7.6 Environmental and Spatial Development Policy

Peter Knoepfel,
IDHEAP, Chavannes-près-Renens

Stéphane Nahrath,
IDHEAP, Chavannes-près-Renens and IEPI, University of Lausanne

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1 Introduction

A number of similarities exist between environmental and spatial development policy in Switzerland. They have been part of the same administrative department since the second half of the 1990s (i.e., the Department of the Environment, Transport, Energy and Communications), both are concerned with the protection of the natural basis of life, they use similar instruments (spatially-oriented authorizations, plans) at implementation level, and, despite very different political conditions with regard to their emergence, their legislative bases came into force in the first half of the 1980s. However, in contrast to the relatively conflict-free emergence of environmental policy, that of spatial development policy was extremely controversial and this is reflected in the numerous problems it still faces in the area of implementation. For this reason, this contribution focuses more on the problematic emergence and implementation of spatial development policy than on the corresponding aspects of environmental policy. Nonetheless, this chapter, which is dedicated to the two policies (which are also separate at cantonal level for historical reasons), explores their common ground and returns to this in the concluding comments.

2 Environmental policy

Problems and deficits

Various developments can be observed in the eight problem areas of traditional environmental policy since the early 1970s. The least significant changes occurred in the areas of noise and nature and landscape whereas the most significant progress was achieved in the areas of waste and the prevention of hazardous incidents. The other four areas (i.e., water, air, soil and substances) lie somewhere between these extremes and the same trends can also be observed in the international context. The current situation (as of 2005) may be characterized as follows:

- With rate of connection to wastewater treatment plants of 97 percent, Switzerland heads the international league in terms of *water pollution control*. However, 2.5 percent of all plants must be rehabilitated annually. The fourth phase of treatment (phosphate filtration) is only available in 29 of the country's approximately 950 plants. The quality of Switzerland's surface waters has improved significantly. By contrast, the ground water, which is required for 80 percent of drinking water abstraction, is still at risk from nitrate, chloride and chlorinated hydrocarbon (CHC) pollution. Rivers and streams are being systematically revitalized

since the mid-1990s. However, little progress has been achieved in the rehabilitation of streams with insufficient residual water volumes, which has been required by law since 1992.

- Whereas *air quality* has improved significantly over the past 25 years in terms of the levels of sulphur dioxide (SO_2) and heavy metals, nitrogen oxide values (NO_x) and ozone limit values are still being exceeded. Thanks to the increasing availability of catalytic converters, NO_x pollution levels are decreasing; ozone is currently stable at a level that is still harmful to health. Under unfavourable weather conditions, the volumes of particulate matter in the air often exceed limit values in the vicinity of the main transport axes. The reclamation of contaminated sites for air hygiene purposes and the implementation of more stringent emission limit values in 1992 in industrial plants have largely been completed. Gaps still exist, however, in trade and small industry. By contast, few quantifiable successes have been recorded in the area of transport. This sector is also responsible for the high level of CO_2 emissions, which continue to exceed the target value.[1]
- Despite the increase in the volumes of waste generated (306 kg per inhabitant in 2003 as compared with 172 kg in 1990, BFS Statistisches Jahrbuch 2005: 155) considerable successes have been achieved in the area of *waste policy* over the past ten years. Switzerland's rate of recycling (paper, aluminium cans, PET bottles, tin cans) is very high as compared with other countries, packaging volumes and the mercury content of batteries have been reduced and the composting of organic substances has been increased considerably. In addition to the strengths of Switzerland's waste disposal regime – effective disposal systems, reduced levels of pollution, polluter-pays financing of measures, high levels of autonomy – a recent comprehensive evaluation (BHP 2006) also demonstrates its weaknesses, i.e., the lack of an overall policy on resources or raw materials, the inadequate monitoring of implementation activities and the problems that exist in relation to landfills.
- Little has changed with regard to *noise pollution control*. Since the 1980s, 25 to 30 percent of the population have been exposed to high levels of noise from road and rail traffic. Deficits with regard to abatement measures exist in the areas of cantonal and municipal roads, the rail network and airports. As a result, the abatement deadlines for roads had to be extended in 2003 (i.e., now 2015 or 2018 as opposed to 2002). The measures to be implemented to abate the noise caused by railways will not be completed until 2015.[2]
- Improvements have been achieved in the area of *soil protection* over the

past five years. Thanks to the measures implemented to achieve reductions in emissions, there has been a reduction in the input of pollutants from the air and waste into the soil. However, instances of the exceeding of guideline values are still being reported (e.g., zinc, copper, and cadmium inputs from farmyard manure and mineral fertilizer) and of soil pollution arising from soil compaction, changes in the terrain and third-party uses in agricultural areas. Soil sealing as a result of settlement and road development continues to increase. The annual loss of agricultural land remains consistently high (0.9 m^2 per second). There are between 3,000 and 4,000 contaminated sites in Switzerland. Approximately 200 of them were rehabilitated in recent years. In addition to other urgent operations, the rehabilitation of the Kölliken and Bonfol hazardous waste sites is due to be carried out at a cost of CHF 700 and 300 million, respectively. The total cost of the rehabilitation of contaminated sites is estimated at CHF 5 billion.

- Average to high levels of success have been achieved in the area of *chemicals policy*. Thanks to the increasing use of life cycle assessments (LCA) and improved eco-toxicological testing procedures, self-monitoring by companies has improved significantly.
- Switzerland's *policy for the prevention of hazardous incidents* has been very successful. The risks are largely known and the implementation of a new operational safety policy has enabled the reduction of potential hazards. Deficits still exist, however, in trade and small industry.
- Few positive changes can be reported in the area of *nature conservation and landscape protection*. The spread of settlement areas and public infrastructure, the disappearance of tall fruit farming areas and the annually expanding road and rail networks (800 km per year) speak volumes in this context. The number of animal and plant species which have become extinct or are at risk of extinction continues to increase.

Development of the legislation, aims and modes of intervention

Based on the classification proposed by Jänicke and Weidner (1997), it is possible to identify four development phases in Swiss environmental policy:

- *1960 to 1975: the first fire brigade exercises: "Dilution":* this early policy was characterized by its strong imissions or impact orientation. State intervention was limited to "fire drills", which were only carried out in areas with very high levels of pollution. It consisted of the spatial-temporal "improvement" of the distribution of pollutants (e.g., tall factory chimneys, discharge of wastewater into large receiving water courses, etc.) and the implementation of measures for specific polluted

areas (low-sulphur heating oil for cities, evacuation of industry, etc.). The objects protected by this municipal or cantonal intervention were limited to areas with particularly high exposure to pollution. Such strategies were implemented in Switzerland until the mid-1970s. Examples include the restriction of controls of domestic heating systems to problem areas and the concentration of water treatment on municipalities with low water supplies. The end of this period was marked by the passing of the Federal Ordinance on Wastewater Discharge of 8 December 1975.[3] This legislation introduced, for the first time, emission restrictions which were generally applicable, irrespective of the condition of receiving water courses. A similar turning point also occurred around the same time in the area of cantonal air pollution control and in (case-specific) federal imissions protection policy. The actor constellation in this "police policy" is always bilateral, i.e., with the policing authority on one side and the polluting "perpetrators" on the other.

- *Simple end-of-the-pipe policies (1975-1986):* although first rooted formally in the Federal Law on the Protection of the Environment of 1983,[4] the "two-phase concept" of Swiss environmental policy, which remains valid today, was adopted after the promulgation of the above-mentioned Ordinance on Wastewater Discharge. Based on this approach, measures are implemented to limit emissions throughout the country, irrespective of the existing levels of pollution. If excessive levels of pollution occur (i.e., exceeding imission limit values) despite the implementation of these limit values, further restrictions must be undertaken to reduce them. This policy was first applied in the area of water pollution control, followed by air pollution control and, finally, in the area of soil policy. It is derived from a broad ecosystem-based concept which has demonstrated with increasing scientific precision that pollutants accumulate, migrate ("acid rain") or concentrate to form material flows which trigger effects far beyond the point of input. This new policy required *generalized emissions containment strategies* which resulted in the introduction of an increasingly broad range of emission limit values, product and process standards. These were developed, implemented and gradually tightened up between 1975 and 1986. A bilateral actor constellation also dominated this second phase of Swiss environmental policy development. The imission limit values were adopted from the (scientific) recommendations of the World Health Organization and the environmental protection organizations were not involved in their development. The same applies to the emission limit values: they represent the product of negotiations between the sectors involved and the state authorities.

