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The Precautionary Principle in Sweden*

1 Introduction

The *precautionary principle* in Sweden is included in Chapter 2, section 3 of the 1998 Environmental Code.[1] It includes a general obligation to take precautions in order to 'prevent, hinder or combat damage or detriment to human health or the environment'. Such precautions shall be taken 'as soon as there is cause to assume that an activity or measure may cause damage or detriment to human health or the environment'.

The principle was codified in Sweden when the Environmental Code was adopted in 1998. However, it would be wrong to say that the 1998 principle is a new phenomenon in Swedish environmental law. Sweden already adopted a *precautionary approach*[2] in 1941 when the 1918 Water Act was amended to include a permit control of industrial waste water. The precautionary approach was further clarified and expanded after

* *Implementing the Precautionary principle. Approaches from the Nordic Countries, EU and USA* (ed. De Sadeleer, N.), London: Earthscan Publications Ltd (2007), p. 120–136.

[1] Many thanks to Professor Nicolas de Sadeleer and Professor Staffan Westerlund, and also to Professor Bertil Bengtsson and several of my other colleagues at Luleå University of Technology, Division of Jurisprudence, Sweden, for providing me with useful comments on this chapter.

[2] I use the term 'precautionary approach' for the period before 1998 since the expression 'precautionary principle' was not then used in the Swedish legal texts. This distinction in terminology between principle and approach does *not* indicate a distinction in the meaning of the two; compare de Sadeleer, N. (2002) *Environmental Principles:* From Political Slogans to Legal Rules, Oxford University Press, Oxford, p. 92.

1969. The historical background is described initially in this chapter. It is essential for the understanding of today's precautionary principle in the Environmental Code.

After a short overview of the code's most important components, which should be useful for non-Swedish readers, the precautionary principle is analysed in more detail. The *scope* of the principle is discussed. Since the Environmental Code aims not only at protection against pollution and similar nuisances, but also at nature conservation and rational management of natural resources and energy, what role does the precautionary principle play in this wider context?

Two crucial issues relate to evidence. First, the code is clear on the point that when it is uncertain if pollution (or other nuisance) may cause damage to health or the environment, it is, in principle, not the environmental authority (guarding public interests) or the neighbour (whose personal health or private property is threatened) who must prove the existence of a future damage in order to achieve protective measures or prohibitions. By contrast, the operator has to prove that damage will not occur in order to be spared from such restrictions. This issue – the operator's *burden of proof* – will be elaborated upon more closely. Secondly, an important question is also at what *standard of evidence* are requirements to take precautions triggered? This question will also be discussed, although a clear answer is not evident.

When discussing the application, in practice, of the precautionary principle, it is necessary to address some elements in the Swedish legislation that may be described as *contra productive* to the principle, especially provisions indicating that environmental interests shall be weighed against costs for the operator and other opposite interests (in some cases, opposite environmental interests), but also possible conflicts between the precautionary principle and the general legal principles of legality and legal certainty.

In this chapter, I have consulted legal texts and preparatory works.[3] Case law is meagre; but I have selected some verdicts that illuminate the application of principle in connection with control of chemicals in big industrial installations.

[3] Although clearly subordinated the legal text and, of course, not legally binding, preparatory works play a relatively important role as legal source in Sweden.

2 A precautionary approach

2.1 The birth of a precautionary approach in 1941

Swedish industry developed rapidly during the beginning of the 20th century without significant interference from environmental authorities requiring a reduction of pollutants, although, since 1880, there had been some legal support for such requirements.[4] The enforcement was occasional and often conducted when the damage was already a fact. Water quality in several lakes and sea bays had degraded substantially, and the Swedish Parliament decided, in 1941, to amend the 1918 Water Act in a way that should be regarded as a precautionary approach.

The 1941 amendment introduced a concession system for discharges of industrial wastewater.[5] It was as a principle rule generally prohibited to discharge such wastewater when the pollution caused 'detriment of any significance'. However, the operator had the right to apply for a licence at the Water Court,[6] which could exempt from the general prohibition. The operator was then obliged to prevent the pollution by taking 'reasonable' precautions.[7] So a precautionary approach was introduced in the sense that no new industrial discharges of any significance were allowed without a prior licence and reasonable precautions. It was generally assumed that such discharges caused danger to the health or the environment.

2.2 Environmental Protection Act 1969: Expanded and clarified precautionary approach

Although principally important, the 1941 amendment did not sufficiently improve the water quality near industrial installations. The Water Courts were criticized for imposing too lenient requirements. Besides, the scope of the legal control introduced in 1941 was too narrow. It included only water pollution emanating from discharges from certain kinds of

[4] Regulation 1880 Concerning Landowners' Right to the Water on his Land, section 12. Concerning the development of legislation for pollution control before 1969, see Darpö, J. (1994) 'Vem har ansvaret, Rättsläget idag och förslag för framtiden', *Naturvårdsverket, rapport,* vol 4354, pp. 10–30.

[5] There were also restrictions concerning cloak water, but they were not as far reaching.

[6] Certain civil courts were appointed as Water Courts. Their verdicts could be appealed to one High Water Court, in Stockholm. The Supreme Court was the last instance.

[7] Water Act 1918, Chapter 8, section 32. If there was risk of severe damage, only the government was empowered to issue a licence.

installations, not from other forms of land use. Even more importantly, other forms of nuisances, especially air pollution, were excluded from an efficient legal control.[8] It was time for a new legal revision, resulting in the adoption in 1969 of the Environmental Protection Act.

