANN 1999, p. 9).

A comparison of the different regions is shown in Figure 6.

**Figure 6 **Mean Volume of Growing Stock by Region (stemwood without bark, diameter > 12 cm)

<table>
<thead>
<tr>
<th></th>
<th>Jura</th>
<th>Plateau</th>
<th>Pre-Alps</th>
<th>Alps</th>
<th>South. Alps</th>
<th>Switzerland</th>
</tr>
</thead>
<tbody>
<tr>
<td>growing stock* 1986 (cubm/ha)</td>
<td>328</td>
<td>409</td>
<td>417</td>
<td>292</td>
<td>176</td>
<td>333</td>
</tr>
<tr>
<td>growing stock* 1996 (cubm/ha)</td>
<td>365</td>
<td>440</td>
<td>469</td>
<td>318</td>
<td>219</td>
<td>367</td>
</tr>
</tbody>
</table>

2.1.2 Forest Policy

Swiss forest policy is anchored in different legal acts on different institutional levels.

**Constitutional Basis**

“The Swiss Federal government has a comprehensive set of constitutional competencies with regard to natural resources conservation and environmental protection” (Schmithüsen / Zimmermann 1999, p. 28). According to the articles 3 and 77 of the Constitution Federal competence in forestry matters is a frame competence focusing on the protection of forest land. Cantonal competence is restricted to the implementation of federal and cantonal regulations within a broad range. Art. 3 (Cantons) ensures the sovereignty of the cantons. It says that “the cantons are sovereign insofar as their sovereignty is not limited by the Federal Constitution; they shall exercise all rights which are not transferred to the Confederation.” (Swiss Federal Constitution 1999, art.3)

Art. 77 (Forests) of the Swiss Constitution is formulated as follows:

1. The Confederation shall ensure that forests may fulfil their protective, economic and social functions.
2. It shall establish principles for the protection of forests.
3. It shall encourage measures for the conservation of forests.

**Forest Legislation**

The Law on Forests and the Forest Ordinance have been promulgated in January 1, 1993. According to article 1, the purpose of the forest law is:

1. to ensure conservation of the forests in their present extent and geographical distribution;
2. to protect the forests as a natural environment;
3. to ensure that the forests are able to fulfil their several functions, in particular their protective, social and economic functions (forest functions);
4. to safeguard and develop forestry and forest-related industries.

2. Another purpose of the law is to help protect the population, and property of great value, form avalanches, landslides, erosion and rockfall (natural catastrophes).” (Forest and Hunting Legislation in Switzerland 1996, p.1)

**Swiss Civil Code and Accessibility**

“Forests shall remain accessible to the public regardless of whether they are publicly or privately owned (see also Art. 699, paragraph 1 of the Swiss Civil Law Book of 1907, SR 210). Exceptions are: Areas fenced to protect young growth, restricted access for preservation reasons, obligatory permits for large public events (Art. 14 Forest Law) and prohibited access of motor vehicles (Art. 15 Forest Law)” (http://www.statistik.admin.ch/stat_ch/ber07/etfr07f.htm, Forestry Laws)

**Forest Related Policies**

“The various constitutional amendments led to a growing network of distinct policy areas focusing on resources conservation and environmental protection:

- conservation linked to the use of renewable natural resources such as forest, water protection and fishery policies;
- conservation of nature and landscape as well as of the available space;
- conservation of the environment in particular with regard to air, soil and pollutants;
- improvement of economic conditions.

Cross-sectoral conservation programmes refer to nature- and landscape protection, land use planning and environmental protection (Kissling/Zimmermann 1998). The various programmes are complementary, but to some extent also in competition with each other. Sectoral resource policies tend to integrate conservation aspects, cross-sectoral conservation policies become more and more involved in regulations of specific uses, and land use planning integrates all aspects of land development and conservation. Cross-
sectoral conservation objectives have an increasing impact on the development of policies for forest protection and sustainable forest management.” (SCHMITHÜSEN/ZIMMERMANN 1999, p. 35).

New Approach in Government Promotion

In order to favour the sustainable development of Swiss forests, the government promotes public forest owners and to some extent private, too.

“With the Swiss Government's new forestry subsidy policy, developed in close cooperation with the Federal Finance Authority's new Financial Offset project, the Federal Forestry Directorate is striving for optimum use of federal resources. In principle, greater account is to be taken of the subsidiarity principle between the Confederation and the Cantons, i.e. the Cantons will be given greater autonomy but also greater responsibility. Moreover, special attention is to be paid to the efficiency and efficacy of forestry projects. Efficiency measures the resources used in proportion to the objective achieved, while efficacy compares the objective aimed for with the results achieved. The programme contract is the key tool of this new policy. On a partnership basis, the Confederation and the Cantons negotiate the objective of a programme which is made up of various projects. Using a programme assessment based on the Confederation's forestry policy objective, the Government determines the federal subsidy granted on achievement of the agreed objectives. In other words, performance – and no longer book costs – are subsidized. Cantons have sole responsibility for planning and executing projects so as to achieve the programme objective.”

(Beside regulative instruments in order to protect the forest area financial incentives and compensations are the second pillar of the Swiss forest policy. The development of forest subsidies with the four main categories of subsidised activities are shown in figure 7.)

Figure 7 Federal Subsidies Granted to Particular Sectors within Forestry (in million Swiss francs)

2.1.3 Forest Production

This chapter gives a short overview on the different functions of the forest, the Swiss timber production and the production of non-wood products. Of particular interest are non-wood products and their (potential) contribution to rural development.

