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Austria: Precautionary Blockage of Agricultural Biotechnology

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Abstract

Austria has interpreted the precautionary principle and Directive 90/220 in a more stringent way than other EU member states. It continues to ban the import of Bt maize despite the Commission's recurrent warnings. The Austrian standard of GMO risk assessment emphasizes a broad definition of adverse effects beyond a purely technical account of risk, including effects of agricultural practices. Boundaries between plant, seed, food, and feed assessments tend to blur. It asks implicitly for the demonstration of safety and uses organic farming as a normative reference point. The understanding of precaution goes beyond the Danish approach in extensively interpreting the scope of Directive 90/220. This policy originated from the Environment Agency (UBA) and developed out of the division of labour among government agencies. It is in line with the inherent paternalism of Austrian governance as well as with Austrian public sensitivities concerning organic agriculture and food. When public opinion turned hostile to agricultural biotechnology, the Austrian standard got entrenched and led to Austria's initially peculiar stance among EU member states.

Key Words

Agricultural biotechnology, GM crops, precaution, policy standard, policy streams, policy entrepreneur, Austria

Introduction

In contrast to other EU member states, Austria adopted a stringent approach before any significant public protest arose. For example, the Austrian government has not granted any GMO release permissions, it banned the only gm crop that might have been cultivated there, and encouraged the development of a non-gm food market. Such an approach and its timing warrants an explanation, which may be illuminated by some theoretical perspectives. Firstly, 'policy entrepreneurs' pursued their own agenda and pushed government policy in their direction. Secondly, the Austrian regulatory culture provides a context where such entrepreneurs can develop their agenda. Thirdly, solutions for policy problems seem to develop independently from the occurrence of such problems, and are adopted by entrepreneurs on occasion.

First we present some examples of the Austrian 'standard' for risk assessment of gm crops. Then we investigate the reasons why this approach developed. We elaborate on the regulatory culture and the administrative burden-sharing among government institutions, especially for agriculture and food issues.

The Austrian Standard

In recent years, the Austrian government has justified its blockages of agro-biotechnological products with a distinctive combination of arguments that may be called the 'Austrian standard'. Here an explicit technology assessment supplements and even guides risk assessment. Since all decisions are made case-by-case, there is considerable variation. Nevertheless a general feature is the broad scope beyond a purely "scientific" understanding of risk.

For example, the Austrian CA rejected herbicide-tolerant plants because they might contribute to increased herbicide use, and because the toxicity and/or environmental impacts of metabolic products could not be ruled out. Explicitly, both the tolerant plant and the complementary herbicide had to be assessed together. This interpretation went far beyond that of most other CAs, who restricted the scope of EC Directive 90/220 to the effects of the gm products themselves.

In official comments on applications, the Austrian CA referred to a general 'sensitivity' to herbicide tolerance as early as in 1994; it mentioned concerns not only about predictability but also about hypothetical outcomes. The presence of a gene for herbicide tolerance, even if only a marker or applied during the laboratory stage, was deemed unacceptable in itself, since it could be exploited in agricultural practice, even if this was not the intended purpose.

Another example is Austria's objection to insect-resistant Bt plants. Although the presence of the Bt gene was welcomed as a step towards environmentally beneficial plant protection, there were concerns about resistance development among pest insects. This would render useless a biological pesticide (the Bt bacterial preparation), entailing the application of additional chemical pesticides, which was deemed unacceptable.

There is strong emphasis on labelling, monitoring, and the assessment of a gm product with respect to agricultural practice and crop use as food or feed. Austria referred explicitly to the impact on pesticide use as well as to possible secondary and long-term effects -- not only on the 'natural' environment, but also on the agricultural one -- as an integral part of risk assessment. Agriculture and environment are broadly defined; the boundaries between product properties

(seed, crop, feed and food) tend to be blurred. Consequently, the boundaries between Directive 90/220 and other EU legislation (such as those concerning novel food and pesticides) are loosely defined. Austria holds that a product must be better for the environment than traditional ones, rather than no worse, as other CAs argue. Agricultural practice is emphasised as an environmentally relevant parameter only; officially, direct socio-economic effects are not mentioned.