The act was a cornerstone in Swedish environmental legal history. It applied to almost all kinds of pollution and other nuisances (noise, heat, smell, changes in landscape, etc., but not, for example, radiation). Thus, in 1969 Sweden introduced integrated pollution prevention control. The number of activities for which a licence was required increased significantly. The responsibility for licensing was transferred from the Water Courts to a new National Environmental Licensing Board (*Koncessionsnämnden för miljöskydd*) and (with regard to smaller installations) to the regional boards.

The act applied to so-called 'environmentally hazardous activities'. The term 'hazardous' was deliberately chosen to indicate that a risk of damage or other detriment was sufficient for the act to apply and to trigger constraints on the activity. This important approach was further explained in the Government Bill:

> Damages can be counteracted … by taking into account the risk when considering if and under what conditions an activity may be conducted. It is in my opinion necessary that the authorities applying the legislation take into account the danger for the health interest and other public aspects that may be connected with still unknown or insufficiently explored pollutants. I consider it to be natural that *the uncertainty related to the danger of a substance shall not strike against the public but instead on the person [who] emits the substance into the air or the water.* This principle is of the greatest practical importance. It means that one does not have to wait to intervene until damages have occurred. It means also that a person who wants to discharge an insufficiently known substance, provided there is a well-founded reason to assume that the substance is dangerous, must be able to show that there is no risk for a detriment [this author's italics].[9]

So, the Environmental Protection Act provided environmental authorities with the power to act in situations of uncertainty. The risk of damage

[8] Health Protection Ordinances applied, but mainly for the control of sanitary detriments in towns.

[9] Prop. 1969:28, *Miljöskyddslagen* (Government Bill, this author's translation), p. 210. See also SOU 1966:65, *Luftförorening, buller och andra immissioner* (state commission report preceding the Government Bill), p. 211.

or detriment was normally sufficient to trigger requirements on precautions (alternative locations, purification techniques, limitation of production, etc.), but also, occasionally, to prohibit the activity as such. The activity was, as a principle rule, prohibited (there were exemptions) if it was '*likely to cause* significant damage or detriment to human health or the environment' (this author's italics).[10]

However, there was an initial threshold. Loose speculations on possible impacts were not sufficient to trigger requirements. As pointed out in the preparatory works, there should be a 'well-founded reason to assume' that a substance is dangerous.[11] The risk had to be 'noteworthy'.[12] Thus, there was an initial task for environmental authorities, neighbours or environmental organizations to deliver at least some scientific material indicating a noteworthy risk. After passing this threshold, the burden on proof shifted to the operator (polluter).

While the law was essentially clear on the issue of burden of proof, it was blurry with regard to the question of how far-reaching the operator's assessment had to be in order to be released from the requirements on precautionary measures or prohibitions. There was no legally determined standard of evidence to apply. Preparatory works and case law did not provide any guidance with regard to this often crucial issue. It is reasonable to assume that the standard varied depending upon the circumstances in each case. *Westerlund* points out certain circumstances as probably relevant: the extent and the degree of complexity of the feared effect; the cost of investigating the environmental effects and appropriate precautions; the fact that the activity was either new or already existing; and the costs of combating the effect (if existing and not insignificant).[13]

Placing the burden of proof on the operator was important, in practice, and farreaching requirements were sometimes imposed despite the uncertainty of the effects. There were several cases when the entire application was turned down because of insufficient assessment by the operator. However, the necessity of considering risks was confronted by

[10] Section 6. In SOU 1966:65, *Luftförorening, buller och andra immissioner*, p. 221, the so-called Emission Experts Commission 'underline[d] that it is sufficient to *fear for* a significant detriment: in other words, that a considerable *risk* for such a detriment exists' (italics in original).

[11] Prop. 1969:28, *Miljöskyddslagen*, p. 210.

[12] SOU 1966:65, *Luftförorening, buller och andra immissioner*, p. 221.

[13] Westerlund, S. (1990) *Miljöskyddslagen. En analytisk lagkommentar*, Åmyra Förlag, p. 14.

another cornerstone in the Environmental Protection Act: balancing environmental interests against the operator's costs, as well as supply of jobs and other public benefits. In other words, although risks were deemed to be considerable (and even if severe environmental damage might occur), environmental requirements had to stand back if they were outbalanced by opposite interests. An illustrative example is a permit case from the mid 1970s related to the metal industry Rönnskärsverken, built in 1930 in the town of Skellefteå in northern Sweden, along a bay adjacent to the Baltic Sea. The discharges into the Baltic and the air included many different substances, several of them typically very dangerous, such as cadmium, lead and mercury. The amount of certain pollutants was huge, in some cases more than 50 per cent of the total amount discharged in Sweden into air or water. Rönnskärsverken was, without competition, the single most polluting industry in Sweden.

