Questionnaire on Flexibility Mechanism – Avosetta Meeting 2018 in Vienna

Report from Switzerland

Markus Kern/Ann-Kathrin Braendle

I. Policies of prioritising economy and ecology

General remarks

The balance between the interests of economic development and the protection and preservation of the environment also constitutes a constant theme in Swiss environmental (and partially also economic) policy. However, it is difficult to cite any recent or planned general measures influencing the interplay between these interests in a fundamental manner. Rather, prioritization (or the weighing) between these interests continues to occur in the following ways:

- When it comes to actual **legislation**, there have been quite a few legal amendments, which have granted more flexibility and thus weakened environmental standards in specific fields of law recently: Spatial planning and the promotion of renewable energy production constitute the most prominent examples (cf. below).
- Concerning the **process of elaboration of legal (including constitutional) norms**, the formalized and influential consultation procedures as well as the political discussions before popular votes (on referenda or popular initiatives) offer the occasion for all sorts of interests to be voiced and therefore also for economic interests to be promoted. Generally there a no signs that either in the consultation procedures or in the political discussions economic considerations systematically trump over environmental or protective ones. However, arguments such as the potential loss of jobs, the preservation of locational advantages or the support for small and medium-sized enterprises have proven to be fairly powerful in the discussions both in public and with the authorities. It may thus be said that the well-developed consultation procedures in the Swiss political system and the system of direct democratic participation offer additional ways for economic interests to influence legislative decision-making. This is particularly true given the fact that these interests are fairly well-organized and particularly well-funded. When it comes to public campaigning before federal and cantonal votations, it is therefore often the economic interests, which are commercially voiced in the most powerful way. Yet, this does not at all mean that such interests would always win out in votation campaigns. There a quite a few counter examples in recent years, such as the popular initiative on the limitation of secondary homes on the federal level or the initial acceptance of the initiative on the protection of cultivated land resulting in a temporary freeze in the establishment of new construction zones in the Canton of Zurich (the implementation of the initiative was later rejected in another votation), where protective interests where more influential than economic considerations.
- Finally possibly the most important gateway for the influence of economic interests is the **concrete application of the law** in combination with the pervasive balancing of interest clauses in administrative law. In such constellations the prioritisation of economic (or environmental) interests thus occurs in the name of deciding cases on their individual merits.

Two examples

1. As a first example for an attempt to instill further flexibility into the system of environmental law protection, the **discussions around the "associations right to appeal" in environmental matters** may be cited. Over the last 20 years, more than a dozen parliamentary initiatives have been lauched in order to reduce the scope or even to abolish this instrument (approaches reached from the exclusion of certain associations, the exemption of certain fields (production of energy) or the prevention of "misuse" to the outright abolishment of the instrument). In 2008 a majority of the population rejected a popular initiative proposing a constitutional amendment, which would have banned the associations right to appeal altogether (66% no vs. 34% yes; all cantons voting no). Another popular initiative launched by the liberal party, which intended to ensure a reduction of bureaucracy and also targeted the associations right to appeal did not reach the required number of signatures. Nevertheless there has been some modification to the parameters of the right to appeal as a consequence of one of the parliamentary initiatives, namely the restriction of the right to appeal to those issues, which are protected by the respective organization according its statutes and in which it has been working for at least 10 years. In addition to this the organizations have to bear the costs of the proceedings in case they lose such processes.