- *Intensified end-of-the-pipe policies (1986-1992):* with the coming into force of the most important environmental decrees during the second half of the 1980s, a considerable dynamic emerged on the side of industry which ultimately led to the establishment of an eco-industry sector (i.e., eco-business). Emission limit values became a factor influencing policy. The sectors involved demanded that they be applied uniformly and acknowledged the increasing economic advantages to remaining below such limits (energy and material savings; new technologies). This "technology-forcing policy" enabled the tightening of emission limit values, for example, in the area of air pollution control in 1992. "End-of-the-pipe technologies" became a business and the engine driving economic renewal. The environmental organizations also grew stronger during this phase. The previous bilateral actor structure opened up and towards the end of the period became a trilateral structure in the form of an "iron triangle".
- *Ecological modernization (1992-2005)*: this most recent phase is characterized by the political mutation of the topic of the environment which is in the process of losing its political attractiveness: based on the theory of sustainable resource management, it has now become a component of economic policy. Against the backdrop of the Earth Summit in Rio de Janeiro in 1992, the insight that environmental policy involves more than emissions management has also gained acceptance in Switzerland (Minsch *et al.* 1996). According to this approach, private sector companies – but also the State and its polluting policies – should charge for the consumption of natural resources (Knoepfel and Nahrath 2005). We are now in the initial stages of this development in the context of the new policy of sustainability (Conseil fédéral 2002).

Up to the mid-1980s, Swiss environmental policy worked with *traditional regulatory command and control instruments*. This is already evident from the fact that decisions regarding authorization, rehabilitation or sanctions, which are taken in accordance with the environmental protection legislation, are not carried out as independent processes, but in most cases as (new) aspects of existing procedures (construction, planning and licensing procedures). With the entry into force of the environmental protection legislation and the associated ordinances, *new instruments* were added to these measures. These include the environmental impact assessment (EIA), which have increasingly assumed a coordination and integration function within and outside environmental policy. Up to 2005, well over one thousand such assessments were carried out on large industrial plants throughout Switzerland. The right of appeal of the environmental organizations, which is intended for

such cases and is today (in 2005/6), has contributed to a change in administrative practice in that these organizations now become involved in negotiations at an early stage (see UVEK 2004) and have assumed an important correction function. Another interesting instrument which has emerged in the area of chemicals law is self-monitoring by manufacturers who have developed autonomous and increasingly complex materials control processes at operating level.

In the first half of the 1990s, environmental policy also gained increasing experience with c*ooperative instruments* (in particular, waste policy), *negotiated solutions* (in the context of conflicts concerning large-scale plants), material-related *life cycle assessments*, operation-related *eco-audits* and *publicity campaigns* (air pollution control, waste). Instruments of *interpolicy cooperation* also became established in selected policy areas (in particular: agriculture, tourism). This was made possible in agriculture by the fact that as a result of the GATT Uruguay Round (1992) – and also due to internal pressure in the area of water pollution control (Sciarini 1995; Knoepfel and Zimmermann 1987) – official policy shifted from product-related to area-related subsidies and specific ecological services provided by farmers are rewarded in the framework of such direct payments.[5] In this way, nature conservation and landscape protection policy succeeded in partly implementing its concerns through agricultural policy.

At the same time, *planning instruments* were also reinforced. These are based on the assumption of overall regional impacts and provide packages of measures for the phased reduction of impacts in accordance with (usually quantitative) strategic objectives. Examples of this include air quality action plans (with the new instrument of kilometric performance models as implemented, for example, in the cantons of Bern and Zurich), the general drainage plan for local water management, the new *Landschaftskonzept Schweiz* (Swiss Landscape Concept) (BUWAL 1998) and the integration of noise protection into municipal land-use plans. The Federal Law on the Reduction of CO_2 emissions of 8 October 1999,[6] which prescribes quantified reduction quotas, also incorporates a planning component. These environmental policy planning instruments facilitate the "come-back of environmental policy into space". This will also be made possible by the revision of the Federal Law on the Protection of Nature and Cultural Heritage,[7] which was ratified by the Swiss Parliament in spring 2006 and contains provisions for the creation of regional parks. Finally, some *economic instruments* (tax on heating oils containing sulphur, volatile organic compounds (VOC)), the spatial-planning-based protection of catchment areas for waste disposal plants and CO_2 taxes[8] (limited to combustible fuels) were implemented in recent years in the con-

text of the revision of the environmental protection legislation of 1996 and the CO_2 legislation of 1999. The environmental liability legislation has not yet been subject to any change.

Actors and administrative structures

Apart from a few exceptions for which the federal authorities are responsible (e.g., chemicals, type testing of devices and motor vehicles, combustible fuels), the implementation of environmental policy is the responsibility of the cantons which, in turn, delegate some of the tasks involved to the municipalities. The *administrative implementation capacities* are correspondingly divided between the three administrative levels. Based on our estimations, in mid-2005, approximately 500 permanent posts were allocated to environmental policy on the level of the *federal administration,* 1,500 on the level of the cantons and a total of 6,000 at municipal level. This total capacity of around 8,000 posts is considerable. Despite increasing budget deficits and the decline in the political attractiveness of the environment as an issue, half of these posts were actually established over the past decade. Public spending on environmental protection in Switzerland totals around CHF 3.5 billion (2002), which represents around 2.5 percent of total spending (BFS Statistisches Jahrbuch 2005: 159, 769). Following the enactment of the Federal Law on Environmental Protection, the Federal Office for Environmental Protection, which emerged from the Swiss Office for Water Pollution Control, underwent rapid growth. In 1989, this authority was merged with the Federal Office for Forestry and Landscape Protection to form the Swiss Federal Agency for the Environment, Forests and Landscape (SAEFL) and was then restructured in a way that strengthened the transverse functions.[9] In early 2006, SAEFL was merged with the former Federal Office for Water and Geology.[10] The resulting authority is called the Federal Office for the Environment (FOEN)[11] and is divided into four divisions (vice-directorates) with a total of 13 departments, 50 sections and seven administrative departments. Environmental policy capacities were also developed in other federal offices in the 1990s (e.g., the Federal Offices for Health, Energy Economics, Transport, Agriculture, Statistics and Spatial Development).

The development of administrative capacities at *cantonal* level is even more impressive. Under the Swiss environmental protection legislation of the second half of the 1980s, the cantons were obliged to establish eight specialist offices (water, air, waste, materials, hazardous incidents, soil, noise and nature and landscape protection). These specialist offices are not always united in a single authority. Thus, policy implementation exhibits a varying degree of horizontal centralization. In the past, this gave rise to co-

ordination problems and delays in licensing procedures which were overcome in part by the adoption of the Law on the Coordination and Simplification of Decision-Making Procedures in 1999.[12]

Considerable environmental capacities have been developed at *municipal* level over the past 20 years. Thus, in addition to personnel involved in water pollution control, municipalities with around 10,000 inhabitants also have environmental personnel who deal specifically with air pollution control and transport, waste disposal, nature conservation, noise protection and, more recently, with the implementation of "Local Agenda 21" projects (sustainable development).

The significance of the *courts* has also increased in parallel to the increase in the regulatory density of environmental law. This is demonstrated by the growing abundance of legal literature on the subject (see Kölz *et al.* 1985; Rausch 2005). The cantonal administrative courts and the Federal Supreme Court have recently emerged as guarantors of the stringent application of the Swiss environmental protection legislation.

The *policy beneficiaries* of environmental policy are represented by numerous nature conservation, environmental protection and landscape protection associations, whose members represent over one tenth of the Swiss population.[13] This is higher than the figure for trade union membership and almost three times as high as that of political party membership (see Chapter 4.2 on Political Parties). Most of these organizations are included in the list of – now 30 – associations which have a right of appeal in the area of environmental protection in accordance with the environmental protection legislation and the corresponding ordinance of 1990.[14] Of these organizations, those with the highest number of members are the World Wildlife Fund Switzerland (WWF), Verkehrsclub der Schweiz – Transport Club of Switzerland (VCS), Pro Natura (formerly Schweizerischer Bund für Naturschutz – Swiss Union for Nature Protection), Schweizer Alpen-Club - Swiss Alpine Club (SAC) and Greenpeace Switzerland.[15] The medium-sized organizations include the Naturfreunde Schweiz – Swiss Friends of Nature (NFS), Schweizer Heimatschutz – Swiss Homeland Protection (SHS), Verband Schweizerischer Abwasserfachleute – Swiss Association of Sewage Specialists (VSA) and the Schweizer Fischerei-Verband – Swiss Fishing Association (SFB). Smaller organizations with a right of appeal are also active on the policy implementation level, for example the Schweizerische Vereinigung für Landsplanung – Swiss Association for Land Planning (VLP), Schweizer Vogelschutz – Swiss Bird Protection (SVS), the Schweizerische Gesellschaft für Umweltschutz – Swiss Community for Environmental Protection (SGU) and the Schweizerische Stiftung für Landschaftsschutz und

Landschaftspflege – Swiss Foundation for the Care and Protection of the Landscape (SL).