Despite the great complex of discharges, and several years of monitoring, no severe impacts on the marine ecosystem in the surroundings of the industry were registered. Nevertheless, the National Environmental Licensing Board quoted the abovementioned formulations in the preparatory works relating to risks and pointed out the operator's burden on proof. The board concluded, with regard to the situation at Rönnskärsverken, that even if far-reaching precautions were required, the pollution was '*likely to cause* significant damage or detriment to human health or the environment' (this author's italics). The activity thereby fulfilled the criteria for prohibition stipulated in the principle rule in section 6 in the Environmental Protection Act. However, section 6 also included an exemption if strong opposite public interest was deemed to be more important than the risks for health or the environment. It was (and still is) the government that carries out the weighing of interests in these severe conflict cases. In the case of Rönnskärsverken, the environmental risks were regarded as less weighty than the impacts on trade and industry and employment in the whole of northern Sweden. Consequently, the government approved a continuation of the heavily polluting activity in 1975.[14] Far-reaching requirements to decrease emissions were imposed in the form of gradually strengthened permit conditions. Today the discharges have been significantly reduced.

[14] Governmental decision 18 June 1975, No 167/75 and National Environmental Licensing Board (Koncessionsnämnden för miljöskydd) No 3/75.

2.3 Next step: A precautionary approach in the legal control of chemicals

It was generally recognized that the control of industrial installations according to the Environmental Protection Act significantly improved the quality of air and water in many areas. Nevertheless, there were alarming observations in Sweden of the far-reaching decline of certain species' populations to levels close to extinction – for example, the yellowhammer (*Emberiza citronella*), the kestrel (*Falco tinnunculus*) and the osprey (*Pandion haliaetus*), due to release of mercury (e.g. in planting seeds), and the whitetailed eagle (*Haliaeetus albicilla*), due to exposure to PCB and DDT.[15] It became obvious that the environmental impacts resulting from the fast introduction of new chemicals into the market could not be prevented solely by permit control of single installations. It was necessary to legally address the chemicals and to prevent risks at the initial stage.

The 1973 Act on Products Hazardous to Health and the Environment was the first Swedish framework statute for a coordinated control of all chemicals. It was at this time an advanced legislation from an international perspective. The legislator was clearly inspired by the precautionary approach developed in the Environmental Protection Act. Environmental authorities should be able to intervene already when they had:

> … good reason to suspect a risk for damage. If so, the producer must, to avoid prohibitions or restrictions, as far as possible with respect to present scientific position prove that the suspicion is unfounded. He will otherwise have to accept that the authorities act according to the assumption that the product is health and environmentally hazardous. Thus, the uncertainty … concerning the hazard of a substance will not strike against the public, but instead the person who intends to market the product in question.[16]

The act included a general obligation to take precautions, not only for producers but for all persons handling a product – for example, importers, salespeople, private consumers, farmers and operators of factories and other installations. In other words, the act provided for legal control throughout the entire life cycle of the chemical.

[15] The recovery of the yellowhammer has been successful, while some other species – for example, the kestrel – have not fully recovered.

[16] Prop. 1973:17, *Med förslag till lag om hälso- och miljöfarliga varor* (Government Bill), p. 96.

According to the preparatory work, one important precaution was to avoid a chemical if the same objective could be achieved by making use of a less hazardous alternative chemical, provided the costs of substituting the chemicals were not unreasonable. This requirement was generally called 'the principle of substitution'. It was closely linked to the precautionary approach: the obligation to avoid a chemical was based upon an assessment and comparison of risks related to this and the alternative chemical.

The 1973 act was substituted in 1985 with the similar the Act on Chemical Products. This framework act inherited the same precautionary approach[17] and, after an amendment in 1990, included the principle of substitution in the legal text.[18]

The Swedish legislation on chemical control was probably one of the most progressive in Europe. DDT and PCB were banned early on and restrictions on the use of cadmium were far reaching.

2.4 Lack of a precautionary approach in many environmental acts

Besides the Environmental Protection Act and the two statutes on chemical control, a clear precautionary approach could not be traced in other statutes related to environmental protection and the management of natural resources. The 1964 Nature Conservancy Act did not explicitly advise how to act in a situation of uncertainty with regard to environmental impacts; neither did the 1983 Water Act (which applied to the construction of hydropower installations and other water operations), the 1991 Minerals Act and the 1987 Hunting Act, to take a few examples. In fact, not even the specific legislation related to nuclear safety and radiation control – for example, the 1988 Radiation Protection Act and the 1984 Nuclear Technology Activity Act – tackled this issue explicitly. One obvious reason for this difference in approach to risk consideration was the inconsistency in the environmental legal system before the Environmental Code. The acts were scattered. New legislation and amendments

[17] Prop. 1984/1985:118, *Om kemikaliekontroll* (Government Bill), p. 40.

[18] Section 5. The principle is analysed by Nilsson, A. (1997) *Att byta ut skadliga kemikalier. Substitutionsprincipen – en miljörättslig analys*, Nerenius & Santerus, Stockholm, p. 127 ff. See also Michanek, G. (1993) 'Substitutionsprincipen', *Miljörättslig tidskrift,* vol 2, p. 127.

to existing legislation were developed essentially within their own legal culture; the coordination with other environmental statutes was poor.