2. A second example pertains to **spatial planning law** and namely to the implementation of the principle of separation between construction zones and non-construction zones. This fundamental principle, even though not explicitly mentioned in the Federal Constitution, can be deduced from the main constitutional objectives in the field of special planning (art. 75(1) Const.: economic use of the land and ordered settlement). With regard to buildings outside the construction zone the first legal regime in spatial planning of 1979 established a distinction between new buildings, which do not comply with the zoning requirements and were thus permissible only under restrictive conditions (site-dependency and prevailing interests as compared to the protective interests) and existing buildings which under certain conditions could be converted or extended. Over the years this regime was gradually softened by means of adding an increasing number of exceptions to this general rule: permissibility of non-agricultural ancillary use, of non-agricultural residential use, of "contemporary residential use", of animal husbandry purely as a hobby, of keeping horses etc. As a result, the general exemption clause with regard to construction outside the building zone (art. 24 Spacial Planning Act [SPA]) is now seconded by not less than five specific exemption clauses (art. 24a to 24e SPA) with parliament currently discussing the addition of yet another exemption clause concerning the use of existing buildings as secondary homes. The legal situation adequately mirrors the factual conditions: the federal statistics from 2016 show that around 37.7% of Switzerland's settlement area is situated outside the construction zone. Even though most of the use to some extent relates to agriculture and a majority of the settlements stem from times before the initial enactment of Spacial Planning Act, these facts nevertheless show that the law is not sufficiently able to put the principle of separation between construction zones and non-construction zones into practice. This is due to many reasons: scarcity of land in the small country, strong economic incentives for a flexible regime, strong political influence of rural areas and agricultural interests etc. In an attempt to respond to this unsatisfactory situation, the Federal Council (the national government) intends to propose the so called compensation approach as a new legal instrument. This would allow the cantons as the main actors in the field of spacial planning to allow constructions in non-construction areas under the condition to compensate for this use by tearing down or reducing the use of existing buildings outside the construction zone. As a consequence the area outside the construction zones should be not larger and the uses made not more intensive or more disturbing than before the compensation. This proposal has received severe criticism not only from organizations and circles fearing a further

softening of the separation principle, but even from cantons demanding more flexibility due to the fact that its implementation may result in considerable legal uncertainty.

II. Techniques Aiming at Introducing More Flexibility to or even Diluting Regulation

0. The Swiss Emission Trading Scheme and its possible linkage

Switzerland has established its own autonomous emission trading scheme which closely resembles the European system. The cap amounted to 5.63 million tonnes of CO_2 in 2013 and is reduced by 1.74% each year compared to 2010. This covers only about 10% of the total CO_2-emissions in Switzerland (as compared to 45% in the EU). Emission rights are allocated free of charge to the EHS companies each year and are tradable. Companies which own facilities generating high greenhouse gas emissions as determined by the Ordinance on the Reduction of CO_2-emissions are required to participate in the scheme. Companies with medium CO_2-emissions according to annex 7 of the Ordinance on the Reduction of CO_2 Emissions are free to participate upon request. Swiss emission trading involves around 55 companies with emissions of around 5.5 million tonnes of CO_2. The participating companies are mainly active in the chemical and pharmaceutical, energy, lime, papermaking and steel or cement production sectors. Companies participating in the ETS are exempt from the CO_2-tax on fossil fuels. The prices for one ton of CO_2 started at around 40 Swiss francs in 2014 and fell gradually to 6.5 Swiss francs. In November 2017 the price reached 7.5 Swiss francs and was thus slightly lower as compared to the 7 – 8 Euro paid for emission rights in the EU.
According to an evaluation by the the Swiss Federal Audit Office (SFAO) the Swiss ETS is fraught with numerous deficits: There was hardly any trading activity between 2013 and 2016, in terms of trade volume, the Swiss scheme was the smallest in the world and its relevance as an instrument to combat climate change and as an incentive tool for the energy transition is considered to be fairly minimal.
One of the ways out is seen in the linkage between the Swiss and the European system: Negotiations on linking the systems were concluded at the end of 2015 and an agreement was signed on 23 November 2017, it was ratified by the EU Parliament on December 12, 2017 and still awaits ratification by the Swiss parliament. The intention is to implement the link by 1 January 2020 at the latest. Swiss emissions trading has been technically compatible with the EU ETS from the outset, with a view to a common internal emissions market. The existing differences at the legal level are rather small and affect, above all, the area of application of the system. In contrast to the EU, the current Swiss system excludes fossil-thermal power plants from participation in emissions trading. It also does not include the aviation sector and it therefore comes as no surprise that quite a bit of the opposition to a ratification of the agreement by the Swiss Parliament stems emanates from lobbying forces in the aviation sector.

