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RISK VS. HAZARD IN POLICYMAKING

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Errant GM wheat strain reopens debate about safety of biotech crops

Marco Contiero, agricultural policy director for Greenpeace Europe. Photo © Philip Reynaers / Greenpeace

Groups campaigning to ban genetically modified foods in Europe have jumped on the recent discovery of unauthorised GM strain of wheat on an American farm as vindication of their longstanding campaign to banish biotech crops from the EU.

The European Commission will test US wheat imports for a strain of herbicide-resistant wheat developed by Monsanto, a global leader in agricultural biotechnology, but never approved by food regulators in the United States.

Any contaminated wheat would be banned, the Commission said.

Health and environmental campaign groups seized the discovery of the glyphosate-resistant strain to call for European-wide restrictions and to reverse policies that give national governments leeway over approving the sale and cultivation of GM crops.

The case could have implications well beyond the emotionally-fraught debate over biotech cultivation and food safety, with GM crops likely to be a sticking point in negotiations over a future of EU-US trade talks.

MEPs have weighed in with a resolution, adopted on 23 May, saying that the EU should not abandon the precautionary principle in its regulation of GM crops and animal cloning during the forthcoming trade talks.

"This is again another example of the need to have strict control systems, the need to have regulatory systems which are real, not like in the United States," Marco Contiero, agricultural policy director for Greenpeace Europe, said of the case involving Monsanto's MON71800 wheat.

Philip Miller, Monsanto's vice president for regulatory affairs, said in a statement that the US-based company was co-operating with the US Department of Agriculture's inspection unit, as well as regulators in the EU, Japan, Korea and Taiwan and has provided the European Commission with the information needed to test for the wheat.

Contiero welcomed Monsanto's response and its recent announcement that it was not seeking approval of any new GM seeds in Europe for the time being, citing lack of demand and national bans on its MON810 maize.

Focus on conventional products

Monsanto will continue to focus on conventional products and provide biotech seeds to EU countries that allow them, said Brandon Mitchener, a company spokesman in Brussels. Its main rivals, including divisions of Germany's BASF and

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Bayer and Syngenta in Switzerland, have also announced plans to focus their GM operations on markets other than Europe.

But Contiero said the moves by corporations do not reduce the risks nor the need for tighter regulation in the EU, though he said Greenpeace did not oppose GM research in "closed industrial environments."

"The very simple fact that there are some different voluntary decisions taken by individual companies does not mean there is now no more the need to strengthen the current regulatory system," Contiero told EurActiv.

"Voluntary agreements are by nature very temporary. Monsanto itself said that as soon as they see more market acceptance, they would be very happy to sell their products in other countries," he said.

Europe is far more wary of GM crops than the United States, which approved the first bio-engineered plant seed 19 years ago. Greenpeace and other European health and environmental groups argue that that scientific studies have yet to show conclusive evidence that there are no risks, to humans and the environment, from genetic modification, nor that there is any proof that biotech crops are more resistant to insects and drought.

Several EU states - Austria, Bulgaria, France, Greece, Hungary, Germany and Luxembourg - ban the sale and cultivation of GM crops yet environmental groups contend that an EU-wide ban is needed to prevent mixing GM and conventional crops.

The case involving the errant wheat crops in the western state of Oregon is likely to energise such arguments.

In the United States, several farmers have filed class-action lawsuits in federal courts against Monsanto, saying the company failed to protect wheat from contamination.

A case of 'déjà vu'

The British activist group GM Freeze says the Oregon case mirrors the 2006 contamination of US long grain rice by Bayer's experimental LL601 rice strain.

"There is a real sense of déjà vu about this situation after the very costly and disruptive incident involving US GM rice in 2006," said Pete Riley, a campaigner for the British GM freeze group.

"European and UK regulators should take careful note of what has happened in Oregon," Riley said in a statement. "GM Freeze has repeatedly pointed out that coexistence of GM and non-GM crops without contamination is almost impossible because of the difficulties in containing GM pollen and seeds and the fact that human error can never be eliminated. So far biotech companies refuse to accept liability for the contamination they cause, so farmers suffering economic losses have to go to court to get help."

Europe's conventional and GM business accounted for nearly 13% of Monsanto's global market in 2012, or €1.3 billion in sales. Most of its GM business is the Czech Republic, Portugal, Romania, Slovakia and Spain, states that have been less reticent than other EU countries in embracing biotech farming.

An industry retreat from GM sales in Europe would go against trends in much of the rest of the world. Outside North America, Argentina, Brazil, India have been quick to embrace GM crops to address rising demand for food and biolfuel production. GM crops are now commercially grown in 22 nations, UN Food and Agriculture Organization (FAO) figures show, and GM seeds fall under an international treaty ratified by 161 countries – the Cartagena Protocol on Biosafety.

The FAO has also recognised the potential of GM crops to improve food security in developing nations, saying in a recent report: "Biotechnology promises to boost productivity and thus raise rural incomes, much in the same way that the green revolution did in large parts of Asia during the 1960s to 1980s."

Growing demand for GM crops

Developing countries in South Asia and Africa are major growth markets, with the number or hectares under cultivation rising seven-fold in a decade, from 10 million in 2000 to 70 million in 2010, UN figures show. In advanced countries, cultivation in the same period grew from 30 million hectares to more than 70 million.

Despite campaign group concerns, the industry has long defended GM crops as safe to humans and ecosytems, saying that have weathered countless safety reviews by government regulators and scientific panels, including those advising the European Food Safety Authority (EFSA).