Functions of the Forests

“Changing Demands: Forests were used as a local resource for firewood, pasture, supply of construction timber and a wide range of products needed in daily life. Commercial wood production became an important objective during the last century generating revenues for the land owners. In mountainous areas the protective values of forests against the effects of natural calamities are a major reason for maintaining and protecting the tree cover. Whereas these aspects continue to have a determining influence on the management practices, other objectives also gained more weight during the last 30 years. Forests are now of considerable value for recreational use in urban and peri-urban regions, as well as an asset for tourist developments, especially in the Alpine and Jura regions. Furthermore they are of increasing importance with respect to the protection of water resources.” (SCHMITHÜSEN / ZIMMERMANN 1999, p. 18/19)

Multifunctionality

The concept of multifunctionality of the forests in Switzerland is ensured by federal legislation. The aim of article 1 of the federal forest law is to conserve the forest area in its surface and spatial extent and to ensure a balanced compliance of the forests in view of their social, protective and commercial function. Furthermore, forestry as a commercial branch shall be promoted and sustained. In order to fulfil regional interests, one function can have priority to others (i.e. the protective function in mountainous regions).

Figure 8 Functions of the Swiss Forests

<table>
<thead>
<tr>
<th>Social Function</th>
<th>Protective Function</th>
<th>Commercial Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forests provide:</td>
<td>Forests protect people and assets against:</td>
<td>Forests provide:</td>
</tr>
<tr>
<td>• Natural environment</td>
<td>• Avalanches</td>
<td>• Wood products</td>
</tr>
<tr>
<td>• Recreation areas</td>
<td>• Floods</td>
<td>• Non – timber products</td>
</tr>
<tr>
<td>• Scenic beauty</td>
<td>• Erosion and landslides</td>
<td>• Employment</td>
</tr>
<tr>
<td>Forests have positive effects on:</td>
<td>• ...</td>
<td>• ...</td>
</tr>
<tr>
<td>• Oxygen production</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Water filtering and storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Air purification and noise protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Climatic stability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ...</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: http://www.statistik.admin.ch/stat_ch/ber07/etfr07f.htm, modified and completed.

Swiss Timber Production

Custom laws perceive wood as an industrial product which is subject to the free market rule of demand and supply.

In Swiss forests an annual yield of 4.8 million cubm is produced which corresponds to around 75 % of the annual domestic consumption of 6.2 million cubm (1999, OFEFP / OFS 2000, p.121). Anyhow, in 1999 wood imports amounted to 8 million cubm and exports accounted for 6.6 million cubm. The maximum sustainable yield amounts to 9.9 million cubm per year (OFEFP / OFS 2000, p.75).
Non-Timber Products

In the debate on multifunctional forestry as a means to rural development one has to emphasise the importance of non-timber products. Every benefit provided by forests except wood is a non-timber product and by consequence relevant for economic development. The effect of this specific product on the local economy is either direct or indirect.

Figure 10  Effects of Non-Timber Products on the Local Economy

| Direct effects | Developing market for a specific good (the product can be sold directly). |
|               | Examples: hunting license, mushrooms |
| Indirect effects | The specific product promotes a situation with a positive effect on the local economy. |
|                | Examples: an ecologically healthy forest attracts visitors who spend money on transportation, lodging, food consumption etc. |

Depending on the regional properties products such as recreation, hunting, forest products etc. can contribute to the economic development to a great extent. Figure 11 shows the estimated contribution of different products to the total annual benefits from Swiss forests.

Figure 11  Annual Benefit from Swiss Forests

<table>
<thead>
<tr>
<th>Product</th>
<th>Amount (Swiss Francs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber products</td>
<td></td>
</tr>
<tr>
<td>Timber</td>
<td>0.45 billion</td>
</tr>
<tr>
<td>Protection against natural hazards</td>
<td>3.9 – 9 billion</td>
</tr>
<tr>
<td>Recreation</td>
<td>1.6 – 2 billion</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>2.8 billion</td>
</tr>
<tr>
<td>Others (fruits, mushrooms, etc.)</td>
<td>0.01 billion</td>
</tr>
</tbody>
</table>

2.2 Swiss Rural Policy
The Swiss Confederation consists of 26 sovereign cantons which basically have all competencies over their territories (Art. 3 of the Swiss Constitution). From a federal point of view a lot of the regular cantonal activities could be regarded as rural policy. On the other hand rural areas often profit from the benefits caused by other policy domains such as agriculture and forestry. Due to the fact that most of the rural areas in Switzerland are located in mountainous regions, the federal (and cantonal) policies for mountainous regions can be regarded as a part of the Swiss rural policy. This chapter emphasises the nominal aspect of rural development which refers to federal promotion activities. In order to understand Swiss rural policy one has to keep in mind this difference to other European countries.

2.2.1 Overview on the Developments
Promoting the rural development is an explicit goal of the federal constitution. Art. 103 states that “the confederation may support economically threatened regions and promote branches of the economy and professions, if the measures of self-help that can reasonably be expected are insufficient to ensure their existence. It (the Confederation) may, if necessary, depart from the principle of economic freedom” (SWISS FEDERAL CONSTITUTION 1999, art. 103). Based on this article of the Federal Constitution public policy in rural development has a long tradition in Switzerland. The aim has always been to promote disadvantaged and underdeveloped regions by distributing federal financial aid. In the period of 1975 – 1995 roughly 5’700 projects have been promoted with a total amount of over 13 billion Swiss francs (BUNDESBLATT 1996 II, p. 1147, summarised and translated).

In 1996 this federal policy on rural development was set on a new basis and approved by both the government and parliament. Political institutions localised that after half a century of more or less the same federal rural policy, the following problems still exist:

- Interregional development and living-standard disparities compared to urban areas (in 1993 the cantonal income per capita oscillated between 74’000 sFr. and 32’000 sFr.)
- Migration and connected ecological hazards (agricultural land overgrown with forest due to migration)
- Missing industry (lack of attractiveness due to isolation and restricted market opportunities)


2.2.2 New Instruments
Parliament and government formulated the goals for a new rural development policy based on this evaluation as follows: *The new rural policy on the federal level is supposed to solve the problems cited above by reaching the highest possible economic and political benefits for the nation. Federal activities are designed to serve federalism in general, the regional offset, and economic stability as well as economic wealth* (BUNDESBLATT 1996 II, p. 1122, summarised and translated).