1. Offsetting Regulatory Directions

[Questions 1+2] With regard to the general objective of CO_2-reduction until 2020 (-20% as compared to 1990), the current legal framework foresees that the reduction has to occur fully in Switzerland. The proposal of the Federal Government included the possibility of achieving half of this reduction abroad. The parliament of the time however took a stricter stance.

As far as the obligations of single undertakings under the ETS are concerned, the regulatory framework only allows for certificates under the Kyoto-mechanism and excludes certificates issued by other mechanisms such as the Verified Carbon Standard. The scope thus includes Emission Reduction Units (ERUs) and Certified Emission Reductions (CERs).

As for the **quality requirements**, the legal framework limits the scope to reductions which could not have been achieved without the direct or indirect financial support of the issuer (additionality). Additionally – and as it is the case in the EU – the law specifically excludes the recognition of certificates from the use of nuclear energy, biological CO_2-sequestration (temporary CERs, long-term CERs, Removal Units changed into ERUs), certificates that have been used previously, certificates from CDM-projects in countries not belonging to the group of the least developed countries if registered after 31.12.2012, certificates on reductions of emissions obtained through JI-protects after 31.12.2012. On top of this Switzerland also excludes the use of certificates from carbon-capture and sequestration, because the sustainability may not be guaranteed; certificates from large-scale hydropower-plants (>20 MW), due to doubts about additionality and negative social implications; projects, which use other than renewable sources of energy or do not increase energy efficiency at the level of the final consumers (energy-efficiency on the producer side; substitution of fossil fuels by other fossil fuels etc.) as well as certificates stemming from projects which result in violations of human rights or have considerable negative social or ecological consequences or contradict the general lines of Swiss external and development policy.

As for the **quantitative requirements** the rules state that in general emission reduction certificates can only be taken into account up to a certain threshold. For fixed installations which participated in the ETS in the years 2008 to 2012: 11% of five times the average allowances allocated annually in this period. For all other installations: 4.5% of the greenhouse gas emissions of the years 2012-2020 (art. 48 CO_2-ordinance).

For **undertakings outside the ETS**, but which are bound by an agreement concerning the reduction of CO_2-emissions in order to obtain an exemption from the CO_2-tax, the legal framework equally foresees the possibility of taking into account emission reduction certificates. In this case the quality requirements are those applicable to the undertakings under the ETS. The quantitative requirement allows for 8% of five times the average allowed emissions annually (undertakings subject to a reduction commitment already during the period 2008-2012) or 4.5% of greenhouse gas emissions of the years 2013-2020 (all other undertakings) respectively.

[Question 3]: In its proposition for a general revision of the CO_2-Act which was published in December 2017 the Federal Council does not entirely exclude to take international credits into account but foresees a delegation of this competence to the government, which would allow for an exclusion of the use of international credits in accordance with the legal framework in the EU. The discussions on this general revision of the act just having started, it is difficult to give any definitive answer on the political acceptability of this measure. Yet, it can be said that parts of the industry have shown a very strong intention to link the Swiss and the EU-ETS and it would thus seem plausible that this measure is accepted if it is necessary to ensure compliance with EU-requirements.

*As the **effort sharing mechanism** does not apply to Switzerland, the related questions cannot be answered adequately.*

2. Exemptions from regulatory directives

a. Water Framework Directive: Establishing less stringent environmental objectives

Preliminary remark: Switzerland is not a member of the European Union and is thus not bound by the Water Framework Directive (WFD). Even though the general objectives of the Swiss legal framework as well as the scope of application of legislation in this field of law are fairly congruent with those of the EU, the regulatory approach differs: The framework directive follows an approach, which may be qualified as coordinative, comprehensive and procedural, whereas the law in Switzerland in this field is rather **problem-oriented** and may be considered to be somewhat piecemeal [cf. Epiney/Fuger/Heuck, "Umweltplanungsrecht" in der Europäischen Union, Zürich 2011, pp. 242].