Although the Austrian stance bears some resemblance to the Scandinavian approach, they are not congruent. Among other member states, only Luxembourg joined Austria in upholding a ban on the gm maize. (Italy reversed its initial ban in exchange for a 'voluntary' monitoring plan). The Directorate General (DG) XXIV expert committee, as well as most national CAs, considered the Austrian 'scientific arguments' as invalid. Together with officials of DG XI, in charge of biotechnology, national CAs claimed that the Austrian interpretation of the Directive 90/220 was too broad. Unofficially, they suspected the Austrian position to be politically determined, in contrast to their own 'science-based' one, and that it was closely linked to unfavourable domestic public opinion. Nevertheless, several countries blocked action against Austria in the European committees and in the Council of Ministers; until the present day, none of the comitology procedures led to formal sanctions. Indeed, current views among governments have come closer to the Austrian interpretation of 1996.

History

Apparently the government's attitude to gm plants parallels current public opinion in Austria. The view that Austrian assessments were 'unscientific', aimed at appeasing public opinion, is nevertheless insufficient. Although the way Austrian authorities assessed gm products tacitly reflected public support, the elements of the Austrian position had been developed long before the public got engaged in a broad debate. Arguments beyond purely 'scientific' parameters, e.g. gene flow, can be traced back to the Austrian Gene Law in 1992. At that time, there was hardly any public interest in the issue and no significant public pressure. Rather, the Austrian interpretation of the problem emerged from the regulatory system itself.

In fact, there had been unusual political initiatives to deal with a not-yet-contested technological development. Before 1990 Austria issued a special law on genetic engineering. Parliament's Inquiry Commission dealt with genetic engineering in 1992, but almost without the public taking notice. In its final report, it recommended the assessment of ethical and social sustainability, the labelling of products and public participation. Today most of the former participants interpret the Inquiry Commission as an ambitious but unsuccessful act of 'precautionary politics', anticipating a possible public controversy by an expert debate.

The 1995 genetic engineering law did not incorporate much of these recommendations, except for a provision to avoid 'social unsustainability' of products. The provision was worded in line with the established Austrian neo-corporatist style of bargaining between economic interests; it did not allow for other argumentation. 'Social unsustainability' remained practically insignificant because of its inherent ambiguity (Martinsen, 1997), even when public protest showed that certain applications were indeed 'socially unsustainable'.

As an underlying reference point, on the other hand, that criterion may have corroborated the legitimacy of criteria beyond conventional risk assessment (Seifert and Torgersen, 1997). Furthermore, the law contained incompatible statements, e.g. a precautionary as well as a 'future' principle requiring that no undue obstacle must hinder the progress of biotechnology. Hence, actors with widely differing interests could equally well refer to the law's principles.

Biotechnology was hardly a topic of public debate and media interest until 1996, when the first (unsuccessful) release applications for gm plants became the trigger for a public controversy (Mikl and Torgersen, 1996). Mass-media interest rose to unprecedented levels after an 'illegal' release, setting the scene for things to come (Seifert, forthcoming). In a late 1996 survey, the Austrian public proved to be the most critical in the EU about the agricultural applications of biotechnology (BEP, 1997; Wagner *et al.*, 1998).

In late 1996, when imports of gm crops from the USA were pending, big NGOs organised public resistance. An influential tabloid newspaper, which often promotes right-wing but also Green issues, heavily endorsed their struggle, thus generating a veritable general media campaign against gm food and plants. Food retailers who feared consumer boycotts sought new alliances with NGOs in order to credibly keep their shelves free of gm food.

A petition supported by NGOs calling for a ban on gm food, releases and gene patenting was enormously successful after heavy backing by the tabloid. However, most of the demands could not be implemented without violating EU regulations. Tightly constrained, the Austrian Government responded to public demands by dealing with the whole complex of issues including releases as well as products and their use as seed, feed and food (Grabner and Torgersen, 1998).