3 The environmental code precautionary principle

3.1 The Environmental Code: Objective and substantial environmental requirements

Legal coordination was obviously a prime purpose of the Environmental Code, adopted by parliament in 1998. Sixteen acts – for example, the Environmental Protection Act, the Chemical Products Act, the Nature Conservancy Act and the Water Act – were substituted by a legal framework, including 33 chapters. The overarching objective of the code is to promote 'sustainable development'. For that purpose, the code, according to the legal text, 'shall be applied' so that certain 'sub-objectives' are met, including not only the protection of health and the environment against pollution or other nuisances, but also the preservation of biodiversity against different kinds of impacts (e.g. drainage) and, not least important from the sustainability perspective, the reuse and recycling of raw materials and energy in order to establish and maintain natural cycles.[19]

As a first step to implementing the objectives, the code provides a set of substantial environmental requirements, classified in the legal text as 'general rules of consideration' ('*allmänna hänsynsregler*').[20] The chief provision – Chapter 3, section 2 – includes the precautionary principle (see below). It generally requires taking protective measures, complying with restrictions and taking any other precautions (including the use of best possible technology) that are necessary to prevent or hinder damage or detriment to human health or the environment.[21] Besides the general obligation, or rather as specifications of it, Chapter 2 includes the requirements:[22]

[19] Environmental Code, Chapter 1, section 1.
[20] Environmental Code, Chapter 2.
[21] Environmental Code, Chapter 2, section 3.
[22] Environmental Code, Chapter 2, section 2 and 4 to 6.

- to 'possess the knowledge that is necessary in view of the nature and scope of the activity or measure to protect human health and the environment against damage or detriment';
- to select a site, where it is possible to achieve the purpose 'with a minimum of damage or detriment to human health and the environment';
- to 'conserve raw materials and energy and reuse and recycle them wherever possible'; and
- to 'avoid using or selling chemical products or biotechnical organisms that may involve risks to human health or the environment if products or organisms that are less dangerous can be used instead' (the so-called 'product choice requirement', corresponding to the previous 'substitution principle').

As in the Environmental Protection Act, the main function of Chapter 2 is to mitigate environmental impacts and risks, with far-reaching requirements, if necessary, but not in the first place to prohibit activities. In fact, only very occasionally are activities prohibited, according to the so-called 'stop provisions'.[23]

The code includes a wide range of other environmental instruments that cannot be elaborated upon here – for example, provisions for managing land and water areas (essentially, national physical planning provisions); environmental impact assessments (EIAs); environmental quality standards; and specific chapters for permitting and controlling (within certain sectors, such as nature conservation) polluting activities and water operations, and for handling chemicals, genetically modified organisms and waste.[24] A great number of regulations and by-laws are subordinated to the code.

3.2 The precautionary principle

The precautionary principle in Chapter 2, section 3, of the Environmental Code is formulated as follows:

> Persons who pursue an activity or take a measure, or intend to do so, shall carry out protective measures, comply with restrictions and take any other precautions that are necessary in order to prevent, hinder or combat damage

[23] Environmental Code, Chapter 2, section 9 and 10.

[24] See Michanek, G. and Zetterberg, C. (2004) *Den svenska miljörätten*, Iustus, Uppsala, pp. 97–414.

> or detriment to human health or the environment as a result of the activity or measure. For the same reason, the best possible technology shall be used in connection with professional activities.
>
> Such precautions shall be taken as soon as there is cause to assume that an activity or measure can cause damage or detriment to human health or the environment [this author's italics].

It is obvious that, in most respects, the precautionary principle adopted in the code inherited the precautionary approach developed in the preparatory works and case law related to the Environmental Protection Act, as described above. The code Government Bill refers to this act and emphasizes, again, that the burden or proof is placed on the 'operator'. This particular issue will never be subject to a balancing of interests.[25] It is also notable that the operator, in order to avoid requirements, must generally show not only that risks do not exist, but also that the activity complies with the legal requirements in all respects. It is, for example, not the licensing or supervising environmental authority which has to show that a certain requirement is reasonable; instead, it is up to the operator to prove that the requirement is unreasonable:

> In connection with the consideration of matters relating to permissibility, permits, approvals and exemptions and of conditions other than those relating to compensation, and in connection with supervision pursuant to this code, persons who pursue an activity or take a measure, or intend to do so, shall show that the obligations arising out of this chapter have been complied with. This shall also apply to persons who have pursued activities that may have caused damage or detriment to the environment.[26]

The shifting of the burden of proof does not automatically entail an obligation on behalf of the operator to carry out a far-reaching assessment of the risks at stake. As mentioned previously, the code is unclear on the issue of how strong the evidence must be which the operator must put forward – *the standard of evidence* – in order to be released from the obligation to take precautionary measures. It was stated in the code Government Bill that the operator's obligation must be reasonable. It can also be concluded from the bill that precautions are triggered at different

[25] Prop. 1997/1998:45 I, *Miljöbalk* (Government Bill, www.lagrummet.se), p. 210.
[26] Environmental Code, Chapter 2, section 1.

standards of evidence, depending on the type of activity in question.[27] So, the required standard of evidence must be determined individually, case by case. More legal certainty (ability to foresee the required standard) would be promoted if the courts would identify different *typical* risk situations where a certain standard applies. There is no sign of such an attempt so far.

The formulation 'cause to assume' means, probably, that there is an initial threshold for the environmental authorities, or private persons or groups, representing different environmental interests. Presumably, as before the code, an operator can never be obliged to assess a risk that is based merely on loose speculations.

The *scope of the precautionary principle* is wide. It applies as soon as there is cause to assume that the measure or activity may counteract 'the objectives of the code',[28] which are all covered by the term 'environment' in the legal text of Chapter 2. As mentioned above, the objectives of the Environmental Code are not only to protect health and the environment against pollution, but also, for example, to preserve biodiversity. This is important since the Nature Conservancy Act (before the establishment of the code) did not include an explicit precautionary approach. Furthermore, precautionary measures may be imposed to reduce the *risk* of inefficient use of natural resources and energy. The Code is in this respect more far-reaching than the previous Environmental Protection Act.