[Question 1, 2 & 3] In order to implement its constitutional mandate to "provide protection against the harmful effects of water" (art. 76(1) Const.), the Swiss legislator has enacted the Federal Act on the Protection of Waters (WPA). As general obligations the act contains the requirement that "everyone [shall] take all the care due in the circumstances to avoid any harmful effects to waters" (duty of care) as well as a general prohibition to pollute any body of water. The **concrete objectives** with regard to water quality are decided upon by the Federal Council, who established "Ecological Objectives for Water" on the one hand and quantified "Requirements on Water Quality" on the other (annex 1 and 2 Water Protection Ordinance [WPO]). In addition to this, the Ordinance also foresees specific (quantified) emission limits with regard to the discharge of polluted waste water (annex 3 WPO). The first category of objectives contains requirements such as the one that "temperature conditions are near-natural" or that potential water pollutants "do not have any harmful effect on the communities of plants" or do not "cause an unnaturally high production of biomass" (for surface waters). The second also contains numerical requirements e.g. for nitrate, lead, cadmium etc. Ecological objectives have to be taken into account for all measures taken under the WPO (art. 1(2) WPO). The second set of (numerical) requirements has to be taken into account when deciding upon requests with regard to discharge into waters in general (art. 6 WPO), concerning infiltration (art. 8 WPO) or when considering the discharging industrial waste water or waste water after treatment into the public sewers (art. 13 WPO).

When it comes to **deviations** from or **exception** to the standards and objectives of the Act and the Ordinance, one first of all has to mention a general exception pertaining to the interests of national defense or in case of emergencies (art. 5 WPA), which however requires a specific ordinance by the Federal Council, which does not exist (so far). General exceptions from the prohibition to pollute are not foreseen in the law (the former Act of 1955 still contained a balancing of interests clause), but the law allows the disposal of waste water or the discharge and infiltration of waste water under restricted circumstances and thus provides itself for limited exceptions to the principle. In addition to this a deviation may be accepted due to an unavoidable conflict of norms [cf. Hettich/Tschumi, GschG-Kommentar, Art. 6 n. 9, Zürich/Basel/Genf 2016]. This constellation was discussed, but not found in a decision rendered by the Federal Court some years ago (BGE 125 II 29 – Küsnacht): To protect the native crayfish and other aquatic animals in a pond, the competent cantonal authorities wanted to combat a large occurrence of the American red swamp crayfish with a fention-containing and therefore toxic agent. The measure would have found its legal basis in various provisions of the Fisheries Act, but violated the water pollution prohibition. The Federal Court found that the violation of art. 6(1) WPA would only be justified if a water protection law compliant measure such as the use of predatory fish proved to be ineffective and other measures such as drying out or dredging the

pond would not appear to be more advantageous. The prohibition has thus been construed in a fairly strict manner.

With regard to the specific objectives foreseen in the mentioned annexes to the WPO exceptions are fairly restricted. If we take the discharge of polluted waste water into surface waters, drainage areas or underground rivers or streams as an example, the requirements of annex 3 have to be respected. These requirements must be designed in a stricter manner if the objectives of annex 2 are not met or if they are respected but the water quality does not suffice to allow for the specific use of the body of water concerned (art. 6(2) and (3) WPO). On the other hand, less stringent requirements may be applied if (i.) by reducing the amounts of waste water discharged, the concentrations allowed are higher, but fewer water pollutant are discharged or if (ii.) the environment is less impaired by the discharge than by other methods of discharging under the condition than the imission limits of annex 2 are respected. Exceptions are thus limited and pertain themselves to ecological standards.

A recent evaluation of the water quality of running waters in Switzerland has shown that even though wastewater treatment plants respect the legal requirements concerning discharging of treated water, nutrient concentration may be too high due to a high proportion of treated water in the concerned water bodies [BAFU, Zustand der Schweizer Fliessgewässer, Bern 2016, p. 78]. This example could show that the standards on water quality (or the interplay between ecological standards, emission and ambient limit values) in Switzerland are possibly not always ambitious enough to guarantee a sufficiently high qualify of water.