In this situation, the government found an asset in the policy line which had been developed over many years. However, its broad scope was at odds with the then-current EU interpretation. This conflict intensified the frustration of not being allowed to pursue an independent national line any more, and contributed to general public disappointment about the EU.

Risk-Assessment Politics

Austrian government officials have openly stated that any decision is ultimately political. By this they mean that, according to the Austrian constitution, a minister must decide by deliberating on the various political arguments and accept sole responsibility for the outcome. The administration is considered merely an instrument to provide insights into possible interpretations of the law, and hence is perceived as entirely non-political. Equally, science is seen as detached from politics, but in practice evidence from science is sought if it is expected to support the preferred decisions. Rather than being politically determined, the Austrian stance is determined by the selection of scientific views that fit its norm of un/acceptability for potential effects.

This arrangement is not so different from the practice in other countries. Representatives frequently align their arguments and voting in Brussels with political necessities 'at home'. Scientific arguments are often put forward to support political aims, although the choice of a particular scientific position is later explained by political constraints.

The Austrian practice has its roots in a number of factors, e.g. party influence on government departments and the openness to one of the 'social partners', as a relic of post-war coalition governments. Embedded in a tradition of paternalism and secrecy, the public is viewed as the object of benevolent but strict governance. A comparatively strong bureaucracy sees itself as the protector of order and continuity, reconciling different interests according to the 'public will'.

Consequently, while administrators in other countries are satisfied if there is no evidence of risk, Austrian administrators demand more evidence of safety and consideration of all possible uncertainties, which are not tolerated. The more parameters are taken into account, the more uncertainty grows. By widening the range of cause-effect scenarios in order to manage uncertainty, regulators paradoxically increase it.

The result looks like a more pro-active strategy, or a stronger sense of 'precaution'. The Austrian objections to marketing applications depend less on demonstrating 'risk' than on reversing the burden of evidence. Applicants have to show that their planned activities are not detrimental to the public interest (which may also include the environment). If they cannot prove this satisfactorily, then the applications may be judged unacceptable.

In other sectors, proof is considered sufficient for approval if the applicant follows the administrative procedures. In areas of uncertainty and public sensitivity, however, rhetorical demands go further; in a television interview, for example, the Minister in charge even demanded exclusion of any risk (Grabner and Torgersen, 1998). From this norm of unacceptability, administrators and ministers found ways of opposing every product (or even banning them); as a by-product, they accommodated public concern that arose during the campaign for the public petition.

UBA as Leading Expert

According to the Austrian Genetic Engineering law, the Ministry of Consumer Protection in the Bundeskanzleramt (BKA, Federal Chancellory) is the CA for all notifications of releases and gm crops except those filed by universities, which the Science Ministry deals with. Although the Minister of the Environment represents Austria in the Council of Ministers, his ministry is not the CA and has only the right to comment on releases and marketing proposals via the UBA (Umweltbundesamt, Federal Environment Agency), which takes on an expert role. Furthermore, the Ministry of Economic Affairs comments on economic, the Ministry for Agriculture on agricultural, and the Ministry of Social Affairs on workers' protection aspects.

The law of 1995 had allocated the responsibilities in accordance to party influence: the BKA was held by the Social Democrats, the Science Ministry by the Conservatives. As another 'conservative' one, the Ministry of the Environment would have disturbed this balance of power and thus was not granted an equally formal status. Nevertheless UBA actively fought for its right to comment and would later exercise this role extensively. Consequently the representatives of the BKA, of the Science Ministry and of UBA share attendance at the Article 21 committee's meetings in Brussels.

This division of labour among ministries reflects the cross-sectional character of biotechnology, as well as the strong sectoral institutional division. Scientific expertise is provided by specialist civil servants in the ministries; thus it is also sectorally determined. Officially, decisions are taken after the CA has co-ordinated the views of the various ministries. In matters of releases and gm crops, however, UBA's influence on the decision-making is considerable: the CA has mostly adopted UBA's concerns and even gone beyond them, and the Environment Minister backed this line at EU level.