In order to achieve these goals, federal officials can revert to the following set of instruments:

- the *Federal Law on Investment Assistance in Mountainous Regions*\(^2\). Based on article 103 of the Federal Constitution\(^3\) this law grants loans and credits to regional secretaries who utilise them for specific projects.
- the *Federal Law on the Provision of Bails and Contributions to Finance Interest Rates in Mountainous Regions*\(^4\).
- the *Decree on the Support of Structural Changes in Rural Areas of 1997*\(^5\).
- the *Decree in Favour of Regions in Economic Regeneration*\(^6\).

---
• the Federal Law on the Promotion of the Swiss Participation in the European Initiative for Cross-border, Transnational and Interregional Co-operation in the period of 2000 - 2006 (INTERREG III)\(^7\),

• the Federal Law on the Promotion of Loans for Hotels and Health Resorts\(^8\)

• the New Financial Offset Between Cantons and the Confederation.\(^9\)

(BUNDESBLATT 1996 II, p. 1104 ff, summarised and translated).

Most of these instruments have been created recently and are not yet well approved and the implementation is still ongoing. A systematic evaluation of all these instruments is still missing. Therefore nothing can be said at the moment about their effects nor their success or failure.

Apart from this formal rural policy other sectoral policies like agriculture or forestry contribute also substantially to the rural development of economically weak regions. But these policies are not officially attributed to the core of rural development policy. For this reason they will not be evaluated in the frame of this official evaluation process.\(^10\)

3 Research on Multifunctional Forestry and Sustainability in Rural Areas

Rural Development is a topic emphasised in the research activities of the European Union (EU). In Switzerland there are also several studies which analyse the contribution of forestry and multifunctional forestry to the development of the local economy. The following chapter lists completed, current and planned projects in this area.

A first part gives an overview of projects with a direct link to multifunctional forests and forestry. The projects are divided into qualitative and quantitative ones according to the survey method. The second part presents projects emphasising sustainability of forestry and agriculture. Most of the studies presented in this chapter have been compiled from FRÜH 2000 and were summarised and translated.

A] Quantitative Research

3.1 Rural Development due to Multifunctional Forests and Forestry

3.1.1 Knowledge and Attitudes of the Population in Mountain Regions towards Forest, Forestry and Their Future (SCHMITHÜSEN et al. 2000)

Results of a survey carried out in 6 Swiss mountain cantons


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\(^8\) SR 935.12: Bundesgesetz über die Förderung des Hotel- und Kurortkredites, 1966, translated.

\(^9\) Still in consultation.

\(^10\) All these formal and functional instruments are summarised in the provisional decree on the ratification of the Protocols of the Alpine Convention which will be published next (Botschaft zur Ratifizierung der Protokolle zum Übereinkommen zum Schutz der Alpen, for further information: http://www.raumentwicklung.admin.ch/pdf/alpenkonvention/bericht_alpenkonvention_d.pdf)
Organisation and method

Ordering party
Federal Office for Forests
Swiss Federal Office for Education and Science

Link to other projects
EU Shared COST E3 – Action

Authors and contact
Franz Schmithüsen, Stephan Wild-Eck, Willi Zimmermann
Chair of Forest Policy and Forest Economics
Swiss Federal Institute of Technology
Rämistrasse 101, 8092 Zurich

Method
Quantitative survey by questionnaire, single cross-sector survey
Postal distribution of the questionnaire

Number of interviewed people
Attempts 2160, Effected 613
Return rate 28.4%

Perimeter
16 municipalities in the Alps
10 municipalities in the Jura

Year of data collection
1995

Questions
Forest (5 Questions), Forestry (8 Questions), Forest Policy (10 Questions)
Socio-demographic details (7 Questions), Total 30 Questions

This survey is Switzerland’s contribution to COST E3-Action of the European Union (EU) with the purpose to collect data about the population's perception of forest and forestry as well as about the attitude of farmers and forest owners in order to estimate the importance of forestry for rural development. In this survey, conducted in different Swiss mountain regions, the population and local politicians have been asked about their knowledge, attitude and perception of the forest, forestry and forest policy.

Summary of the most important results

General knowledge of the forest
Most of the persons asked felt competent to answer even complex questions, even though the topic gets little media attention. The level of information on forest matters was relatively high, except for detailed knowledge. Considering the survey method, however, some questions might have been answered using additional data. The public ownership of forests is generally known but overestimated in its extent. More than 50% of the respondents are aware of the forest service’s problematic economical situation.

Importance of multiple forest functions
Recreation and the forest as a nature and landscape element are considered the most important of all functions and yet their importance is expected to increase in the future. In the open questions section, protection against natural hazards has priority for only ....%. In the closed questions section however, the forests protective function, diversity of the landscape, recreation and environmental protection were all considered "important" or "very important". Timber production is considered "important".

Forest condition and threats
90% of the persons asked and 75% of the political representatives consider the size of the forest cover to be adequate. Still 20% of the representatives (but only 5% of the people without any political mandate) think that the forest cover is too large. In a countrywide survey in 1978 37% of the interviewees considered it to be too small. One explanation for this change could be the increase of the forestland within the perimeter of the survey.
The general condition of the forest is believed to be ‘well to very well’ by 44% and just as many find the situation ‘satisfactory’. 93% named different threats for the forest of which natural hazards (wind and insects), pollution, and forestry (inadequate maintenance) were considered of equal and greatest importance. In a few cases tourism and wildlife were also named as threats.

**Activities of the forestry services**

Silviculture and regeneration are considered to be the most important activities of the forestry services. The survey made it obvious that the protection of flora and fauna and the maintenance of the forests should be a future priority. It is the general opinion that the state, cantons, municipalities and the landowners should bear the resulting costs. While there seems to be a general agreement on that the state should bear the main share, only about 30% of the respondents agree that the users should contribute to the expenses as well.

**Forest policy**

80% abstained from answering questions concerning the forest policy. Those who gave their view on Swiss clearfelling policy are mostly satisfied with it. Only 20% considered it to be too restrictive and just as many were of the opposite opinion.