[Question 4] The requirements of the WFD with regard to public information and consultation being fairly elaborate, Swiss law in this field seems not to meet these standards [cf. Epiney/Fuger/Heuck, "Umweltplanungsrecht" in der Europäischen Union, Zürich 2011, p. 180]. The law foresees obligations to inform (art. 50(1) WPA) and to publish water protection maps and drainage plans (art. 4(5), 5(4) and 30(2) WPO) as well as to establish water protection agencies in the cantons and on the federal level which are acting as interlocutors with the public (art. 50(2) WPA). However, the participation of the public usually comes only after the measures have been decided and takes the form of legal protection. Yet, ex ante participation may play a role, when protection measures are taken as instruments of spacial planning (changes in the cantonal or municipal structure plans), as the law foresees fairly extended participation mechanisms going along with these processes. This is for instance the case with regard to water rehabilitation measures, which – according to the plan of the legislator – should take place along about 4'000 km of the running waters situated in Switzerland (totalling about 15'000 km) over the next 80 years.

b. Industrial Emissions Directive: Setting less strict emission limit values

[Question 1, 2 & 3] Also in Swiss environmental law, the elements of economic viability and best available techniques play an important role when it comes to emission- or ambient limits. Unlike EU-law, Switzerland does not know an overarching authorisation for industrial installations, but rather foresees a multitude of separate permit requirements, which however have to be coordinated by the competent authorities. Yet, the Federal Act on the Protection of the Environment (EPA) contains a general regime for pollution control, extending to air pollution, noise, vibrations and radiation. According to EPA pollution control in general is based on a **two-stage concept**: The first stage represents the precautionary limitation of emissions (art. 11(2) USG; cf. e.g. Wagner Pfeifer, Umweltrecht – Allgemeine Grundlagen, pp. 156). At this first stage emissions are to be limited within the framework of precautionary measures as far as possible and technically and operationally feasible as well as economically acceptable. Technical feasibility means that the best available technologies are used. Economic viability does not take into account the economic situation of the

company that is actually obliged to take measures, but is based on the situation of a medium-sized and well-managed company – usually in a specific industry. The criterion of technical and operational feasibility must be clarified in each individual case and is a question of proportionality. These precautionary measures have to be taken irrespectively of the actual level of environmental pollution. If effects are found or expected to be harmful or a nuisance, the second level comes into play, according to which emissions are limited more strictly (art. 11(3) EPA). At this stage the existing level of pollution has to be taken into account. The emission limit values for air, water and soil are set in different legal acts such as the Ordinance on Air Pollution, the Water Protection Act and the respective Ordinance, the Noise Abatement Ordinance (NAO) etc. As for noise protection the applicable legal mechanism applies as follows: (i.) For the *planning* of new (industrial) installation the so called ***planning values*** have to be respected. These requirements may be relaxed, where compliance would entail a disproportionate burden on the installation and there is an overriding public interest (art. 7(2) NAO). However the level of impact thresholds must in any case be respected. (ii.) As for *existing installations*, the have to comply with ***impact threshold values***. These are set in manner that, in the light of current scientific knowledge and experience among other requirements people, animals and plants are not endangered, the well-being of the population is not seriously affected (art. 14 and 15 EPA). If ambient limit values are not complied with, improvements to the installations must be made (art. 16 EPA). If in a specific case improvements would be disproportionate, authorities have to alleviate the requirements by granting concessions (art. 17(1) EPA and art. 14 NAO). The applicable standard is that the measures do not result in unreasonable operational limitations or costs and are are not opposed to overriding public interests (such as urban, nature and landscape protection (art. 13(2)(a) and 14 NAO). The alleviations may first of all take the form of an adaptation of deadlines for remediation (between 30 days and over 15 years). If this should not suffice to meet the standard of proportionality, the authority shall fix milder emission limits. A complete exemption from the obligation to restructure may only be granted as a «ultima ratio». (iii.) When it comes to alleviations however, the so called ***alarm values*** must not be exceeded (art. 17(2) EPA and art. 14(2) NAO). In this case there is no room for a case-by-case weighing of interests and proportionality therefore plays no role.