The scope is also wide from other perspectives. While the precautionary principle in the Rio Declaration applies to the risk of 'serious or irreversible damage', the Swedish principle already applies where there is cause to assume *any* form of damage or detriment to health or the environment. Furthermore, section 3 applies to all physical or legal persons who pursue an activity (with some continuity) or take a single measure that is not of 'negligible significance in the individual case'.[29] The principle does not exempt non-commercial activities.

There is, so far, no case according to the Environmental Code where the content of the precautionary principle has been analysed and specified. This is somewhat surprising: first, because the legal text now includes the principle explicitly; second, because uncertainty concerning impacts on the environment is a typical component of most cases; third,

[27] Prop. 1997/1998:45, *Miljöbalk I* (Government Bill, www.lagrummet.se), p. 210.
[28] Prop. 1997/1998:45 I, *Miljöbalk* (Government Bill, www.lagrummet.se), p. 210.
[29] Compare Environmental Code, Chapter 2, section 1.

because the principle is now related to quite different objectives than just pollution prevention; and, fourth, because the issue of required evidence standard degree of probability is a crucial, but at the same time very unclear issue when applying the principle.

In addition, the statements by the European Court of Justice (ECJ) concerning some aspects of the principle, discussed by de Sadeleer in Chapter 2 of this book,[30] are not reflected in Swedish case law. The Swedish courts cannot ignore the rulings of the ECJ since they, according to Article 10 EC, shall apply Swedish legislation in conformity with European Community (EC) law.[31]

None of the, so far, rather few cases in the Supreme Court relating to the Environmental Code refer to the principle. The Environmental Court of Appeal (*Miljööverdomstolen*), whose decisions have a significant guiding function as long as the Supreme Court is silent in the matter, has only very occasionally mentioned the principle. It is reflected in a few cases concerning permits to big installations (several paper mills and one chemical factory) where hundreds of different chemicals were used in the industrial processes. The court was not satisfied with the operator's argument that producers and importers are solely responsible for providing information on chemical products. The general obligation to possess knowledge (Chapter 2, section 2) applies to all activities where chemicals are handled. This standpoint is important: first, because the introduction of a new chemical into the market is normally not subject to a permit trial (only registration); and, second, because the ecosystems that are targeted for the emissions from the particular installation are specific.

The licences issued in these cases included a specific condition requiring the operator to investigate the risks related to chemicals used within the installation, in consultation with the supervising authority, for the purpose of substituting environmentally hazardous chemicals with less hazardous ones. This obligation was supplemented with a sanction:

> It is, from the year 2006, prohibited to use in the production such chemical products for which there is lack of documented knowledge concerning the

[30] de Sadeleer, N. (2007) 'The Precautionary principle in EC health and environmental law', in de Sadeleer, N. (ed) *Implementing the Precautionary Principle*, Earthscan Publications, London.

[31] See also the Government Bill related to the 1994 Act on the Swedish Accession to the European Union: Prop. 1994/1995:19, *Sveriges medlemskap i Europeiska unionen* (Government Bill, www.lagrummet.se), p. 488.

> risk for detriments to the environment as a result of poor biodegradability, potential acute or chronic toxicity and bioaccumulation. The supervising authority may, in individual cases, decide upon exemption from the requirement on documented knowledge and upon prolongation of the period.[32]

This permit condition was based upon three provisions in Chapter 2: the product choice requirement ('substitution principle'), the requirement to possess knowledge about the activity and its risks, and the precautionary principle.[33] The cases reflect an important connection between the provisions: already the risk for damage triggers an obligation to investigate the characteristics of chemicals. The provided knowledge will facilitate an exclusion of hazardous chemicals, in line with the product choice requirement. Consequently, if the operator, after a certain period of time, fails to provide information on the characteristics, no matter how hard he or she tries, the use of the product is prohibited. In other words, the remaining uncertainty strikes against the operator. This construction presupposes that there is, at least, 'cause to assume' that a chemical is hazardous.

One of the cases from the Environmental Court of Appeal was appealed to the Supreme Court, which in a verdict in May 2006 (Högsta domstolen, dom 19 May 2006 i mål T 2303-05) did not approve the sanction quoted above as it breached the principle of legal certainty. I will return to this issue.

We turn, finally, to the question of risk consideration when the so-called 'stop provisions' (rules relating to prohibitions) are applied. The precautionary principle in Chapter 2, section 3, is explicitly linked only to the obligation to take precautionary measures. Nevertheless, as previously stated in the Environmental Protection Act, the 'stop provision' in Chapter 2, section 9, prohibits an activity or measure if it is '*likely to cause* significant damage or detriment to human health or the environment, even if protective measures and other precautions are taken as required by this code' (this author's italics).[34] It is in this connection clear that the operator must prove that the risk does not exist.[35] However, as I will

[32] Environmental Court of Appeal 30 June 2004 in case M 10499-02. See also, for example, Environmental Court of Appeal 12 May 2005 in case M 3225-04 and 30 March 2005 in case M 9408–03.

[33] Environmental Code, Chapter 2, sections 6, 2 and 3.

[34] Environmental Code, Chapter 2, section 9.

[35] Compare Environmental Code, Chapter 2, section 1.

explain in the following, risks can be accepted if they are outbalanced by opposite interests.