All of these associations have qualified environmental scientific expertise which they contribute in the context of the development of new ordinances and in the implementation of environmental impact assessments for major construction projects. Their members are often the employees of public authorities. The most important associations joined forces in the first half of the 1990s to form an environmental coordination group which regulated the sector-specific and project-specific division of tasks. The larger organizations have substructures organized on a cantonal basis and based on the different linguistic regions. The organizations are increasingly involved in direct negotiations with trade and industry, agriculture, households and state infrastructure policy fields (in particular: transport). Based on the principle of cooperation, they enter into agreements with these groups, share eco-labels, play an important role in environmental education, information and consultancy and act as the providers of eco-oriented services.

The electoral performance of the Swiss Green Party (Grüne Partei der Schweiz), which emerged from various groups in the 1980s and has been represented in the Swiss Parliament since 1983, is average in the European context. In 1991 it achieved 6.1 percent of the votes, but it lost votes to the Social Democratic Party (SPS) and only just managed to win 5 percent of the vote in 1995. In the elections for the main chamber of Parliament (*Nationalrat/Conseil national*) of 2004 it again achieved a higher number of votes (7.4 percent) and has made considerable gains since then in cantonal and municipal elections. After some initial hesitancy, the SPS has been extremely active in the area of ecology and the environment since the early 1990s and is now seen as an important proponent of ecological issues. Based on the consulting process concerning the revision of the Federal Law on the Protection of Nature and Cultural Heritage (1995), it emerged that there was sufficient will even among the bourgeois parties to continue with the relatively progressive environmental policy of the 1980s. The parliamentary victory of a proposal by the Swiss People's Party (SVP) for the considerable limitation of the mandatory EIA and of the environmental organizations' right of appeal (the Hoffmann parliamentary initiative[16]) in late 2005 demonstrates a shift towards a stronger emphasis on economic factors in Swiss environmental policy.

At around four percent (BUWAL 2005: 15), the Swiss *eco-industry*'s contribution to GDP is far in excess of that of agriculture (approximately 1.4 percent, BFS Statistisches Jahrbuch 2005: 325).[17] The eco-industry is gaining significance in the areas of waste, water pollution control and air pollu-

tion control and it has significant potential in the area of noise protection. The service component is gaining in significance (training, consultancy) in all of these areas. Considerable learning processes have been taking place in the remaining industrial and commercial sectors and in the services sectors over the past five years. These are reflected in the new company role models, eco-control mechanisms within companies and in the changeover of product ranges. There is still a significant demand for eco-labels and the eco-certification of companies (based on ISO standard 14001), which would suggest the promise of improved operational and product-specific life-cycle assessments.

This trend included *agriculture* until the mid-1990s at the latest. With the support of direct ecological payments, which motivated farmers to change over to integrated production (IP), in particular, and to engage in organic farming in increasing numbers, agriculture and the large distribution chains have strongly developed the ecological argument in product advertising. The percentage of eco-friendly organic operations in terms of the total number of agricultural operations in Switzerland reached 9.3 percent in 2003 (BFS Statistisches Jahrbuch 2005: 345). This reflects the general willingness of Swiss consumers to purchase environment-friendly products (Bisang, Moser 2005).

Overall, as compared with 1985 (when the environmental protection legislation entered into force) and despite the low level of political support, it may be assumed today that ecological policy has a very high economic potential. Ecology has become an economic factor in terms of value added and jobs. Thus, ecological policy has succeeded in safeguarding its potential economically.

The status of policy implementation and effects

Systematic empirical analyses of the effects of all of the areas of Swiss environmental policy, which would also incorporate the implementation activities of the cantons, have yet to be carried out in Switzerland. The first OECD evaluation was carried out in 1997 (OECD 1998). Material for such an evaluation can be found in the five reports on the state of the environment that have been published by SAEFL and the Swiss Federal Statistical Office (BUWAL 1991, 1994, 2002a; BUWAL and BFS 1997; BFS 2002) and in various cantonal environmental reports, which have been published in third and fourth editions (in particular, those concerning Bern, Aargau, Zurich and Lucerne).

In 1997, the OECD[18] confirmed that, overall, Switzerland had very ambitious environmental policies which achieved considerable results, but which

could be further improved by a more consistent use of economic instruments. Fault was found with the rural water pollution control services, the initially weak air-pollution control measures in the transport sector, the tentative measures for the rehabilitation of contaminated sites and the lack of ecological compensation areas. It was also recommended that environmental policy concerns should be better integrated into other sectoral policies (in particular transport and agriculture).

A summary evaluation on the effectiveness of the environmental protection legislation of 1992 shows low yields/outputs (and low costs) in the areas of noise and soil protection, comparatively high costs and low yields in rural water pollution control and considerable results with low spending in the area of environmental chemicals policy (Geschäftsprüfungskommission NR 1992). According to Mauch and Balthasar (2005), a total of 44 systematic evaluations were carried out on various sub-sectors (*inter alia*, Geschäftsprüfungskommission NR 1992: air pollution control, environmental impact assessment and rural water pollution control; Knoepfel *et al.* 1995: air pollution control action plans; Balthasar and Knöpfel 1994: air pollution control for domestic heating systems; Knoepfel *et al.* 1996: soil protection; BHP 2006: waste; Ecoplan 2000: water; Parlamentsdienste 2003: landscape protection; BUWAL 2002b: noise; Delley *et al.* 1994: air; Sager and Schenkel 2004; Flückiger *et al.* 2000: environmental impact assessment and associations' right of appeal). Table 1 shows the knowledge deficits identified by SAEFL in 14 environmental sectors.

Mauch and Balthasar (2005: 34) demonstrate that the need for evaluation is greatest in the areas of climate, landscape protection, noise and vibrations and nature conservation and biodiversity. Since 1986, UNIVOX has been measuring the pressure exerted by the population on the environmental policy authorities. The considerable progress in the implementation of environmental legislation and the declining status of environmental policy since 2000 have resulted in an obvious reduction in this regard (Bisang and Moser 2005).

Table 1 Knowledge deficit based on environmental sectors

	Environmental Policy Sectors													
	Waste	Contaminated sites	Soil protection	Water bodies & fishing	Climate	Landscape protection	Noise & vibration	Air pollution control	Nature conservation & biodiversity	Environmentally harmful organisms	Environmentally harmful substances	Radiation, NIS	Forest	International affairs
Lack of knowledge of implementation	-	++	+	--	++	+	+	--	--	++	++	++	--	+
Lack of knowledge of effects	-	++	+	-	++	+	+	-	+	++	++	++	--	+
Lack of knowledge of efficiency	-	++	++	+	++	++	++	++	+	++	++	++	-	+
General knowledge deficit	-	++	+	-	++	+	+	-	+	++	++	++	--	+

Legend: ++ or +: (very) high level in the corresponding area (e.g., "expensive policy", significant implementation deficits).

-- or -: (very) low level in the corresponding area (e.g., low level of fulfilment of objectives assumed, low level of political interest).

Source: Mauch, Balthasar 2005: 32

Future perspectives

Despite considerable efforts, it is still not possible to state conclusively whether the aforementioned ecological modernization in the direction of consistent resource management (Knoepfel and Nahrath 2005) will succeed in becoming established as trumpeted by Switzerland's new environmental authority, FOEN (Direktionsstrategien 2005). Environmental economists show that, far from becoming more expensive, important ecological resources tend to be cheaper today (energy and infrastructure). There is no prospect of a solid actor constellation which would enable a consistent valorization of natural resources. Despite the small economic upturn, the overall signs remain negative: the globalization of markets is forcing cost reductions, a reduction in the cost of mobility and the adoption of short-term survival strategies. The situation on the labour markets is evaluated as an argument against farther-reaching environmental protection measures and in support of the stabilization of an eco-industry geared towards the management of emissions. Any fundamental modernization of environmental policy would involve the re-examination of this approach. Thus, the transition to ecological modernization which emerged in such a promising way in the 1990s is now faltering.

The evolution of Switzerland's spatial development problems

In the early days of Swiss spatial development policy, attention was mainly focused on the following issues: the lack of a clear distinction between building and non-building zones, the existence of a significant level of land speculation and the lack of an effective housing policy (Nahrath 2003; Walter 1986; Wemegah 1979). The consequences of this situation were the disappearance of large agricultural areas, a strong increase in periurbanization, the deterioration of landscapes and a dramatic increase in the price of land, which prompted a general increase in rent (housing crisis) and an increase in the cost of the production of goods and services which risks triggering an *inflationist spiral* (Conseil fédéral 1966).