This is to say that even though **proportionality considerations** play an important role in the Swiss legal framework on pollution control, there are nevertheless, both with regard to existing industrial installation as well as to new industrial installation, certain limits where as a matter of principle alleviations are not possible anymore and limit values are strictly applied.

[Question 4] Opposition again such alleviations can be raised within the ordinary legal protection framework according to administrative procedural law. In cases where an environmental impact assessment is required, the possibility to challenge such decisions thus also extends to environmental protection organisations (art. 55 – 55e EPA).

3. Exemptions and offsetting combined: the case of NATURA 2000

Preliminary remarks: Switzerland is not directly bound by the Birds and Habitats Directives of the European Union, but is a State Party to the Berne Convention and is thus bound by more or less equivalent obligations. In addition to the formal legal link, EU legal requirements also influence the handling of this field of law because of the factual necessity to ensure a certain degree of coordination with the neighbouring countries and because EU law may be considered as relevant state practice under the Berne Convention and thus influences its interpretation. Switzerland has implemented the obligations under international law arising from the Berne Convention through the creation of the "Emerald Network".

In Switzerland, habitat and species protection is **highly fragmented**. Numerous acts and ordinances at the federal level and decrees at the level of the cantons and the municipalities are dedicated to the field of habitat protection. The main legal basis for the protection of habitats can be found in art. 18 to 23a The Federal Act on the Protection of Nature and Cultural Heritage (NCHA). In addition to this the more general protection of sites of national importance (art. 5 and 6 NCHA) may also deserve a quick glance, as these protection schemes sometimes overlap and flexibility mechanisms are designed in a similar way.

***General protection of sites of national importance*:** Art. 6(1) NCHA defines the protection for sites (landscapes, townscapes, historical sites as well as natural and cultural monuments) of national importance which are listed in an inventory established by the Federal Council. These sites deserve undiminished preservation. However, the provision does not provide for an absolute protection of the sights. A deviation from this protective standard may only be envisaged under the condition that opposing interests are of national importance and that they carry equal or greater weight in the balancing of interests (art. 6(2) NCHA). If this threshold is met, the principle of undiminished protection requires that the projects are reduced to the minimum in size and design, in order to minimize the impact of the intervention. If a project is actually implemented, restoration or appropriate substitute measures have to be taken (art. 6(1) NCHA). Of course the existence of a possibility to carry out restorative or substitute actions does not influence the previous balancing of interests with regard to the general admissibility of the project in any way. In an application of these principles, the Federal Court stated in decision – which has become a classic (BGE 123 II 256) –, that a lighting system at Mount Pilatus (a site listed in the inventory and at the same time a tourist attraction at the Lake of Lucerne) was in compliance with the requirements of the law as the project would not cause any significant adverse effects to the site, and that the principle of undiminished conservation as a whole was thus respected.
In this context another legal change is worth being mentioned: With the planned exit of Switzerland from the nuclear energy production, recent amendments of the Energy Act (EnA) strive to give a push to the production of renewable energy. One of the measures taken was a legal intervention into the mechanism of art. 6 NCHA by a provision, which declares the use and production of renewable energy as being of national interest by definition (art. 12(1) EnA). Thus, balancing of interests against protected sites becomes possible, even though the result of this process is not determined by the legislator. This intervention into the mechanism of art. 6 NCHA may be qualified as fairly crude and has received quite some criticism. It remains to be seen how this provision will play out in practice. Happily the legislator explicitly excluded biotopes of national importance as well as water and migratory bird reserves from the application of the amendment. Their protection therefor remains untouched.