UBA had been installed during the 1980s in order to promote and to monitor environmental protection in various areas. It started to achieve expertise on GMO releases at a very early stage. Since 1991, its representative had established close relations with other CAs on the European level and, before the Austrian gene law was enacted, used to attend the Article 21 committee alone. It was UBA's in-house experts who elaborated the Austrian standard early on -- from a concern to protect the environment, as required by their remit, and not to anticipate public opinion.

Influenced by environmental concerns, their main expertise is in ecological science. For UBA, agronomic practice is as environmentally relevant as gene transfer and outcrossing -- and hence fall under the scope of Directive 90/220. Official objections to marketing applications are explicitly based on the precautionary principle, which is interpreted by UBA as demanding a ban, given the possibility of increased herbicide use in the case of herbicide-tolerant crops.

With its aim of limiting the use of agrochemicals, UBA's broad interpretation of Directive 90/220 consequently entails a systematic technology assessment of commercial cultivation. It even includes a comparison with organic agriculture as a benchmark, as well as an imperative to protect possible options for a future environmentally-friendly agriculture. UBA actively promotes TA investigations and cited such studies in its risk assessment of gm crops, thereby subverting the distinction between product characteristics and product use (UBA, 1996). Austria's persistent and early demand for monitoring can be understood from the same perspective: UBA views monitoring as an addition to risk assessment; the results from earlier steps in the stepwise procedure should serve to define the monitoring task.

Besides the sharing of responsibility, there are several reasons for UBA's strong role: Firstly, expertise on release assessments is still strongest in the UBA; its access to high profile, multidisciplinary in-house support saves time, whereas other ministries would have to contact busy university scientists. Secondly, there has been little pressure from industry to permit releases, a situation which reflects Austria's small biotechnology industry and weak plant research base. For a long time, most scientists did not care about what the Austrian government presented in Brussels as 'scientific evidence'. Thirdly, the scientific community's interests does not play a significant role in public debate, as compared with popular 'Green' views, and UBA's position as an agency for environmental protection is in line with public opinion.

It appears simplest for the CA to follow UBA's view. It can adopt a position that has been deliberated and checked, it does not need to disseminate information among external scientists, 'green' sentiments are accommodated, and the possible counter-pressure from industry appears manageable. Hence, what had started as an (even personal) interest of UBA representatives be-

came entrenched in an institutional set-up through the division of administrative labour, to be reinforced by public concern only later.

A natural counter-player would be the Gene Technology Committee's Scientific Sub-Committee on Releases, reporting to the CA. However, its advice has been seldom sought -- as for the first release application in 1996, and never for commercial products, since there is no set procedure. In contrast to UBA, members of the sub-committee advocate a 'sound science' type of assessment, narrowly focussed on technical risk, i.e. an approach compatible with most other CAs' advisory committees. In 1998, the sub-committee demanded to be consulted on product applications. Some members whole-heartedly supported the DG XI position and considered the Austrian stance to be unscientific. Their position was weakened when an amendment to the genetic engineering law, as an answer to the successful public petition, met some 'Green' demands (notably *not* on the petition's agenda). Researchers and industry protested, arguing that Austria was already the least attractive country for biotechnology within the EU, but they found no window of opportunity for such arguments.

Organic Versus Industrial Agriculture

Questions of sustainable agriculture not only play a role in UBA's risk assessments, but also touch on popular sensitivities. The agriculture-food sector and environmental standards were crucial questions already in the debate over EU membership in 1994. Since then, the disappointment over the EU has risen in parallel with distrust in industrialised agriculture, exacerbated by the BSE scandal and the blocked imports of gm soyabean and maize.

As an alternative, organic production appears to offer an economically feasible market niche for the endangered Austrian agriculture, beyond the option of conserving the landscape as a tourist asset. It is compatible with the small size and family ownership of many farms, where intensification is hampered by an unfavourable geography. Heavy subsidies have led to more organic farms existing in Austria than in all other EU member states together.