### 3.1.2 Different Interests of User Groups in the Natural Landscape, 'Sihlwald' (MOSER 2000)

**Potential conflicts and arrangement facilities**

**Organisation and method**

<table>
<thead>
<tr>
<th>Ordering party</th>
<th>Diploma thesis at the Chair of Forest Policy and Forest Economics, Swiss Federal Institute of Technology, Zurich.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link to other projects</td>
<td>None</td>
</tr>
</tbody>
</table>
| Authors and contact | Kuno Moser  
Chair of Forest Policy and Forest Economics  
Swiss Federal Institute of Technology  
Rämistrasse 101  
8092 Zurich |
| Method | Quantitative survey of different user groups by questionnaire (depending on user group full range or random sample), Theory of Controlled Behaviour |
| Number of interviewed people | Attempts: 658  
Effected: 209 (32%) |
| Success | well with recommended addresses, less successful with randomly selected addresses |
| Perimeter | Natural Landscape ‘Sihlwald’, Zurich |
| Year of data collection | 1999-2000 |
| Questions | User behaviour  
Knowledge on the Natural Landscape ‘Sihlwald’  
Restriction on recreation activities |
| Remarks | - |
Summary of the most important results

**Duration of the visit and preferred season**
The majority (44%) indicated an average duration of 1-2 hours per visit. Only 5% do not visit the forest at all. The favourite season for a visit in the forest is the summer (45%). 54% claim they do not mind the season.

Hunters spend the most time in the forest with 8h/month, followed by mushroom and berry pickers (4.96 hours/month), people who ride a horse (4.83 hours/month), walk their dog (4.71 hours/month), sportsmen (3.12 hours/month), hikers (2.46 hours/month) and visitors with no specific activity (1.36 hours/month).

**Activities**
The answers to these questions reflect the scope of the visitor’s activities, as the persons asked were selected because of their leisure activity. They engage in the following activities while visiting the forest: 42% hike, 28% walk their dog, 18% ride a horse, 15% ride a bike, 13% pick fruits/mushrooms, 13% do jogging or cross country-running (7%) and 6% are hunters.

**Acceptance of the project 'Natural Landscape Sihlwald'**
Generally the project is quite well-known and highly accepted. 71% consider it to be 'rather positive' while only 19% consider it to be 'rather negative'. 10% didn’t answer this question. Especially people doing cross country running fear the project's negative impact on their activity. 6 persons consider the project to be harmful even to nature itself.

**Attitude towards the project 'Natural Landscape Sihlwald'**
The project Natural Landscape 'Sihlwald' has yet to be implemented. 44% of the respondents know about the project, 43% have heard about it and 13% don't know anything about it. Based on a calculated average value the attitude of the user group's attitude towards the project was evaluated.

The hunters attitude is strongly negative and mushroom and berry pickers rank slightly below the average value. An increasingly positive attitude can be observed with the following groups: people who walk their dog, sportsmen, visitors with no specific activity, horseback riders as well as hikers. A trend towards a more positive attitude can be observed with female and young members of a user group.

**Future impact on the main activities**
In general the future impact of the project on the group-specific activity was assessed mostly positively by the respondents (9% highly positive, 33% rather positive, 18% rather negative, 10% highly negative and 17% no answer). Hunters believe that the project has a strongly negative impact on their activities in the Sihlwald. Mushroom and berry pickers tend towards a slightly negative attitude while all other groups believe the project has a positive impact on their main activity.

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**B] Qualitative Research**

**3.1.3 Study on the Knowledge of Forests in Lower Grisons (SPINNLER – STANISZ 1991)**

Knowledge of forests with the local population as an indicator of its socio-cultural importance

Organisation and method

Ordering party
Diploma thesis at the Chair of Forest Policy and Forest Economics, Swiss Federal Institute of Technology, Zurich.

Link to other projects
None

Authors and contact
Martin Spinnler-Stanisz
Chair of Forest Policy and Forest Economics
Swiss Federal Institute of Technology
Rämistrasse 101
8092 Zurich

Method
survey by personal interview, quantitative evaluation

Number of interviewed people
Attempts: not reported
Effected: 30
Success: great with recommended addresses, less successful with random addresses

Perimeter
Lower Grisons

Year of data collection
1991

Questions
Total 30 Questions

Remarks
-

Summary of the most important results

Personal interest in the forest
In most cases the interest is linked to silviculture, ecology and wildlife-watching (37%) or to leisure activities (37%). 27% of the interviewees say to have a particular interest in wood and wood products and 20% are picking fruits and mushrooms etc. Another 20% have a professional interest in forestry. 13% are interested in the forest as a habitat and 10% each are forest owners, farmers, hunters or interested in avalanche control. 7% explain their interest with their service in public offices.

Importance of the forest
The importance of the forest as protection against natural hazards (avalanches, wind, water and soil erosion) was put in the first place. In the second position the interviewees name leisure activities in woodlands and the nature experience followed by scenic beauty. In position four they state the importance of the forest as a source of income. Other answers (in decreasing order) are the importance for the job-market, tourism and the supply of firewood. Many of the interviewed people were able to name a specific spot in the forest that they relate to personal memories, myths or fairy-tales.

Gathering of forest products
Especially older people remember that gathering forest products was important in the past. Today the gathering of forest fruits and herbs for medical purposes is the occupation of many older women and some younger people. Different applications of resin are still known to older people. Only few people still collect resin, nowadays. Many of the older interviewees remember charcoal production and the use of ashes used as a fertiliser and detergent. A majority of the of the persons asked is aware that collecting leaf litter was very important in the old days. Only a few older people still remember shingle production for roof construction.
**Wildlife and hunting**
The main concern still seems to be the damage caused by wildlife which was considered a serious problem by 40%. Just as many interviewees hold the opposite opinion. In general hunters interpret the situation as less problematic. Almost 25% of the interviewees believe the game-population is too dense. 17% wouldn’t agree with this statement. Only 10% of the interviewees think hunting is important.