The main issues in spatial development today are not fundamentally different, if only because the intensity of problems has tended to increase due to the acceleration of the tertiarization and internationalization of the economy (ARE 2005a). The pursuit of urbanization[19] and the increase in developed areas[20] (to the detriment of the agricultural land in periurban zones in response to the phenomenon of "decongestion"[21] and the rise of the motorcar), the public cost of urban spread, the uncertain future of buildings located outside of building zones, the balancing act between the development of cities and urban agglomerations and the negative spatial effects of fiscal competition between different municipalities constitute the main – and, for the most part also, recurrent – issues facing contemporary spatial planning policy in Switzerland.[22] However, certain issues draw particular attention today. These include the acceleration of metropolization and the increase in economic competition between territories, "rurbanization" (*Zwischenstadt, rurbanisation*) and deagriculturalization. To this is added the risk of imbalance in the national urban network at the cost of small and medium-sized agglomerations, the reinforcement of development inequalities between the different rural regions of the country (periurban rural areas, Alpine tourism centres and remote rural areas), the increase in socio-spatial and functional segregation, the increase in the costs of centrality in the urban agglomerations, the insufficient accessibility (in particular with respect to public transport) of certain (large) urban centres, the chaotic development of suburban industrial and commercial zones and, finally, the difficulty of rehabilitating industrial wastelands.

These problems have been progressively revisited from the perspective of the heuristic of sustainable development for around a decade now (Da Cunha and Ruegg 2003; Conseil fédéral 2002: 27s.); however, their definition has

not been substantially modified in any way.

The genesis and current status of spatial development policy

The agenda-setting phase of the 1960s and '70s was characterized by the clash of two opposing policy projects. The left-wing political organizations (Social Democratic Party, Union syndicale suisse (i.e., the umbrella trade union organization), Worker's Party), the environmental NGOs, some interest groups (tenants, families) and the Protestant churches supported the option of a *reform of the real estate law* (significant reinforcement of the rights of pre-emption and expropriation for the benefit of the State and the social re-integration of capital gains) and the establishment of a real *federal land policy* (significant increase in public ownership of the land). Several popular initiatives along these lines were launched during this period.

In response to the socialist initiative against land speculation of 1963 and the motion made by Member of Parliament Léo Schürmann in 1964, the Federal Council (i.e., the Swiss Government) proposed – with the backing of the bourgeois parties – the establishment of a federal spatial planning policy based on zoning (Conseil fédéral 1966). The solution that the right-wing Government succeeded in imposing consisted of enshrining in the Swiss Federal Constitution (Articles 22ter and 22^{quater} on the land law of 1969[23]) a compromise based on the establishment of a federal spatial planning strategy in exchange for the constitutional recognition of the guarantee of private property.[24]

The highly conflictual process of the development of the Federal Law on Spatial Planning[25] of the 1970s centred on two issues in particular. The first concerned the division of powers between the Federation and the cantons and involved the opposition between the supporters of a relatively centralized spatial planning concept[26] and the supporters of a more federalist concept.[27] The second concerned the legislative incorporation of a series of legal land use policy instruments, such as the right of pre-emption and of the taxation of capital gains. The latter mechanism constituted the central core of the legislation in that it was supposed to separate the financial issues of the real estate market from the basically "technical" task of zoning.[28] The first version of the spatial planning law of 1972 comprises both of these instruments and also attributes significant powers to the Federation in relation to planning.

Considering the insufficient effects of the provision of access to existing or planned water sewage utilities (federal laws on the protection of water of 1955 and 1971)[29] so as to identify *provisionally* zones which are suitable and unsuitable for development and to anticipate the development of "*fait ac-*

compli" strategies on the part of landowners and property developers, the Federal Council passed an urgent federal resolution[30] in March 1972 which authorized a freeze on construction in areas likely to be affected by the measures contained in the future law on spatial planning by placing problematic development zones and sensitive landscapes under mandatory protection. Moreover, due to the fact that any referendum against the project for the spatial planning law (and all the moreso a successful one) would involve the extension of this very restrictive emergency regime, this instrument, i.e., the urgent federal decree, constituted a kind of "Machiavellian mechanism". Nevertheless, opponents[31] launched a referendum in 1974.

The *de facto* elimination of the taxation of capital gains due to the success of the referendum of June 1976[32] undoubtedly constituted a major victory for the opponents of the spatial planning legislation. In fact, the second version of the law, which was finally ratified in 1979,[33] no longer included these property-based instruments[34] and also reinforced the powers enjoyed by the cantons at the cost of the federal State. Faced with the threat represented by demands for indemnification for material expropriation on the part of landowners and in the absence of the financial resources which the taxation of capital gains was supposed to provide, spatial planning policy was rescued through the "judiciarization"[35] of its implementation (Nahrath 2003, 2005) and the tightening of the conditions for the granting of indemnification for material expropriation by the Federal Supreme Court (Moor 2002). There is no doubt that, without this tightening of conditions by federal jurisprudence, numerous municipalities would have found themselves incapable of implementing the provisions of the law on spatial planning.

Thus, overall, the creation of Switzerland's policy on spatial planning constituted the response of the "bourgeois" parties to attempts by the social-democratic parties, trade union organizations and organizations representing the interests of tenants to reform real estate law and to promote a real federal land policy. This would probably explain why spatial planning policy appears to suffer from a kind of "land-related amnesia", as this constitutes one of the conditions of its emergence.

Since its entry into force on 1 January 1980, the Federal Law on Spatial Planning has been subject to *two partial revisions*, the objective of which was to simplify and relax certain provisions. The first revision in 1995 introduced a change in the right to service lands (Article 19) in the form of an authorization granted to landowners to take charge of the general servicing of land in a development zone, by means of a repayable advance, if the municipality delayed in doing so. The same revision of 1995 introduced a coordinating authority into the procedures for granting building permits and the

adoption of land-use plans (Article 25a). The second revision undertaken in 1998 was more radical and controversial.[36] Taking into account the increasing multifunctionality of rural areas, this revision relaxed the conditions governing the authorization of changes in the designation of structures and installations in agricultural areas (Article 16) and outside of building zones (Article 24), and in relation to the conversion of the latter for secondary non-agricultural uses.

In parallel to these initial changes to the spatial planning law, the 1990s represented a period of redefinition and, above all, a "re-hierarchization" of the basic principles and objectives of spatial planning policy. The latter are presented in a report of the Federal Council to the federal chambers of Parliament entitled "Swiss Planning Policy Guidelines" (Conseil fédéral 1996).

Objectives and modes of intervention

The law on spatial planning is based on *two main principles*, each of which gives rise to a specific series of objectives (Article 75 (section 1) of the Constitution; Bovay 2005; Nahrath 2003). The principle of the "judicious and restrained use of the land" involves a "clear distinction between building and non building zones" so as to avoid the dispersion of buildings and an increase in the number of houses in rural areas, the "long-term conservation of soil fertility" and the "reduction of the loss of arable land". The "rational occupation of the territory" involves an "improvement of the distribution of land uses" (consistency of zoning and the logic in the designation of uses), the "optimization of the use of development zones" (scale of development proportionate to the requirements of the next 15 years and an acceptable level of densification) and the "harmonious development of all of the territory" (decentralized concentration of urbanization, maintenance of regional balance). To attain these objectives, the law on spatial planning – which is defined as a framework law – provides the following information, zoning and planning, collaboration, coordination and authorization instruments:

- *The Federation's conceptions and sectoral plans* (Article 13, Federal Law on Spatial Planning; Article 14, Federal Ordinance on Spatial Planning; DFJ and OFAT 1981: 181-185). These are the two main instruments of direct planning at the disposal of the Federation and are used in the planning and coordination of federal sectoral tasks of a spatial nature. The conceptions indicate: (1) the objectives that the Federation expects to pursue in the areas concerned; and (2) the ways in which these tasks will be accomplished (e.g., interests to be taken into account, resources to be implemented, priorities). The sectoral plans comprise: (3) more specific indications with regard to the location of infrastructure

and the conditions for the realization and course of projects. The conceptions and plans are developed by the federal service responsible for the task in question. They are adopted by the Federal Council and have binding force for all public authorities.[37]