3.3 The precautionary principle and contra-productive elements in the law

To understand the significance of the precautionary principle in relation what actually is required in terms of risk management, the principle has to be placed within a wider legal context, including:

- weighing environmental interests against opposite private and public interests;
- the principles of legal certainty and legality; and
- competing environmental interests.

Weighing environmental risks against opposite interests

The Environmental Code demands weighing environmental interests against costs and other interests when deciding upon the obligation to take precautionary measures. There is a general obligation to take the best possible precautions ('best possible technique'), which is normally a far reaching requirement for new activities. This is the legal 'standard' normally applied. However, a lower requirement will apply provided that the operator can prove that the standard requirement is 'unreasonable' in the individual case.[36] This is where the weighing of interests comes in and the chief question is if the costs related to precautionary measures are proportional to the expected results from an environmental point of view. It is fair to say that it is rather unusual that the courts lower the requirements on precautionary measures below the standard 'best possible technique', let alone that different standards applies to new, compared to existing, activities within the same branch. If environmental quality standards may be exceeded, the standard requirement will always apply.

[36] Environmental Code, Chapter 2, sections 3 and 7. These issues are developed in, for example, Westerlund, S. (1999) 'Delkommentarer till miljöbalken', *Miljörättslig tidskrift,* vol 2–3, pp. 343–395; Bengtsson, B. (2001) *Miljöbalkens återverkningar*, Norstedts, Stockholm; Michanek, G. (2002) 'Att väga säkert och vikten av att säkra', in Basse, E. M., Hollo, E. and Michanek, G. (eds) *Fågelperspektiv på rättsordningen*, *Vänbok till Staffan Westerlund*, Iustus, Uppsala, pp. 69–91; and Michanek, G. and Zetterberg, C. (2004) *Den svenska miljörätten*, Iustus, Uppsala, pp. 134–137.

Weighing of interests is also an essential component of the 'stop provisions'. Although observing a risk of 'significant damage or detriment to human health or the environment', the measure or activity is still allowed if 'special reasons' are at hand. According to the Government Bill, it must be proved that the 'advantages … from a public and private point of view clearly outweigh the damage'. The power to decide is here directly (without appeal) transferred from the court (or administrative authority) to the government – in other words, to the highest political level.

The 'stop provisions' also include a second test level, to be applied if the risks are deemed to be extraordinary. So, although the government may find that 'special reasons' are at hand, the 'activity or measure cannot be undertaken if it is *liable* to lead to significant deterioration of the living conditions of a large number of people or substantial detriment to the environment' (this author's italics). However, the government is again vested with the power to grant an exemption if the 'activity or measure is of particular importance for reasons of public interest', such as job opportunities.[37]

As we can see, the construction is basically the same as previously in the Environmental Protection Act. The code contains no absolute safeguard in Chapter 2 against even possible severe damages to the environment. There are several cases according to the Environmental Protection Act where activities were approved by the government, although such risks were identified. They were accepted because the opposing public interests were considered heavier.[38]

In one respect, legal protection was strengthened in the code. The government may not allow an activity or a measure if it is '*likely* to be detrimental to the state of *public health*' (this author's italics).[39] No balancing of interests is allowed when such health risks are at hand. However, this absolute legal protection does not apply if only a few persons may become seriously ill or even die; the expression 'detrimental to the state of public health' refers to a situation where people in the neighbourhood 'more commonly may be damaged by pollution or similar nuisances'.[40]

[37] Environmental Code, Chapter 2, section 10.

[38] One example – the case of Rönnskärsverken – is mentioned earlier in the section on 'Environmental Protection Act 1969: Expanded and clarified precautionary approach'.

[39] Environmental Code, Chapter 2, section 10.

[40] Prop. 1997/1998:45 II, *Miljöbalk* (Government Bill, www.lagrummet.se) p. 28.

To conclude, while precautionary measures often are set to achieve a high level of protection according to standard 'best possible technique', occasionally situations arise where there is a risk for severe damage to human health or the environment – especially in connection with permitting existing, often old, industrial installations. With the exception just mentioned, Chapter 2 does not include an environmental 'hard core' element, providing absolute protection of, for example, biodiversity.[41] Not even exceeded environmental quality standards guarantee such a protection in Sweden if the permit case concerns the question of increasing the emissions from existing installations.[42]

Legality and legal certainty

As already explained, the Swedish precautionary principle includes two connected ingredients:

1. the obligation to take precautions in cases where the risk of damage or detriment occurs; and
2. the burden of proof placed upon the person who operates a factory, uses a chemical product, cultivates genetically modified crops, etc. (the 'operator').

However, in the wider legal context, the general principles of legality and legal certainty must be taken into account. These principles aim to protect the operator against arbitrary intrusion by public authorities. More precisely, the operator should be able to foresee legal requirements, as well as possible reactions from authorities supported by the requirements (legal certainty). That interest is supported if the requirements are clear, precise and follow directly from the legal text (legality).

Obviously, there is a fundamental conflict between the precautionary principle and the principles of legal certainty with regard to managing uncertainties. While the precautionary principle is based on the idea that remaining uncertainties fall upon the operator, the principles of legal certainty and legality will not trigger requirements on precautions unless the

[41] Compare de Sadeleer, N. (2002) *Environmental Principles:* From Political Slogans to Legal Rules, Oxford University Press, Oxford, p. 372.