**Forest condition and damage**
When asked about forest damage, 73% spontaneously named the following symptoms (decreasing order): dead/ dry trees, damaged/ sick trees, premature loss and discoloration of leaves and needles and damage by storm. Almost two thirds of the people who named symptoms did so due to personal experience. 21% heard about it in the media. The majority shares the opinion that the loss of trees is due to air pollution. 23% of the interviewed people think the general state of the forest has deteriorated, 15% believe it remained the same and 12% say it improved. Only 12% of the interviewees said they are sure that the forest is in a bad condition. 42% would not agree with that statement.

**Tidiness**
Most of the interviewees consider untidiness to be negative. The answers were as follows: 25% absolutely negative, 46% negative, 8% rather negative, 8% rather positive, 13% positive. Only few answered the question about the danger of untidiness: 33% consider it to be dangerous while only 4% disagree.

### 3.1.4 Deadwood in the Forests of the Swiss National Park: Attraction or Disturbing Factor? (HUNZIKER 1997)
Results of a scientific study.


**Organisation and method**

<table>
<thead>
<tr>
<th>Ordering party</th>
<th>Executive and Scientific Committee of the National Park</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Link to other projects</strong></td>
<td>Several projects for management and decision making purposes have been carried out in the National Park. Unfortunately none of them emphasises on forest or forestry.</td>
</tr>
</tbody>
</table>
| **Authors and contact** | Marcel Hunziker  
Swiss Federal Institute for Landscape, Forest and Natural Hazards WSL  
Zürcherstrasse 111  
CH-8903 Birmensdorf Switzerland |
| **Method** | Qualitative interviews complemented by quantitative survey |
| **Number of interviewed people** | Attempts: not reported  
Effected: Interviews: 25, Survey: ca.130  
Success: not reported |
| **Perimeter** | Swiss National Park, resp. Stabelchod as a representative area of the park. |
| **Year of data collection** | 1997 |
| **Questions** | No information found |
| **Remarks** | - |
Summary of the most important results

**Disturbing factors**

Most of the interviewees are very satisfied with the National Park. There are only a few spontaneous statements concerning traffic noise, tourist masses and incorrect behaviour of other visitors. Even though traffic noise is considered to be disturbing by most of the interviewees, it is accepted as a result of the improved accessibility. The masses of visitors and tourists are accepted as a reality. The interviewees seem to understand the reasons for a visit, as they are themselves part of the crowd. Incorrect behaviour seems to be a very disturbing factor even if rarely observed. Misconduct should be strictly avenged by park rangers. Some of the interviewees think that one should teach these persons common sense and raise their consciousness.

**Natural Forests, Deadwood**

Typical forests of the National Park with standing and lying deadwood pleased 68% of the interviewees (41% to a very large extent, 27% to a large extent). A total of 32% didn't like the deadwood lying around because of the following reasons:

- They believe that deadwood is a result of air pollution and hence considered it an ecological damage. Others can't differentiate between natural condition and ecological damage due to controversial information in the media. Some of them think deadwood is the result of an infestation by insects.
- Some of the persons asked precisely distinguish ecology and aesthetics. They simply dislike the appearance of the forest even though they know its part of the natural life cycle.
- Especially older people are still remembering wood shortage during World War II and people from countries with low growing stocks simply consider it a waste not to collect the deadwood.
- Especially Italian visitors expected the National Park to be a 'classic park' or at least 'traditionally cultivated land'. In the eyes of this group the park was untidy.

Many changed their mind after being informed on the natural dynamics of indigenous forests and their ecological benefits. 67% of the persons asked even hope that similar forests will develop outside the boundaries of the National Park in the future.

The question whether forests in the National Park with a high amount of deadwood should be cleaned was answered negatively by 82% (63% no, 19% rather no). The scenario of a possible outspread of insects could only change this opinion to some extent: 21% yes, 25% rather yes, 12% rather no, 42% no.
3.1.5 The Spontaneous Re-afforestations in Abandoned Agricultural Lands: Perception and Aesthetic Assessment by Locals and Tourists (HUNZIKER 1995)


Organisation and method

<table>
<thead>
<tr>
<th>Ordering party</th>
<th>Swiss Federal Institute for Forest, Snow and Landscape Research, Birmensdorf.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link to other projects</td>
<td>None</td>
</tr>
</tbody>
</table>
| Authors and contact | Marcel Hunziker  
Swiss Federal Institute for Forest, Snow and Landscape Research  
Zürcherstrasse 111  
CH-8903 Birmensdorf Switzerland |
| Method | Qualitative interviews |
| Number of interviewed people | Attempts: not reported  
Effected: 16 Interviews  
Success: not reported |
| Perimeter | Unterengadin, Grisons |
| Year of data collection | 1994 |
| Questions | Interview guideline |
| Remarks | - |

Summary of the most important results

Perception of the landscape

Landscape is perceived and valued by the persons asked on the following three levels:

- surveyed landscape with forests or tree clusters and grassland,
- solitary landscape and its vegetation and
- individual plant species.

Spontaneous re-afforestation is rated ambivalently by most of the interviewees. Specific objects were judged economically negative but perceived as beautiful by the same person. This phenomenon was observed by all the interviewees and therefore it was not possible to form social groups. Instead, the answers were grouped into four categories:

- Category 'Tradition': people perceive a landscape as the result of century old cultivation.
- Category 'Nature Protection': people perceive landscape as a nature reserve.
- Category 'Profit': people perceive the landscape as a production unit.
- Category 'Emotion': people perceive landscape as an idyllic recreation area, a part of paradise.
**Actual re-afforestation areas and future prospects**

From the ‘traditional’ point of view the increasing outspread of areas stocked with trees in the last decades is not appreciated. Former and potential farmland should be cultivated. If the increasing forest area cannot be reverted, at least it should be turned into a proper forest. Interviewees from the category ‘nature protection’ agree with the actual patchwork-situation of forest, bushes and grassland to a high extent due to its potentially high biodiversity. An expansion of the re-afforestation area is not desired because a loss of this diversity might be the result.