- *Zoning*, i.e., the creation of *zone plans* that distinguish between building zones, agricultural zones and protected zones. Zoning constitutes the main instrument of spatial planning policy. Zone plans are developed at the different planning levels, i.e., cantonal, regional and municipal. They differ in terms of the objectives and legal scope according to the level of planning involved:
  - The *cantonal spatial master plan (kantonaler Richtplan/plan directeur cantonal*) (Articles 6-12, Federal Law on Spatial Planning) is the main instrument for the management and coordination of (cantonal) spatial organization. Based on a detailed description of the status of the coordination of the activities of the Federation, canton and municipalities for the main sectors (agriculture, protection of nature and the landscape, hazard protection, urbanization, transport and communications infrastructure, construction of public buildings and infrastructure), it enables the development of an overall vision of the objectives and issues of spatial development. It thus acts as means for the orientation and evaluation of municipal land-use plans. Similarly, each cantonal spatial master plan must be submitted to the relevant federal authorities for approval. They are "completely re-examined every ten years and amended where necessary" (Article 9 (section 3)). They have binding force for the public bodies (Article 9), but not for landowners. This instrument has been increasingly used on other levels, in particular the regional (agglomeration development plans) and local (municipal development plan) levels.
  - The *municipal land-use plan (kommunaler Nutzungsplan/plan d'affectation communal*) (Articles 14-27, Federal Law on Spatial Planning). This instrument defines the designation of the possible uses of different parts of the municipal territory (Article 21 (section 1)) and is universally binding. It identifies zones suitable for building and zones not suitable for development (agricultural and protected zones). In doing so, the municipal land-use plans "define for each landowner the mode and limits of economic use of his/her property" (DFJP and OFAT 1981: 187). The municipal land-use plans are compiled by the municipalities on the basis of a democratic procedure and must comply with the cantonal spatial master

plan (Article 26 (section 2), Federal Law on Spatial Planning - LAT) and with any applicable requirements contained in the Federation's conceptions and sectoral plans. Special land-use plans, which regulate the planning for smaller zones (neighbourhoods, plots), may also be compiled for the purpose of concretizing the municipal land-use plan. The municipal land-use plan is approved by the cantonal authorities and acts as a basis for the granting of planning permission.

- *Building permits* (Article 22-24, Federal Law on Spatial Planning). One of the main effects of zoning and the restrictive definition of land-use consists of the creation of a general regime for granting permits for the construction of buildings based on the following principles (DFJP and OFAT 1981: 256): the obligation to service the land for development, the compliance of structures and installations with the designation of the zone and the obligation to obtain an exemption in the contrary case (i.e., for structures located outside of designated development zones).[38]

A series of "auxiliary instruments" based on land law also exists, the implementation of which is the responsibility of the cantons: i.e., the consolidation of plots and its coordination with zoning (Article 20, Federal Law on Spatial Planning), the obligation of landowners to service land and contribute to the cost of servicing (Article 19) and the establishment of a (cantonal) compensation regime based on the taxation of capital gains (Article 5).

This first generation of spatial planning objectives focuses on the management and protection of rural areas (agricultural and natural). From the 1990s, *two other objectives* assumed prominence: the strengthening of the economic competitiveness of areas and the tackling of urban problems. The pursuit of these objectives involved a strategy combining a level of deregulation (greater flexibility in the implementation of spatial planning principles), the shift from an anticipatory planning logic to a processual logic of the organization of space and, finally, the expansion of the field of action through the establishment of consistency between sectoral spatial policy principles (spatial planning, agriculture, infrastructure, transport, nature conservation, landscape protection and environmental protection).

This acknowledgement of the *problems of urban areas* by the federal political agenda was confirmed and extended through the enshrining of the principle of the consideration of the interests of cities and urban agglomerations in the Federation's policies in the Swiss Federal Constitution (Article 50 (section 3)) in 1999, the publication of the Federal Council's report on the urban centres (seco, OFAT 1999) and the implementation of the new federal policy on urban agglomerations (Conseil fédéral 2001).

The main policy actors

The central *political-administrative actors* in the area of spatial planning are the Federal Council, the Federal Office for Spatial Development (ARE/ODT, formerly OFAT),[39] and the 26 cantonal services created before or after the entry into force of the Federal Law on Spatial Planning in 1980. The Office for Spatial Development assists in – and monitors – the implementation of the spatial planning law by the cantonal services which, in turn, fulfil the same function *vis-à-vis* the municipalities. While the cities have planning or urban development services with the necessary technical resources, the development of land-use plans in the rest of the municipalities is contracted to private planning practices. Other federal and cantonal administrative services (environmental protection, agriculture, transport, energy and housing) are also involved in spatial development policy, generally in defence of the sectoral interests for which they are responsible. Due to the shift in emphasis in spatial development policy objectives in the 1990s towards regional policy, the State Secretariat for Economic Affairs (seco) also intervenes increasingly in this area. Based on its case law, the Swiss Federal Court also constitutes a key actor in the area of spatial planning, in particular in relation to material expropriation.

A number of *parapublic actors* or think tanks also play an important role in spatial policy development. Whereas the Institute for Local, Regional and National Planning at the Swiss Federal Institute of Technology[40] and, subsequently, the Communauté d'études pour l'aménagement du territoire (CEAT) made a significant contribution to the development of scientific bases for spatial development, the Association suisse pour l'aménagement national (ASPAN) / Vereinigung für Landesplanung (VLP) / Swiss Association for Land Planning contributed specifically to the development of all kinds of regulations on spatial planning and their implementation through its work in representing cantonal interests. The environmental protection organizations regularly intervene in the defence of the interests of nature and the landscape and to contest urban development and infrastructure projects. Given that they do not have the right of appeal in relation to spatial development, where possible, they use the environmental law (Article 55) and the law on the protection of nature and the landscape (Article 12) as a basis for their objections.[41] The economic development think tank Avenir suisse defends a conception of spatial development based on the improvement of the economic competitiveness of agglomerations and cantons (Eisinger, Schneider 2003).

The general objective of individual or collective *landowners* (including the State), institutional investors (banks, pension funds, insurance compa-

nies, etc.), property developers, tourism promoters and investment funds is to gain on their investments through the realization of particular development projects. Their relationship with spatial development is ambiguous and depends on the compatibility of the projects with its principles and objectives. The same applies to farmers. Some actors, who do not have complete trust in spatial planning policy, develop a property policy for the purpose of attaining their protection or development objectives. This applies, for example, to the nature conservation organization Pro Natura, one of Switzerland's largest landowners, which uses its land policy to attempt to place sensitive (natural) areas under protection. It also applies to certain cities (e.g., Bienne and Zurich) which acquire and make available land (right of superficies) for the construction of housing or enterprise development.

Status of spatial policy implementation

Following the entry into force of the law on spatial planning, several analyses were carried out on spatial development and the social, economic and ecological uses of the land (Häberli *et al.* 1991; Knoepfel *et al.* 1996). The Federal Council compiled its first report on the implementation of this legislation in 1987 (Conseil fédéral 1987). A second report was published nine years later (Conseil fédéral 1996) and a third in 2005 (ARE 2005a). These reports and the results of some more specific or localized implementation studies (Nahrath 2003) concur on the *main achievements and gaps* in the implementation of the law.

The law on spatial planning enabled the generalization of the principle of the classification of land in separating building and non-building zones. In doing this, the law made it possible to reduce the scale of speculation, to limit the dispersion of structures and the construction of houses in rural areas and to improve the protection of agricultural land and sensitive natural areas. However, the development and implementation of zoning plans proved more complicated than anticipated. Fifteen years after the entry into force of the Federal Law on Spatial Planning (1995), only four of the Federation's proposed thirteen conceptions and sectoral plans were being implemented. Today, almost all of these plans have reached the implementation stage.[42] The cantonal spatial master plan has been interpreted and implemented in very different ways from one canton to the next. The municipal land-use plans also display this sometimes significant level of regional and cantonal differentiation.

The main problems regarding the implementation of the law on spatial planning include (ARE 2005a; Bovay 2005; Conseil fédéral 1987, 1996; Nahrath 2003, 2005): the absence of systematic implementation of the taxa-

tion of capital gains, despite the existence of the obligation to provide indemnification in the case of material expropriation; the frequent oversizing of building zones as a result of pressure from landowners and despite the principle of their sizing on the basis of the predicted municipal development over the next 15 years;[43] the difficulty of the municipalities in meeting their obligation to service these development areas (in particular due to the oversizing); the hoarding of development land which prevents coherent development; the excessively liberal granting of exceptional building permits outside of development zones;[44] the institutional fragmentation of agglomerations, which makes the coherent planning of agglomerations very difficult; and the inadequacy of the information provided to and participation of the population in the planning process.