[42] Chapter 16, section 5, prevents further pollution if there is risk of exceeding environmental quality standards in an area; but the section applies only to 'new' activities.

environmental authority has provided full, or close to full, evidence that damage will occur.[43]

One example of cases that now and then reach the courts, and where the principle of legal certainty prevails, relates to the obligation to possess knowledge about the activity and its risks.[44] As indicated above, this obligation is linked to the precautionary principle. It is common in practice that authorities need to require precautions in order to counteract possible damages to the environment. Since they are not well informed about the specifics of the activity, they serve an order requiring the operator to suggest possible precautions. The courts generally reject such requirements as they are not precise enough to comply with the principle of legal certainty.[45]

The above-mentioned Supreme Court case (Högsta domstolen, dom 19 May 2006 i mål T 2303–05) is a clear example of how precaution loses out against legal certainty. The court assessed a permit condition for a industry, which 'prohibited to use in the production such chemical products for which there is lack of documented knowledge' of certain risks for the environment. The Court stressed first (without explicitly referring to the precautionary principle) that:

> the condition has an important purpose, which is well in line with the objectives of the Environmental Code. An operator must obviously ensure that he possesses the necessary knowledge of such chemicals that may be dangerous to health or the environment when being used in the activity.

The court nevertheless disapproved the permit condition as it did not comply with the principle of legal certainty. As criminal sanctions are applied when permit conditions are breached, the operator must be able to foresee when a condition is fulfilled or not. The expression 'documented knowledge' was too unclear according to the court. It rejected the case to the Environmental Court of Appeal, which now has to clarify the condition. This very difficult task has not yet been conducted (October 2006).

[43] Nilsson, A. (1997) *Att byta ut skadliga kemikalier. Substitutionsprincipen – en miljörättslig analys*, Nerenius & Santerus, Stockholm, p. 419.

[44] Environmental Code, Chapter 2, section 3.

[45] See, for example, Environmental Court of Appeal 12 November 2004 in cases M 2824-04 and M 8011-03.

As in Finland and Denmark,[46] it has been observed in the Swedish legal research that the precautionary principle is sometimes set aside when in conflict with the principles of legal certainty and legality.[47] It is in this context important to observe that the principle of legality is protected by the Swedish Constitution and the European Convention of Human Rights.[48] Although the principle in these provisions explicitly relates to the application of criminal law, the principle is presumably strengthened generally. It is also likely that the constitutional protection of private property in Sweden, strengthened some years ago, indirectly improves the status of the principles of legality and legal certainty. Finally, many of the court judges are not educated in environmental law, which in most law educations in Sweden is not a compulsory course. Lack of insight into the precautionary principle in combination with a relatively profound knowledge of, and reliance on, the principles of legal certainty and legality could partly explain the rather conservative attitude in the choice between the contradicting principles, but also the fact that the precautionary principle is only very rarely mentioned by the courts.

Competing environmental interests

As already said, the Environmental Code aims to prevent not only the risk of pollution and other impacts, but also the efficient management of natural resources and energy (including recycling and making use of renewable resources). These *environmental objectives sometimes compete*. A good example of such conflicts are the legal trials of new wind power installations in Sweden, where aesthetic aspects, in particular, but also noise emissions and 'shadowing' of communities, frequently hinder installation in areas where the wind conditions are optimal. These cases reflect a conflict between the 'classical' risk for local impacts (the neighbour law

[46] See Hollo, E. (2007) 'Finland', in de Sadeleer, N. (ed) *Implementing the Precautionary Principle*, Earthscan, London, and Basse, E. M. (2007) 'Denmark', in de Sadeleer, N. (ed) *Implementing the Precautionary Principle*, Earthscan, London.

[47] Nilsson, A. (2002a) *Rättssäkerhet och miljöhänsyn: en diskussion belyst av JO:s praxis i miljöärenden*, Santérus, Stockholm.

[48] Constitution (*Regeringsformen*), Chapter 1, section 10. See also the 1994 Act on the European Convention on Human Rights, Chapter 1, section 1. The convention is incorporated through a specific Swedish act and is therefore applied as Swedish law.

aspect) and the implementation of a national and global climate policy in favour of future generations (the sustainability aspect).[49]

3.4 The precautionary principle in the entire environmental legal system

As already explained, a precautionary approach was historically rooted in the legislation related to controlling pollution (except radiation) and chemicals, but not in legislation concerning, for example, nature conservation and the management of natural resources. This situation was significantly changed by the Environmental Code: the general rules of consideration in Chapter 2, including the precautionary principle in section 3, apply to all aspects of environmental protection and to the use of natural resources and energy.

Nevertheless, it is not clear that the precautionary applies in all situations that are covered by the code. The sectoral chapters include some specific substantial environmental requirements that are additional to the general rules of consideration. For instance, a licence for a water activity (such as construction of a hydropower dam) can be issued only 'if the benefits with regard to public and private interests are greater than the costs and damage associated with them'.[50] Does this provision already include risks of damage to the environment? If so, who has the burden or proof with regard to the existence of possible damages? This is not clarified in the legal text or in the preparatory works.

Furthermore, an essential task for the government and the environmental authorities is to issue regulations and by-laws based upon provisions in the sectoral chapters in order to implement the objectives of the code. There is no *explicit* obligation to comply with the precautionary principle in Chapter 2, section 3, when such regulations and by-laws are issued – for example, restrictions under Chapter 14 concerning the use of chemical products. Neither do the specific empowering provisions in the sectoral chapters refer to the principle.