From the point of view of the ‘profit’ category the respondents think that the percentage of farmland is too high because the biggest part of the traditionally cultivated land is unprofitable. Unprofitable farmland should be transformed into pasture or forest and managed extensively.

The ‘emotional’ category is satisfied with the actual condition because it provides a great number of different colours and shapes. This category is very open for any kind of future evolutions. Only the dominance of either forest or farmland would be considered to be too monotonous.

The main part of the interviewees lay an emphasis on the preservation of the actual mosaic of in-growing areas, forests and tree clusters. In order to satisfy all categories, future management of such areas should head for the preservation of the actual balance and the use of the economic potential where appropriate.

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**3.1.6 Attitudes of the Public towards Potential Landscape Developments in the Alps (HUNZIKER 2000)**


**Abstract**

“For the future development of Alpine landscapes the following factors are supposed to be very important: (1) expansion of the tourist infrastructure, (2) spontaneous reforestation of abandoned agricultural land and (3) appearance of decay in forests no longer maintained. The investigations presented here focused on the public’s attitudes towards such potential changes.

The public’s attitudes towards tourism – induced landscape changes were investigated by photo – experiments with visitors of an Alpine resort. In order to analyse the public’s attitudes towards spontaneous reforestation two research steps were performed: First, qualitative in-situ – interviews with tourists and locals of an Alpine region were conducted; second, the findings of the previous phase were checked by image experiments with students. The attitudes towards decay phenomena were as well investigated by qualitative and quantitative approaches, both applied in – situ.

It was shown that people are very sensitive to tourism – induced landscape changes such as expansion of settlements and tourist transport installations. In contrast, partial ingrowth of forest into agricultural landscape as well as the appearance of decay in mountain forests were assessed positively.

Thus, from the point of view of landscape preference, planning measures should be strong enough to prevent further extensions of tourist infrastructure, whereas reforestation of abandoned land as well as decay phenomena in mountain forests do not need to be prevented in every case.” (HUNZIKER 2000, p. 3)
3.2 Rural Development Due to a Sustainably Cultivated Environment

3.2.1 Sustainable Primary Production in the Alpine Region (PRIMALP)

"The quickly changing ecological, economic, social, and political environments confront society and science with new challenges to solve existing and newly emerging conflicts which impede both a sustainable land use, and sustainable agriculture and forestry in the Alpine region. A broad interdisciplinary co-operation is required to develop improved technical, organisational and political concepts and solutions for sustainable future primary production. These principles are pursued within the scope of the so called Polyproject 'PRIMALP — Sustainable Primary Production in the Alpine Region'. The project has two main objectives:

- Identification and development of sustainable agricultural and forestry production systems for the Alpine region ('best practices' projects);
- Development of tools and models for the analysis and evaluation of infrastructure requirements and policy decision-making ('best policies projects').

Specific research topics are dealt with as individual projects. The results of the individual projects are integrated into a 'Core Project'. Within the scope of the Core Project, an ecological-economic model is built. It serves as a tool for the evaluation of alternative production systems and as a means for the development and communication of consistent concepts for a resource-efficient and sustainable agriculture and forestry in mountain regions.

Polyprojects are interdisciplinary research projects funded by ETH Zurich in which various institutes from engineering, natural and social sciences of the ETH participate. First projects started in May 1997. The overall project duration is five years. Projects are carried out as PhD theses. 11 PhD students and the project manager are involved in approved projects."

(http://www.primalp.ethz.ch/)

Project Description 'Core Project'

"The so-called 'Core Project' is an integral part of the project 'PRIMALP — Sustainable Primary Production in the Alpine Region'. The basic idea of PRIMALP consists of the development of concepts and procedures for a resource-efficient, socially and environmentally friendly space and land use of agriculture and forestry in the Alpine mountain region. This leading idea will put into action within the scope of the Core Project.

The objective of the Core Project is the development of a sector model for the assessment of different strategies of the Alpine primary production with respect to their sustainability. For the evaluation of the criteria of sustainability specific indicators will be used. The land use strategies will be formulated as equations and activities in the sector model; the integration of indicators will be expressed in the same way. In the sector model the three aggregation levels: farm, region and Swiss Alpine area are included. This is necessary on the one hand in order to integrate the results of the disciplinary projects of PRIMALP, on the other hand to meet the requirements of sustainability. The results of the farm level can be aggregated to the regional level and to the entire model region. The effects of different political, economic and institutional scenarios on the optimal model outcomes are investigated. In the sector model the effects of these different conditions on the sustainability can be studied by means of a change of the indicators. Political decisions and their implications can also be presented this way. Different strategies of land use will emerge that meet the requirements of sustainability. However, an unequivocal solution is not likely to be found because trade-offs between the dimensions of sustainability exist.

Another task of the Core Project is the internal and external communication. Internal communication is defined as an exchange between the different disciplinary projects with the Core Project. Consistent concepts for a future sustainable primary production shall be communicated externally."

(http://www.primalp.ethz.ch/, Core Project)
3.2.2 Landscapes and Habitats of the Alps (NRP 48)

“The NRP 48 (National Research Program 48) aims to acquire the knowledge on goals and actions needed for a socially desired, economically acceptable and politically feasible landscape development. Endogenous and exogenous causalities of landscape development should be recognised, requirements and standards for a sustainable landscape development should be analysed and possible approaches in relevant political fields and scopes of actions should be elaborated.” (http://www.snf.ch/en/rep/nat/nat_nrp_48.asp)

**Framework:**

Budget: 15'000'000 Swiss francs  
Duration: 5 years  
Start of research: Begin 2002.

**Scientific secretariat/Contact:**

Dr. Stefan Husi  
Swiss National Science Foundation  
Wildhainweg 20  
3001 Bern  
Phone: 031 308 22 22  
Fax: 031 305 29 70  
E-mail: shusi@snf.ch

**Summary**

“The landscapes and habitats of the Alps and other European mountain areas are subject to an accelerated process of change. This process is due to natural changes, such as the effects of climate change, as well as to an increasing number of human uses and interests inside and outside of the Alpine region, all of which make various claims on the environment in specific ways. Changes in land rents are modifying land use in this region and this in turn has an impact on habitat quality for humans, animals and plants alike.