Main challenges and proposals for sustainable spatial development

The implementation of a sustainable spatial development policy faces two additional challenges. Due to a tendentious interpretation of the principles of sustainable development resulting, for example, from a coalition between the "social poles" and "economic poles" of sustainability, there is a risk that the planning principles will become diluted and that the scope and restrictive capacity of spatial development law will be undermined (Lendi 2005).[45] Moreover, the relative protection of the municipalities by federal jurisprudence in relation to material expropriation during the implementation of the first generation of the land-use plans risks backfiring on them today, for example in the case of the declassification of oversized parts of building zones. This declassification is easier to compare legally to a situation of material expropriation due to the fact that the "probability" or "likelihood" of a construction project is strengthened by the actual fact of classification as a development zone in the municipal land-use plan. This interpretation is supported by the recent practice of the Swiss Federal Court.[46]

In response to these different problems and issues, debates concerning desirable reforms of spatial development policy are currently under way within the political-administrative world. These debates focus on the following issues:

- *The need to intensify co-operation at all relevant levels:* "between municipalities in rural areas, within agglomerations, between cantons in the metropolitan areas, between the Confederation, cantons, cities and other municipalities, between Switzerland and its neighbours" (ARE 2005a: 103). The reform of fiscal equalization and the re-distribution of tasks between the Federation and the cantons, the creation of the tripartite conference on the agglomerations and the establishment of agglomera-

tion projects and model projects in the context of the new federal agglomerations policy (Conseil fédéral 2001) and, again, the policy for the support of agglomeration traffic (the constitutional basis of which was created within the context of the re-distribution of tasks) all constitute measures that support this development.

- *The strengthening of the coherence between the different sectoral policies with a spatial dimension* (ARE 2005: 104-105). Apart from the strengthening and development of formal coordination instruments, the debates deal with the material harmonization of spatial development policy with the other spatially related policies, such as environmental protection (Jomini 2005), agriculture (Politique agricole 2011), the (new) regional policy (reform project currently being developed), the agglomerations policy, nature conservation and landscape protection policy (creation of regional natural parks) and, again, transport policy (funding for agglomeration traffic problems).
- *The increase of financial resources for spatial development policy and the introduction of economic, financial and quota instruments* (ARE 2005a: 105-106, 2005b). Additional financial resources could originate, in particular, from the universal implementation of the taxation of capital gains in the case of the creation of new development areas or densification. However, it would appear that the creation of exchangeable construction rights (DISP 2005; Renard 1999) – based, for example, on the model of *Transferable Development Rights* (Gmünder 2004) – does not constitute a practicable alternative in the short term despite the fact that it is being considered by the Federal Office for Spatial Development (ARE 2005b).

Within the context of these debates, a series of propositions for the revision of the spatial planning law have been made within the Federal Office for Spatial Development (2005: 107-116) which concern the taking into account of the specific situation of cities and agglomerations (joint development of municipal land-use plans in the inter-cantonal metropolitan regions, creation of regional/agglomeration land-use plans), the strengthening of the regulation of processes of urbanization and measures to counteract urban sprawl (development of a national (sectoral) urban development plan, establishment of a (national) quota system for development areas, re-examination of the modalities of application of environmental standards in the context of urban densification projects or introduction of a minimum index for land use in development zones) and, finally, the re-modification of the provisions concerning structures outside of building areas (redefinition of zoning categories from the perspective of the multifunctionality and differentiation of uses

within the agricultural zone, introduction of a "4th zone").

In view of the impressive list of challenges and current propositions relating to the "sustainabilization" of spatial planning policy, one of the key questions that arises concerns the scope of the legislative revisions to be undertaken in the future. Doubts can justifiably be expressed as to whether the revision of the spatial planning law alone will suffice to attain the targeted objectives, particularly to the extent that the most promising propositions in terms of sustainability are also those that are likely to contradict most directly the strong protection enjoyed by land ownership in our country (Nahrath 2005). The introduction of a federal sectoral plan on urban development, the creation of quotas for development zones, the introduction of a minimum index for land-use and/or an obligation to build, the redefinition of basic zoning categories and the introduction of exchangeable building rights spring to mind here. Indeed, everything would appear to indicate that a "lasting sustainabilization" of spatial development would ultimately involve the complete rethinking of the social, political and economic foundations of our real estate legislation.

4 Increased coordination between environmental and spatial development policy[47]

The strong spatial relevance of environmental policy, to which its origins bear witness, is as incontestable a fact as the strong environmental relevance of spatial development policy, the objective of which is the careful handling of a key natural resource (i.e., land). Both policies deal with the protection of natural resources which have a local/regional extension. Thus, it makes sense to tailor the two policies more extensively to each other, both legislatively and in relation to implementation, than is currently the case. The postulated "come-back of environmental policy into space" should accordingly be made possible through the integration of environmental concerns into spatial development policy. It is difficult to understand why, in addition to restrictions concerning stresses arising from building activity, land-use plans cannot incorporate restrictions regarding the pollution and charges arising from local air, noise and water pollution and other hazards. Even less understandable are contradictions between spatial planning and environmental policy which provide for the sanctioning of polluting industrial, infrastructure and commercial zones under spatial planning law in areas that are already subject to high levels of pollution or in landscape and nature protection areas. Despite increasing need for coordination in this field, there are numerous examples of acts of policy implementation which are unsustainable because

strong coordination constraints are considered to be politically unacceptable.

A “come-back of environmental policy to space” is difficult, *inter alia*, because spatial planning policy has not adequately clarified its relation to land ownership. In many cases, its ecological incompetence is nothing more than an expression of its inability to overcome the opposition of landowners. Viewed from the perspective of resource management, traditional environmental policy can be seen as the (often unthinking) distribution of – limited – pollution rights, to which the regulated actors make claims following the granting of environmental permits, a phenomenon we also observed among the landowners who derive construction rights from land-use plans. However, from the point of view of constitutional law, the use rights allocated by environmental policy are not as strongly protected against withdrawal as land-use rights which, when withdrawn today, trigger numerous indemnification obligations on the part of the polity. As a result of this mechanism, the authorized users of the resource land are in a stronger position in relation to legislation and implementation than is the case with the authorized users of other natural resources (e.g., air, water, fauna and flora). Thus, in the absence of fundamental land law reform, the postulated "come-back of environmental policy into space" will either result in its weakening, because it would have to pay the price of also adopting the aforementioned redress mechanism, or in its simply coming to a halt because spatial planning is too weak to impose ecological rules among the landowners due to the existence of this mechanism.

Notes

1 A 10 percent reduction as compared with 1990 levels.
2 Report of the Federal Council of 26.10.20055, BBl. 2005 0399 6589.
3 Verordnung vom 8. Dezember 1975 über Abwassereinleitungen/Ordonnance du 8 décembre 1975 sur le déversement des eaux usées. SR/RS 814.225.21.
4 Bundesgesetz vom 7. Oktober 1983 über den Umweltschutz/Loi fédérale du 7 octobre 1983 sur la protection de l’environnement; SR/RS 814.0.
5 Articles 70 ff. of the Federal Law on Agriculture of 29 April 1998: Bundesgesetz vom 29. April 1998 über die Landwirtschaft/Loi fédérale du 29 avril 1998 sur l’agriculture**;** SR/RS 910.1.
6 Bundesgesetz vom 8. Oktober 1999 über die Reduktion der CO_2-Emissionen/Loi fédérale du 8 octobre 1999 sur la réduction des émissions de CO_2; SR/RS 641.71.
7 Art. 23e-23m of the Federal Law on the Protection of Nature and Cultural Heritage of 1 July 1966: Bundesgesetz vom 1. Juli 1966 über den Natur- und Heimat.
8 BB1 2005 5237.
9 In 1998, it had a total of 300 permanent posts and an annual budget of around CHF 600 million (1990: 510; 2003: 630).