As a member of the Austrian corporatist 'social partner' system, the official farmers' organisation is split on gm plants. While small farmers and those in mountainous areas overtly reject them, big farmers would welcome any gain in productivity, but would not officially back gm plants due to public opinion. The government emphasis on organic agriculture, as well as official anti-gm policy, has spared the farmers' organization the trouble to decide one way or the other. Since there are no gm plants in the fields so far, conventional farmers who wished to stay non-gm saw no need to organise.

Consumer preferences support this policy. Already before 1996, surveys had demonstrated that 'freshness' and 'naturalness' were a priority for consumers, while genetic engineering and food irradiation were viewed negatively (Dietrich and Greimel, 1997). To meet the increasing demand for locally-produced and 'unadulterated' food, the two biggest retail chains have created their own organic brands.

After public mobilisation against gm foods in 1996, retailers tried to defend their image as guardians of consumers' interests. They demanded a guarantee by industry that their products

are free from biotechnology -- a demand which proved too difficult to fulfill. Products containing gm soya were on sale in 1998, and retailers feared a loss of consumers' trust.

Although labelling of gm products became mandatory in September 1998, critics set more store on negative labelling to indicate that products are 'genetic engineering-free'. Consumers' organisations are notoriously weak, due to a strong and well-trusted governmental food control agency, so their would-be role was taken on by environmental NGOs. Already in 1997, they had joined forces with retail chains in order to establish a pragmatic solution for labelling criteria and a control system, so as to establish a non-gm market. A study commissioned by the government found that a product-based approach appeared feasible (Dietrich and Greimel, 1997). However, the Commission on Food, statutorily in charge of securing food safety and reporting to the CA, chose a far stricter, process-based definition in 1998; with the criterion of whether any gm material at all is present, this policy greatly reduced the chance of any processed product being labelled non-gm and of a segregated market being established. Its strictness may cause problems even for organic farmers.

Discussion

Austria's case-by-case stances derive from a consistent 'Austrian standard'. The government has not granted any release permissions for GMOs. The representatives of the Austrian Competent Authority (CA) have voted against all but two applications in the Article 21 committee and maintained their negative stance. Austria has banned the only gm crop that might have been cultivated there: it declared an import ban on the Ciba/Novartis Bt maize and succeeded in upholding it despite the Commission's recurrent calls to lift the ban. The Austrian government has encouraged the development of a non-gm food market, in line with a public opinion hostile to gm plants.

The Austrian standard widens the product assessment beyond a narrow, technical understanding of risk. It explicitly includes secondary effects, especially those of agricultural practice. Consequently, it tends to blur the boundaries between plant, seed, food, and feed assessments. It implicitly reverses the burden of evidence towards the demonstration of safety. The reduction of adverse environmental effects by organic farming is taken as a normative reference point. Although the particular understanding of precaution resembles the Danish approach, the Austrian standard goes further in broadly interpreting the scope of Directive 90/220. Recent emphasis on agricultural practice by French and British CAs may have had a precedent in elements of the Austrian argumentation.

The Austrian standard became official policy through UBA acting as a policy entrepreneur (cf. Kingdon, 1984). Early on, UBA had achieved an important position within the institutional division of labour among government agencies. They developed the Austrian standard in the early 1990s, when there was neither an obvious need nor a government commitment to adopt such a line.

The problem of how to deal with gm plants and products had barely emerged then. Neither public opinion nor political parties, industry nor NGOs were particularly interested. It was an extreme solution to a policy problem which hardly existed. However, it fit neatly the general

paternalistic attitude of the Austrian administration, derived from a tradition of extensive and detailed regulation (Gerlich, 1996).

Austrian biotechnology policy thus may serve to illustrate the 'garbage can' model of agenda-setting. According to this model, problems, solution proposals (policies) and political receptivity develop independently. These 'policy streams' gain political relevance only if they merge at a certain point in time to form a window of opportunity (Kingdon, 1984).