European integration, the globalisation of markets and new international regulations continually create new conditions in the fields of transport and communication, energy; agriculture, forestry and tourism. As national independence from these developments is decreasing, the regional and local impacts of these processes are accelerating, partly in interaction with cultural change. Consequently; there is an increasing need to shape these processes, particularly if they are to meet the requirements of sustainability. The NRP therefore intends to analyse the following topics and to make respective contributions to the conscious development of a central resource for the mountain areas and for our country. The processes and tendencies of transformation are described, quantified and evaluated. Monitoring concepts are proposed at different levels of spatial scale. The norms and standards of landscape and habitat development in the future are established and the extent to which they are acceptable through participatory processes is explored. The design of creative and effective measures enabling a target oriented development of landscapes and habitats either by means of market allocation or new institutional settings.

An important contribution of the NRP is the specific promotion of new methods and technologies for landscape analysis and simulation (methodological and instrumental contributions).

Overall, the creation of an increased awareness of the collective goods of landscape and habitat with their extensive social significance is promoted and an overview of the possibilities of developing appropriate areas under present and future conditions is presented. Research is to be co-ordinated in five main topic areas. Through an implementation strategy to be formulated, the NRP’s results will continually be exchanged and evaluated with interested persons and institutions. The NRP will collaborate and exchange experiences with simultaneously ongoing research activities on a European and international level; Swiss participation in different EU and international research programmes will support the NRP aims. Consequently; the NRP will actively aim to develop and enhance Switzerland’s research potential in this matter and intensify the collaboration on the European and international level.” (SNF 2001, p. 4)
4 Research on Multifunctional Forestry and Sustainability in Urban Areas

Rural development can be initiated by multifunctional and healthy (=sustainably managed) forests. Outspreading cities and agglomerations in former rural areas and the pressure on urban forests increased rapidly in the last decades. In terms of stimulus for future research in rural areas, some studies on multifunctional uses, sustainability and validation of forest benefits carried out in urban areas shall be presented. The following list does not claim to be complete.

4.1 Social Demands on the Swiss Forest (SAEFL 2000)


Abstract
“The study contains the responses of a representative opinion poll of the Swiss population on attitudes to the environment, nature and the forest. The core of the questionnaire concerned forests and forestry. By means of standardised telephone interviews around 2000 of a sample of 3000 could be questioned, giving a relatively high response rate of 68%. The present evaluation is restricted initially to a descriptive analysis of the opinions obtained. This is supplemented by selected analyses of related individual questions, and through a general appreciation of the overall results in terms of forestry policy. Among other things, these show a fundamentally positive attitude of the population towards the forest as well as the outstanding significance that all population groups and areas of Switzerland afford the forest as a space for nature and recreation. From the political point of view the questionnaire results lead to the conclusion that the important instruments of forestry policy (especially the ban on clearfelling, right of entry to forests and financial contributions to forest care) are generally highly acceptable to the population. For the forestry authorities it is particularly interesting that while knowledge about the forest and forestry is in parts somewhat sketchy, the population nevertheless has great interest in this information” (SAEFL 2000, p. 5).

4.2 Precious Environment (SCHELBERT – SYFRIG et al. 1988)


Abstract
The third part of this study is about the state of the environment in the a forest area close to Zurich. It aims to quantify the indisputable great signification of the forest Zürichberg/Adlisberg to the population. Based on a questioning the visit-frequency in this forest has been estimated on 1.2 –3.3 million visitors a year. Based on the visitors appreciation for this visit a total benefit of 10-27 million Swiss francs provided by the Zurichberg/Adlisberg forest was estimated. This corresponds to an actual value of the testing-area of 1.0 –2.8 billion Swiss francs (respectively 125-345 Swiss francs per hectare).
Considering the supplementary benefit due to its simple existence the value increases to 600-826 Swiss francs per hectare. If the value of the forest is expressed through timber production only, it is obviously underestimated. Hence, from the macro-economic point of view, protection and conservation measures are paying as long as their cost don’t exceed

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the total benefit. From the forester's point of view some other interesting results are worth mentioning. The authors differentiate several types of visitors, each with a specific behaviour:

- Green **Idealists**
- **Instrumentalists** using the forest as fitness studio
- Close to the forests living **Traditionalists**
- **Conventionalists**, mainly representing retired people.

In addition to this typology socio-topes can be distinguished, each one attracting visitors with their typical recreation behaviour patterns. The forest policy relevance of this study lies in its emphasis on the economic potential of a visitor oriented forestry.

### 4.3 The Value of Forests as Recreation Areas in Urban Environments (NIELSEN 1992)


**Abstract**

In this study the willingness to pay for amenities provided by forests and socio-economic situation of the respondents were examined in order to quantify the benefit of the forest as a natural resource. Several polls have been conducted in the suburbs of Lugano. The survey has been divided in two parts. The first part incorporates a representative poll based on a previously effected qualitative opinion survey of selected households. The second part is based on a survey in a selected forest. Simultaneously a frequency counting of visitors of the forest was done.

Both quantitative and qualitative research methods have been applied. The results do not reveal fundamentally new results as compared to the proceeding study by Schelbert-Syfrig et al. Willingness to pay is probably overestimated by the interviewees, even though its lower than in the other study referred to above. The existence and recreation value of the forest are remarkably lower. To sum up, it can be said that the different quantification theories and methods are discussed in detail and hence provide a solid foundation for further research.