***Habitats in particular* – protection:** Art. 18(1) NCHA requires the conservation of sufficiently large habitats and other suitable measures for biotope protection. Special protection is required for riparian zones, fenlands and mires, rare forest communities, hedgerows, thickets, dry graslands and other sites that play a role in preserving the ecological balance (art. 18(1^{bis}) NCHA). In order to ensure this protection, the law foresees two general categories of biotopes: Biotopes of national importance, which are designated by the Federal Council (art. 18a NCHA) on the one hand and biotopes of regional or local importance (art. 18b NCHA), which fall under the responsibility of the cantons. Additionally, the law provides for two specific category of protected sites, namely for the protection of riparian vegetation (art. 21 NCHA) and of mires and mire landscapes, which are under a particularly strong protective status (art. 23a – 23d NCHA). Further a broad range of different acts foresee additional protective regimes. To mention one additional case, the Federal Act on Hunting and the Protection of Wild Mammals and Birds (FHA) foresees water and migratory bird reserves and

hunting ban areas to be determined by both the Federal Council and the cantons (art. 11 FHA). There is however no specific legal basis for the protection of emerald areas, meaning that the respective sites are protected under the general framework. The design and implementation of the protective measures for all types of biotopes is carried out by the cantons [art. 18a(2), 18b(1), 23c(3) and 24f NCHA as well as art. 11(5) and 25 FHA].

Deviation from the protective standards: For exceptions from the different protection standard there exist different exception regimes:
(i.) For **biotopes in general** any kind of interventions requires a prior authorization (art. 14(6) Ordinance on the Protection of Nature and Cultural Heritage [NCHO]: cantons are obliged to establish an appropriate determination regime, which should prevent possible damage). An authorization necessitates that the project is site-specific and that it meets an overriding need (art. 18(1^{ter}) NCHA and art. 14(6) NCHO). When weighing the interests the following criteria have to be taken into account: its importance for the protected, threatened and rare animal and plant species; its role in preserving the ecological balance; its importance in linking biotopes deserving protection; its biological individuality or typical character (art. 14(6) NCHO). If an intervention takes place, the author of the intervention is under the obligation to take the best possible protection or restoration measures, or failing that, appropriate compensation measures (art. 18(1^{ter}) NCHA and art. 14(7) NCHO). This implies a certain prioritization of measures: First, best possible protection has to be attempted; only if this objective seems impossible to attain, restauration comes into play and if this option does not work out, appropriate compensation is due. The level of the measures to be taken varies according to the proportionality principle, meaning that the more intensive the intervention, the higher the requirements for protection or possibly for the restoration measures (cf. Epiney/Kern/Diezig, Zur Implementierung des Smaragd-Netzwerkes in der Schweiz, Zürich/Basel/ Genf 2013, p. 65).
(ii.) When it comes to **riparian vegetation**, their removal is only permissible under the condition that the project at stake is site specific and that the respective authorizations under the legislation on the water bodies protection authorities or on the protection of water bodies is obtained (art. 22(2) NCHA).
(iii.) As for **mires and mire landscapes**, Swiss environmental law provides for a status of absolute protection (art. 23a – 23d NCHA). This goes back to a popular initiative, which in 1997 succeeded in enshrining absolute protection in the Federal Constitution (currently art. 78(5) Const.). This status only permits the remodelling and use of mire landscapes provided that it does not conflict with the preservation of the features typical of these landscapes (e.g. agricultural and forestry use, maintenance and renewal of lawfully erected buildings and installations, measures designed to protect people against natural disasters and infrastructure required for these purposes: art. 23d NCHA).

In addition to the protection and exception regimes mentioned, there exists a range of other regimes for specific categories of sites and biotopes, thus adding to the complexity of the current system of habitat protection.

As for **ecological economics**: The application of the compensation principle has led e.g. the Canton of Grisons to develop a system of points, which allows to give a (negative) value to interventions and to design equivalent compensation measures by means of specific formulas designed for different kinds of habitats or – at the end of the day – to monetarize the intervention, in order to determine a possible amount of monetary compensation (cf. also BAFU, Wiederherstellung und Ersatz im Natur- und Landschaftsschutz, Bern 2002, *passim*).