In Austria, a series of contested events allowed NGOs to enhance and organise public resistance. They linked the issue to the environmental and social implications of different types of agriculture. When a real problem arose in the pending import of gm products, the streams of policy, political receptivity and problems merged in a risk controversy. Kingdon (1984) predicted policy shifts in such an instance. In this case, the policy already pursued became fixed. It found political receptivity in public opinion, though it still did not go far enough for many; and it found a specific problem to solve, in the case of gm maize.

Consequently, the policy line gained a double legitimation: it took up part of the public unease and at the same time provided a means to protect the institutional set-up in stormy weather. Eventually a serious confrontation, brought about by the successful anti-gm petition, rendered any change impossible; the policy became deeply entrenched. So the Austrian standard, together with public attitudes and consumer rejection of gm food, resulted in a precautionary blockage of all agricultural biotechnology.

Austrian politics were severely influenced by environmental risk issues on two previous occasions: the struggles over the nuclear power plant in Zwentendorf in 1978, as well as over a hydro-electric power plant in Hainburg in 1984. These cases had entailed shifts in energy policy that costed government dearly (Lauber, 1997).

In contrast, biotechnology controversy served to reinforce an existing policy line, though at the price of non-compliance with EU regulations. Looking retrospectively, the extreme precautionary Austrian standard was also an instrument of 'political precaution', helpful for accommodating future risk controversies in the agricultural biotechnology.

References

BEP (1997) Biotechnology and the European Public, 'Europe ambivalent on biotechnology', *Nature* 387, 26 June, 345-347

Dietrich, R. and Greimel, A (1998) *Positivkennzeichnung gentechnikfrei produzierter Lebensmittel*. Austrian Federal Ministries of Economy and of the Environment, Vienna.

Gerlich, P. (1996) 'Political culture', in Lauber, V. (ed), *Contemporary Austrian Politics*. Westview, Boulder, Col.

Grabner, P. and Torgersen, H. (1998) 'Österreichs Gentechnikpolitik – technikkritische Vorreiterrolle oder Modernisierungsverweigerung?' *Öster. Zeitschrift für Politikwissenschaft* 1/98, 5-27.

Kingdon, J.W. (1984) *Agendas, alternatives and public policies*. Little Brown, Boston, Mass.

Lauber, V. (1997) 'Austria: a latecomer which became a pioneer', in Andersen, M.S. and Liefferink, D. (eds) *European environmental policy. The Pioneers*, Manchester and New York, 81-118

Martinsen, R. (1997) 'Sozialverträglichkeit als Leitbild der Gentechnikgestaltung?' in Martinsen, R. (ed) *Politik und Biotechnologie. Die Zumutung der Zukunft*. Nomos, Baden-Baden

Mikl, M. and Torgersen, H. (1996) 'Austria's biotechnology regulation: from 'virtual releases' to public protest', *Science and Public Policy* **23(3)**, 195-200

Seifert, F. (forthcoming) 'Österreichs Biotechnologiepolitik im EU-Mehrebenensystem: Zur Effektivität öffentlichen Widerstandes im supranationalen Gefüge', in Barben, D. and Abels, G. (eds) *Biotechnologie und Globalisierung. Politische Gestaltungsmöglichkeiten transnationaler Technologieentwicklung*. (preliminary title) Sigma, Berlin

Seifert, F. and Torgersen, H. (1997) 'How to keep out what we don't want. An assessment of 'Sozialverträglichkeit' under the Austrian genetic engineering act', *Public Understanding of Science* **6**, 301-327

UBA (1996) *Ecological impacts of traditional crop plants - a basis for the assessment of transgenic plants?* UBA monograph No. 75. Austrian Federal Environment Agency, Vienna

Wagner, W., Torgersen, H., Seifert, F., Grabner, P. and Lehner, S. (1998) 'Biotechnology in the Austrian public', in Durant, J., Gaskell, G. and Bauer, M. (eds) *Biotechnology in the public sphere: a European sourcebook*. Science Museum Press, London