### 4.4 Qualitative Survey on the Attitude of the People towards Forests and Forestry: Illustrated by the Example of La Chaux-de-Fonds (KAZEMI 1994)

*KAZEMI 1994: Etude exploratoire et qualitative sur l’attitude des gens envers la forêt et la gestion forestière: À l’exemple de La Chaux-de-Fonds. Professur Forstpolitik und Forstökonomie ETHZ, Zürich, Arbeitsberichte Allgemeine Reihe, Nr. 94/3.*

**Abstract**

This study inquires into the attitudes of people towards forests and forestry/forest management. It was conducted in La Chaux-de-Fonds with 16 qualitative interviews. The study aims to represent the origin and characteristics as well as the different attitudes of the respondents towards the forest and its management. The result of the study is meant to provide an instrument for future activities of the forest service in order to optimise the work in the forest according to the requirements of the population. The survey is to verify two hypotheses: firstly it is assumed that there is a nexus between the people’s attitudes towards forestry and forests and secondly that the way forestry is performed affects the respect of the people towards the forests in a negative way.

Basically the interviewed people are satisfied with the management of the forests in La Chaux-de-Fonds. This general satisfaction surprises at a first glance but can be explained to some extent with regard to the traditional forest management practices in the Canton of Neuchâtel.

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4.5 **Ecological Upgrading of Forest Edges (BONHAGE / DÖBELI 1994)**

Survey on vegetation development after different upgrading measures and on aesthetics and recreational functions of forest edges.


**Abstract**

Forest edges are highly diversified ecosystems. Due to their linear shape on the one hand they structure the landscape and on the other hand they connect isolated ecosystems. In order to maintain and improve their function as an element in the landscape, they need care and upgrading. The topic has been treated in two diploma theses at the Swiss Federal Institute of Technology in Zurich.

Bonhage studied the ecological upgrading of forest edges in general and the peoples perception of already upgraded objects with a quantitative opinion poll. Upgrading of forest edges, and its quality respectively, are investigated as to what extent they are reflected in the attitude and perception of the respondents.

Since upgrading measures are often considered not to be aesthetic and unattractive for the observer’s eye, they are not always accepted. Döbeli’s study aims to analyse the visitor’s attitude and perception of forest edges by means of qualitative interviews. The results can be used to optimise planning and implementation of upgrading measures for forest edges.

4.6 **Wildlife Park ‘Langenberg’ (BANFI / FROST 1987)**

Study on customer preferences and willingness to pay.


**Abstract**

“This study aims to analyse the willingness to pay for common property by means of different methods to examine customer preferences. The wildlife park Langenberg is administered by the city of Zurich. It is open to the public and can be considered to be common property. A more general part of the study emphasises the problems of common property and applies different methods to assess customer preferences. The main part describes the survey object, method of data collection and the results of the survey. This study contributes to the discourse on the quantification of common property. It focuses on the economic potential of nature and recreation areas in urban environments.” (BANFI / FROST 1987: p.3, translated by the compiler)

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5 Examples of Concrete Measures

The contribution of multifunctional forestry to rural development has to be quantified. Assuming that forests affect rural development directly and indirectly, it is interesting to point out some concrete measures which have been done so far. In this context the following three measures have been chosen.

Local Agenda 21

"Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organisations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment.


Based on this international convention, Switzerland promotes the formulation of local agendas 21, the similar institution on the regional and local level. Therefore an information booklet has been published in 1999 (BUWAL 1999). The so called ARE-Promotion Program launched by the Federal Office for Spatial Development (Amt für Raumentwicklung) is heading for the same goal of sustainable development. In this programme, projects are promoted which meet strict demands for sustainability.

Alpine Convention 15

The Alpine Convention is an international agreement to guarantee the protection of the Alps as well as a sustainable and permanent development of alpine regions. The convention was signed by seven nations of the alpine region (Austria, France, Germany, Italy, the former Yugoslavia, Liechtenstein and Switzerland) and the European Union in November 1991. It was promulgated in 1995.

The 'Comission Internationale pour la Protection des Alpes' (CIPRA) is one of the founders of this international treaty and officially authorised observer of the Alpine Convention.

Measures are taken with protocols which are formulated for the following 9 topics:

- Nature Landscape Protection
- Agriculture in Mountainous Regions
- Spatial Planning and Sustainable Development
- Mountain Forest
- Tourism
- Energy
- Soil Protection
- Transportation
- Conflict Arbitration

Costs of the specific projects are low because the work is mostly done by volunteers. Administration and management is paid by the customer (farmer, forest service, etc.), the Swiss confederation promotes information facilities.

According to the provisional decree on the ratification of the Protocols of the Alpine Convention the federal council points out that rural development (development of mountainous regions) can be positively influenced by the impacts of the Alpine Convention and its Protocols. In addition the Swiss legislation does not have to be modified in order to implement the Protocols. Once all the protocols are ratified, the Alpine Convention can be considered to be a legal instrument in rural policy.

15 BUWAL 2000.
**VaFor (Valorisation des Forêts)**

In the past forest owners regularly benefited from their forests. Increasing economic pressure on timber production (timber price, alternative products, processing, etc.) and growing social interests especially in recreation and conservation challenge the forestry sector. Sustainable forestry is required by law. In this context the federal Forestry Directorate launched the project VaFor (Valorisation des Forêts) in 1994. This initiative was meant to help forest owners to benefit from other forest products than timber.

In 6 tasks the economic and legal conditions were examined in order to provide it as information and practical guide for forest owners:

- General conditions (ecology, legal and free-market conditions)
- Products and benefits (definition of new products, benefits and functions of the forest)
- Analysis of marketing partners (market studies)
- Pricing of products and benefits (assessment of pricing margins)
- Information and implementation (practical implementation)
- Controlling

The major outcome of the VaFor project was a guide for forest owners (BUWAL 1997 and BUWAL 1998). This guide is a valid support for forest owners to market different forest products and benefits from forests.

**Conclusion**

These three selected programs of actions show that rural development is part of different policies on different levels with different scopes, actors and institutions. It will be one of the most important tasks of the federal government to co-ordinate all these activities. There will be a big challenge for the forest administration to monitor all these processes and activities and to take the forest and its various aspects into account. With almost one third of the Swiss territory being stocked with forests there are many possibilities for intersectoral linkages between the forest policy sector and all other forest relevant public policy sectors, especially the rural policy sector.

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