[49] Söderholm, P., Ek, K. and Pettersson, M. (2007) 'Wind power development in Sweden: Global policies and local obstacles', *Renewable and Sustainable Energy Reviews* vol 11, pp. 365–400; and Nilsson, A. (2002b) 'Man skall vara försiktig', in Basse, E. M., Hollo, E. and Michanek, G. (eds) *Fågelperspektiv på rättsordningen, Vänbok till Staffan Westerlund*, Iustus, Uppsala, p. 420.

[50] Environmental Code, Chapter 11, section 6.

It is possible that the precautionary principle is applied in practice, consciously or not, when the additional substantial requirements in the sectoral chapters are applied and when subordinated legislation is issued, especially in the fields of pollution and chemical control due to the traditional application of a precautionary approach there. With a legal systematic interpretation of the code, one may also argue that Chapter 2 constitutes the 'root' of requirements, clearly reflecting the objectives of the code in Chapter 1, and therefore must be applied throughout all 'implementation branches' (sectoral chapters and subordinated legislation) of the code tree. This argument is reasonable when 'branch provisions' concern precautionary measures; but it is more far fetched with regard to rules formulated as prohibitions since the precautionary principle in Chapter 2, section 3, applies explicitly only to precautionary measures. Nevertheless, the environmental code has to be criticized for not providing a *clear* legal text indicating a general application of the precautionary principle throughout the entire system of provisions.

Furthermore, despite the coordination achieved by the code, there are still numerous other acts and regulations that are significant for the protection of human health or the environment. Some of those – for example, the 1971 Roads Act – specifically require that Chapter 2 of the Environmental Code is applied and, therefore, also the precautionary principle. However, there is also legislation that does not link the procedures to Chapter 2 of the code and, thus, exclude the application of the precautionary principle. The most important example is physical planning of land and water areas according to the 1987 Plan and Building Act.

The scope of the Swedish precautionary principle is connected to the member states' obligation to comply with EC law. A precautionary principle is sometimes reflected in a specific directive, which then has to be transposed in the member states. This is the case with the detailed obligations to carry out investigations before a deliberate release of genetically modified organisms is conducted.[51] However, member states should be obliged to implement the precautionary principle, generally, as well as in situations where there is no specific directive, including the prin-

[51] The Swedish Regulation 2002 on Release into the Environment of Genetically Modified Organisms, sections 6 to 7 and Annex 1. See also the Swedish Board of Fisheries Regulation 2001 on Genetically Modified Water Organisms. Compare Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms. The precautionary principle is included in the preamble.

ciple. Article 6 EC requires environmental protection requirements to be integrated within the implementation of Community policies. The precautionary principle is an essential component of these requirements, emphasized in Article 174(2) EC and observed in several ECJ decisions. Thus, it is also, from the EC law perspective, necessary to review the entire Swedish environmental legislation in order to ensure a full application of the precautionary principle.

4 Conclusions

The Swedish precautionary principle in Chapter 2, section 3, of the Environmental Code is clearly inherited from a preceding precautionary approach, established in the 1941 amendments of the Water Act, but more clearly expressed in the 1969 Environmental Protection Act.

The precautionary principle impinges on risk assessment and, subsequently, on risk management. A risk, based not merely on loose speculations, falls upon the operator, who has to assess the risk more closely in order to be able to prove to some – not clearly defined – degree of probability that a damage or detriment will not occur. If the operator fails, he or she is, in principle, obliged to take precautionary measures or, very occasionally, is denied initiating or operating the risky activity. However, risk management is to be seen as a *separate phase* of the legal consideration where weighing of interests shall be conducted. Costs for the operator, need for employment, demand for energy and similar interests may outweigh the risks and lead to environmentally insufficient precautions, or even to the acceptance of an activity causing considerable risk of serious damage to the environment. Furthermore, the principles of legal certainty and legality are sometimes applied in contravention of the precautionary principle.

The Swedish Supreme Court has not referred to the precautionary principle. The principle is mentioned in some judgments of the Environmental Court of Appeal, but there are no guiding arguments related to the essence of the principle. This leaves us with considerable uncertainty regarding several aspects of the principle, not least the crucial question of what degree of probability of non-damage it takes for an operator to be released from the obligation to take precautionary measures.

One cannot say that the essence of the Environmental Code's precautionary principle differs significantly from the precautionary approach developed in the 1969 Environmental Protection Act, except in one in-

teresting respect. The Swedish principle applies in relation to all different objectives in Chapter 1, section 1, of the Environmental Code, including not only risk for pollution and similar nuisances, but also nature conservation and efficient management of natural resources and energy. This broad scope may be regarded as an advantage from an environmental point of view; but it complicates the decision-making when different environmental objectives compete.

Although the precautionary principle is relevant in many different situations, there are situations covered by the code where it is unclear if the principle applies or not. There is also legislation besides the Environmental Code that is not connected to any precautionary principle. As a result, the precautionary principle does not explicitly govern all decisions that are important from an environmental point of view. This situation is not acceptable from an EC law perspective. Thus, to comply with Article 6 EC, Sweden must closely review the legislation to ensure that the principle is applied not only in relation to the entire Environmental Code system, including subordinated regulations and by-laws, but also when environmental aspects are considered according to other legislation outside of the code family.