10 With 130 permanent posts.
11 With 390 permanent posts (January 2006).
12 Bundesgesetz über die Koordination und Vereinfachung von Entscheidverfahren, AS 1999: 3071 3124.
13 In excess of 900,000, based on our estimation.
14 Verordnung über die Bezeichnung der im Bereich des Umweltschutzes sowie des Natur- und Heimatschutzes beschwerdeberechtigten Organisationen/Ordonnance relative à la désignation des organisations habilitées à recourir dans les domaines de la protection de l'environnement ainsi que de la protection de la nature et du paysage; SR/RS 814.076.
15 WWF: 225,000 members; VCS: 135,000; Pro Natura: 100,000; Alpenclub: 110,000; Greenpeace: 150,000.
16 BBI 2005 5351.
17 According to a 2005 WWF study which incorporates "resource management" (problematic in our view), the "environmental markets" actually represent 4.9 percent of GDP (WWF 2005: 2).
18 A more recent study is currently being carried out (March 2006).
19 As compared with 75 percent in 2005, 58 percent of the population lived in urban areas in 1970.
20 The average rate of increase is 0.86 m^2/second for all of the national territory. Thirty-two percent of this increase is due to the construction of family homes. Seven percent of the Swiss territory is now urbanized.
21 The size (in km^2) of the urban agglomerations has been increasing faster than their populations since the 1970s (ARE 2005a: 11-12).
22 We use the terms "spatial management", "planning" and "development" interchangeably, as the semantic differences between them do not correspond to a significant change in the objectives of the spatial planning policy established in the 1970s and 1980s.
23 The numeration cited here refers to the old version of the Swiss Constitution; the corresponding articles in the new version are Articles 26 (guarantee of ownership) and 75 (spatial planning).
24 The importance of the enshrining of this guarantee of (private) property in the Swiss Federal Constitution lies in the fact that it contributes to the perceptible reinforcement of the principle – which already exists at cantonal level – of *the obligation of indemnification for cause of material expropriation.*
25 Bundesgesetz vom 22. Juni 1979 über die Raumplanung/Loi fédérale du 22 juin 1979 sur l'aménagement du territoire; SR/RS 700
26 Comprising the former supporters of land policy, left-wing political parties and trade unions and architects, engineers and town planners active in academic milieux (in particular, the Institute for National, Regional and Local Planning of the Swiss Federal Institute of Technology Zurich) and in the federal administration (in particular, the service of the minister for spatial planning).
27 Comprising the former opponents of land policy but supporters of a federal policy on spatial planning. The latter are found mainly in the bourgeois parties and within the cantonal political-administrative elites and the Association suisse pour l'aménagement national (VLP-ASPAN).
28 The principle behind this mechanism consisted of the imposition of a levy on a considerable part of the financial gains realized by the owners of land in areas classified as development zones and in the distribution of these monies to landowners in areas that are not classified as development zones or declassified.
29 RO 1972 958

30 Urgent federal resolution (*dringlicher Bundesbeschluss/arrêté fédéral urgent*) on emergency measures in relation to spatial planning of 17 March 1972: Bundesbeschluss über dringliche Massnahmen auf dem Gebiete der Raumplanung/Arrêté fédéral instituant des mesures urgentes en matière d'aménagement du territoire; RO 1972 652.

31 The actors involved were the Vaud League (Ligue vaudoise), the Vaud Liberal Party (parti libéral vaudois), the Swiss Arts and Crafts Union (Union suisse des arts et métiers), the Swiss Association of Property Owners and Managers (Association suisse des gérants et propriétaires d'immeubles) and the Movement for National Renewal (Redressement national).

32 The first version of the law on spatial planning was rejected by 50.7 percent of the voters.

33 Bundesgesetz vom 22. Juni 1979 über die Raumplanung/Loi fédérale du 22 juin 1979 sur l'aménagement du territoire, RO 1979 1573, SR/RS 700.

34 In reality, however, the instrument of the taxation of capital gains was not formally eliminated; it was left up to the cantons whether or not to implement it (Article 5, Law on Spatial Planning). Basel-Stadt and Neuchâtel are the only cantons that implement it systematically today.

35 On this concept, see, in particular, Rothmayr (2001).

36 This would be subject to a referendum and rejected on 7 February 1999. It came into force on September 2000. The parliamentary chambers are currently, (i.e., as of March 2006) debating a new opening of the agricultural zone (to the benefit of eco-tourism).

37 In November 2005, six sectoral plans (crop rotation areas, Alpine transit, aeronautical transport and infrastructure, electricity power lines, military infrastructure and deep geological deposits) and two sectoral concepts (Swiss landscape, sport installations of national importance) were in the course of being developed or implemented.

38 A permit is necessary both for the construction of a new building and for the renovation or transformation of an existing one.

39 This authority has 55 permanent posts and a budget of CHF 12.6 million in 2006 (2005: 13.5).

40 This institute was dissolved in 2002 and replaced by a network of institutes entitled "Netzwerk Stadt– Landschaft (NSL)", i.e., "City–Country Network".

41 Bundesgesetz vom 7. Oktober 1983 über den Umweltschutz/Loi fédérale du 7 octobre 1983 sur la protection de l'environnement; SR/RS 814.0 and Bundesgesetz vom 1. Juli 1966 über den Natur- und Heimatschutz/ Loi fédérale du 1er juillet 1966 sur la protection de la nature et du paysage; SR/RS 451.

42 See note 37 above.

43 At present, almost 30 percent of development zones are not built on, despite being serviced in many cases. A large part of these reserves are located in periurban, agricultural and tourist municipalities (ARE 2005a: 33, 37).

44 30 percent of developed areas – not including areas occupied by transport infrastructure (+ 7 percent) – are located outside of development zones (Conseil fédéral 1996:16).

45 The project for the establishment of a chemicals factory on crop rotation land in Haut Marais de Galmiz (Fribourg) represents a good example of the convergence of interests between the defenders of jobs and promoters of the regional economy.

46 See, for example, decisions 1A.211/2003, 1A.58/2004 and 1A.74/2004 (ATF_131_II_72). I would like to thank André Jomini, clerk of the Swiss Federal Court, who drew my attention to the existence of these orders.

47 On this point, see Umweltrecht in der Praxis, Tagung: Koordination von Umweltrecht und Raumplanung, Nr. 5 2005. (pp. 415-528).

Bibliography

ARE (Office fédéral du développement territorial) (2005a). *Rapport 2005 sur le développement territorial*. Berne: ARE.

ARE (Office fédéral du développement territorial) (2005b). *Nouveaux instruments. Technologies, coopération et économie de marché en aménagement du territoire.* Forum du développement territorial, 3/2005. Berne: DETEC (Département fédéral de l'environnement, des transports, de l'énergie et de la communication)/ARE.

BALTHASAR, Andreas and Carlo KNÖPFEL (1994). *Umweltpolitik und technische Entwicklung. Eine politikwissenschaftliche Evaluation am Beispiel der Heizungen.* Basel: Helbing & Lichtenhahn (Serie Ökologie & Gesellschaft, Vol. 8).

BFS (Bundesamt für Statistik) (2002). *Umwelt Schweiz: Statistik und Analysen*. Neuchâtel: BFS.

BHP – BÜRO HANSER UND PARTNER (2006). *Evaluation der Abfallpolitik*. Bern: AFU.

BISANG, Kurt and Tiana MOSER (2005). *Unterstützung von Anliegen der Umweltpolitik und Bereitschaft zu umweltgerechtem Verhalten im Zeitvergleich.* UNIVOX-Trendbericht Teil II Umwelt 2005.

BOVAY, Benoît (2005). Propositions pour une nouvelle loi fédérale sur l'aménagement du territoire, in: Benoît BOVAY, Minh Son NGUYEN (Hrsg.). *Mélanges Pierre Moor. Théorie du droit. Droit administratif. Organisation du territoire*. Berne: Staempfli, 653-665.

BUNDESAMT FÜR STATISTIK (verschiedene Jahrgänge). *Statistisches Jahrbuch der Schweiz.* Neuchâtel: BFS.

BUWAL (Bundesamt für Umwelt, Wald und Landschaft) (1991, 1994). *Bericht zum Zustand der Umwelt.* Bern: BUWAL.

BUWAL (Bundesamt für Umwelt, Wald und Landschaft) and BFS (Bundesamt für Statistik) (1997). *Umweltbericht*. Bern/Neuchâtel: BUWAL/BFS.

BUWAL (Bundesamt für Umwelt, Wald und Landschaft) (1998). *Landschaftskonzept Schweiz.* Bern: BUWAL.

BUWAL (Bundesamt für Umwelt, Wald und Landschaft) (2002a). *Umwelt Schweiz: Politik und Perspektiven*. Bern: BUWAL.

BUWAL (Bundesamt für Umwelt, Wald und Landschaft) (2002b). *Lärmbekämpfung in der Schweiz. Stand und Perspektiven.* Schriftenreihe Umwelt Nr. 329. Bern: BUWAL.

BUWAL (Bundesamt für Umwelt, Wald und Landschaft) (2005). *Wirtschaftliche Dimensionen der Umweltpolitik*, Schriftenreihe Nr. 385.

CONSEIL FEDERAL (1966). Rapport du Conseil fédéral à l'Assemblée fédérale sur l'initiative populaire contre la spéculation foncière, (du 31 mai 1966), in: *Feuille Fédérale* 1966: 898.

CONSEIL FEDERAL (1987). *Rapport sur l'état et l'évolution de l'utilisation du sol et de l'urbanisation en Suisse (Rapport sur l'aménagement du territoire 1987).* Berne.

CONSEIL FEDERAL (1996). *Grandes lignes de l'organisation du territoire suisse*. Rapport du Conseil fédéral du 22 mai 1996. Berne: OFAT.

CONSEIL FEDERAL (2001). *Politique des agglomérations de la Confédération. Rapport du Conseil fédéral du 19 décembre 2001*. Berne: seco, OFAT.

CONSEIL FEDERAL (2002). *Stratégie 2002 pour le développement durable*. Berne.

DA CUNHA, Antonio, RUEGG, Jean (Hrsg., 2003). *Développement durable et aménagement du territoire*. Lausanne: PPUR.

DELLEY, Jean-Daniel *et al.* (1994). *Impact et limites des mesures de protection de l'air*. Travaux CETEL no 42. Genève.

DFJP (Département fédéral de justice et police) und OFAT (Office fédéral de l'aménagement du territoire) (1981). *Etude relative à la loi fédérale sur l'aménagement du territoire.* Berne: Département fédéral de justice et police/Office fédéral de l'aménagement du territoire.

DISP (2005). Urban Sprawl, in: *DISP* 160, 1/2005.
ECOPLAN (2000). *Evaluation kantonaler und kommunaler Abgaben für Abwasser*. Bern.
EISINGER, Angelus, SCHNEIDER, Michel (Hrsg., 2003). *Stadtland Schweiz: Untersuchungen und Fallstudien zur räumlichen Struktur und Entwicklung in der Schweiz*. Zürich/Basel: Avenir Suisse/Birkhäuser.
FLÜCKIGER, Alexandre, MORAND, Charles-Albert, TANQUEREL, Thierry (2000): *Evaluation der Wirksamkeit des Verbandbeschwerderechts.* Centre d'étude, technique et d'évaluation législatives de l'Université de Genève. Evaluation du droit de recours des organisations de protection de l'environnement, no 314 Cahier de l'environnement. Berne: BUWAL.
GESCHÄFTSPRÜFUNGSKOMMISSION DES NATIONALRATES (1992). *Luftreinhaltung, Umweltverträglichkeitsprüfung und ländlicher Gewässerschutz.*
GMUENDER, Markus (2004). Mit weniger Planung zu mehr Raum? Zum Einsatz anreizorientierter Instrumente in der Raumplanung, in: SCHALTEGGER, Christoph A., SCHALTEGGER, Stefan C. (Hrsg.). *Perspektiven der Wirtschaftspolitik*. Festschrift zum 65. Geburtstag von Prof. Dr. René L. Frey. Zürich: vdf, 557-570.
HAEBERLI, Rudolf, LUESCHER, Claude, PRAPLAN CHASTONAY, Brigitte, WYSS, Christian (Hrsg., 1991). *L'affaire sol. Pour une politique raisonnée de l'utilisation du sol.* FNRS – rapport final du programme national de recherche (PNR 22) «Utilisation du sol en Suisse». Genève: Georg.
JÄNICKE, Martin, WEIDNER, Helmut (1997). *National Environmental Policies. A Comparative Study of Capacity – Building*. Berlin: Springer.
JOMINI, André. (2005). Coordination matérielle: l'approche de la jurisprudence du Tribunal fédéral, in: *Droit de l'environnement dans la pratique* 5/2005: 444-464.
KNOEPFEL, Peter, ZIMMERMANN, Willi (1987). *Ökologisierung von Landwirtschaft. Fünf Geschichten und eine Analyse*. Aarau/Frankfurt am Main/Salzburg: Sauerländer.
KNOEPFEL, Peter, IMHOF, Rita, ZIMMERMANN, Willi (1995). *Luftreinhaltepolitik im Labor der Städte, Der Massnahmenplan – Wirkungen eines neuen Instruments der Bundespolitik im Verkehr*. Basel: Helbing & Lichtenhahn (Reihe Ökologie & Gesellschaft, Bd. 9).
KNOEPFEL, Peter, ACHERMANN, Daniel, ZIMMERMANN, Willi (1996). *Bilanzstudie Bodenpolitik 1990-1995*. Cahier de l'IDHEAP no 162. Chavannes-près-Renens: IDHEAP
KNOEPFEL, Peter, NAHRATH, Stéphane (2005). *The Sustainable Management of Natural Resources. From Traditional Environmental Protection Policies towards Institutional Natural Resource Regime (INRR)*. Cahier de l'IDHEAP no 226, Chavannes-près-Renens: IDHEAP.
KÖLZ, Alfred, MÜLLER-STAHEL, Hans-Ulrich (Hrsg.,1985). *Kommentare zum Umweltschutzgesetz. Handbuch, Kommentar, Ausführungserlasse*. Verfasst von Christoph BAUCHLI, Ursula BRUNNER *et al.* Zürich: Schulthess.
LENDI, Martin (2005). *Planung und Recht – neue Dimensionen*. Vortrag vom 22. September 2005 gehalten vor den Schweizerischen Bausekretären Jahreskonferenz in St. Gallen.
MAUCH, Corine and Andreas BALTHASAR (2005). *Machbarkeitsstudie «Evaluation der bisherigen Umweltpolitik» – Schlussbericht*. Umweltmaterialien Nr. 202. Bern: Bundesamt für Umwelt, Wald und Landschaft.
MINSCH, Jürg, EBERLE, Armin, MEIER, Bernhard and Uwe SCHNEIDEWIND (1996). *Mut zum Umbau. Nachhaltige Entwicklung durch ökologische Innovationen.* Basel: Birkhäuser.
MOOR, Pierre (2002). L'expropriation matérielle, in: *Droit administratif* II, Berne: Stämpfli: 741-755.
NAHRATH, Stéphane (2003). *La mise en place du régime institutionnel de l'aménagement du territoire en Suisse entre 1960 et 1990*. Thèse de doctorat. Chavannes-près-Renens/Lausanne: IDHEAP/Université de Lausanne.

NAHRATH, Stéphane (2005). Le rôle de la propriété foncière dans la genèse et la mise en oeuvre de la politique d'aménagement du territoire: quels enseignements pour la durabilité des aménagements urbains?, in: Antonio DA CUNHA, Peter KNOEPFEL, Jean-Philippe LERESCHE and Stéphane NAHRATH (Hrsg.). *Enjeux du développement urbain durable. Transformations urbaines, gestion des ressources et gouvernance*. Lausanne: Presses polytechniques et universitaires romandes, 299-328.

OCDE (1998). *Examens des performances environnementales. Suisse.* Paris: OCDE.

OFS (Office fédéral de la statistique) (2001). *L'utilisation du sol: hier et aujourd'hui. Statistique suisse de la superficie.* Neuchâtel: OFS.

PARLAMENTSDIENSTE (2003). *Evaluation des Bundesinventars der Landschaften und Naturdenkmäler von nationaler Bedeutung (BLN)*. Bericht zuhanden der GPK des Nationalrates. Bern.

RAUSCH, Heribert (2005). *Panorama des Umeltrechts, Kompendium der Umweltvorschriften des Bundes*. Bern: BUWAL.

RENARD, Vincent (1999). Application of tradable permits to land-use management, in: OCDE (Hrsg.). *Implementing Domestic Tradable Permits for Environmental Protection*. Paris: OCDE, 53-73.

ROTHMAYR, Christine 2001. Towards the Judicialisation of Swiss Politics?, in: Jan-Erik LANE (Hrsg.). *The Swiss Labyrinth. Institutions, Outcomes and Redisign*. London: Frank Cass, 77-94.

SAGER, Fritz and Walter SCHENKEL (2004): *Evaluation Umweltverträglichkeitsprüfung (UVP)*. Umweltmaterialien Nr. 175. Bern.

SCIARINI, Pascal (1995). *La Suisse face à la Communauté européenne et au GATT: le cas de la politique agricole*. Genève: Georg.

SECO (Secrétariat d'Etat à l'économie) and OFFICE FEDERAL DE L'AMENAGEMENT DU TERRITOIRE (OFAT) (1999). *Rapport sur les centres urbains*. Berne: seco/OFAT .

UVEK (Eidgenössisches Departement für Umwelt, Verkehr, Energie und Kommunikation) (2004). *Verhandlungsempfehlungen*. Publikationen BUWAL Nr. vu 1905-D.

WALTER, François (1986). Propriété privée, équilibre social et organisation de l'espace, in: *Geographica Helvetica* 1:11-16.

WEMEGAH, Monica (1979). *Administration fédérale et aménagement du territoire. La coordination de l'aménagement du territoire au niveau de la Confédération*. Saint-Saphorin: Georgi.

WWF (2005). *Umweltmärkte in der Schweiz. Perspektiven für Wirtschaft, Beschäftigung und Bildung*. Bern: WWF-Bildungszentrum.