The World Health Organisation , reflecting similar findings by EFSA, has determined that existing GM foods "have passed risk assessments and are not likely to present risks for human health."

Still, the GM debate often gives way to different sides accusing one another of shoddy science. Last October, a French study found that rats fed on a diet containing Monsanto's NK603 - a maize seed variety doused with Roundup weedkiller - or given water with Roundup at levels permitted in the United States, died earlier than those on a standard diet.

The study by University of Caen researchers, who released photos of deformed and bloated rats to illustrate their findings, was immediately called into doubt. The European Commission requested a review of the controversial study and nine days later, EFSA issued a preliminary report saying that the research was "of insufficient scientific quality."

EFSA is itself often the target of criticism, with campaign groups and EU governments accusing the agency of sidelining the precautionary principle and being too cozy with the very industries it is supposed to be evaluating.

In February 2012, a report by two campaign groups, the Corporate Europe Observatory and the Earth Open Source, said the EU agency repeatedly relied on industry scientists and information in risk assessments that are used by EU institutions and national governments.

"Too often it's not independent science that underlies EFSA decisions about our food safety, but industry data," says the report 'Conflicts on the menu'.

MEP calls for parliamentary risk panel to tame green 'scaremongering'

The European Parliament needs more science and less emotion in making decisions on chemicals, pesticides and other contentious legislation, an MEP said on Tuesday (11 June), arguing that lawmakers were influenced by "scaremongering" and environmental lobbying in recent votes.

MEP Julie Girling at the European Risk Summit in Dublin. Photo by Jason Clarke/European Risk Summit.

British MEP Julie Girling, who heads an informal risk group in the assembly, said votes in favour of tighter rules on endocrine disrupters and a temporary ban on some chemical pesticides were taken without balanced scientific assessment.

The Conservative MEP told EurActiv the Parliament should create a formal risk group to advise lawmakers on legislation areas where there are potential clashes involving science and risks to human health.

If such an intergroup advisory panel should be formalised before elections in May 2014, as Girling advocates, it would mark a trend of seeking more expert risk advice among the top Brussels echelon and in line with similar advisory groups available to many national politicians.

In 2012, Commission President Jose Manuel Barroso named British academic Anne Glover as his chief science advisor who has since weighed in with defenses of genetically modified crops and shale gas. This year he formed an expert panel to provide advice independent of the EU's existing food, chemicals and medicines agencies and the Commission's own Joint Research Centre.

Environmental lobby

Speaking in Dublin, Girling did not mince words in criticising recent votes calling for tighter restrictions on endocrine disrupters, chemicals found in plastics and herbicides that are linked to cancers and hormonal problems, as well as neonicotinoid pesticides.

She accused the "lobbying environment" in Brussels of swaying votes despite differing scientific assessments of the risks to humans.

"Many MEPs," Girling told the European Risk Summit, "choose not to engage with industry due to the belief that such engagement could be construed as being in the pocket of industry, being in the pocket of big business".

"Such attitudes, plus substantial donor funding, can give many Brussels-based NGOs a lobbying edge over their industry counterparts. This point is especially true for MEPs sitting on the environment committee, the second largest legislative committee in the Parliament and this oversees some of the most important legislative proposals, and many of those have a real element of risk management."

The resolution urging the European Commission to tighter regulation of chemicals linked to endocrine disrupters, though non-binding, sends the wrong signals to the public about safety, Girling said. The document was adopted in a vote in March.

'Woolly' approach to risk

One critic called the resolution - shepherded through Parliament by Swedish Social-Democrat Åsa Westlund - "woolly."

"It is a fascinating read in which more or less argues that, because of the feared effects of endocrine disrupters, this should override any evidence-based reasoning," Ragnar Löfstedt, director of the King's College Centre for Risk Management in London, told EurActiv in an interview. "Such statements can be applied to more or less anything – you basically could apply it to chocolate, milk or why not coffee."

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For Girling, the vote was a mistake. "Our job in the Parliament is to try to make sure those messages don't go out unless they are substantiated, because the last thing we need is the public being stirred up by something which is just scaremongering," she told the Risk Summit.

Campaign groups have a different take. They have long complained that industry groups have the upper hand in influencing the EU's risk-review process, including longstanding complaints that business-friendly scientists have influenced risk assessments made by the EU's chemicals and food safety agencies.

Science goes both ways

Conservation groups contend there is ample scientific evidence to justify the EU's decision this spring to impose a two-year ban on three neonicotinoid insecticides - clothianidin, imidacloprid, thiamethoxam. The chemicals have been linked to declining populations of bees, nature's prolific pollinators.

François Veillerette, president of Pesticides Action Network Europe, a Brussels campaign organisation, on Tuesday called for the "total prohibition of this family of insecticides," citing new research showing that short-term measures would not protect bee populations.

Another group, the Corporate Europe Observatory, has reported that leading pesticide manufacturers led a lobbying offensive against legislative restrictions on the bug-killing chemicals.

The head of the European Environment Bureau (EEB), a coalition of green NGOs across Europe, also challenged Girling's accusations that conservationists had extraordinary influence in the European Parliament.

"It's one-sided, that's the nicest way I can put it," Mikael Karlsson, president of the EEB and the Swedish Society for Nature Conservation, told EurActiv in Dublin.

"Saying that NGOs are in the Parliament all the time and that industry is quiet - if you count the number of letters, the number of lobbyists, the number of meetings, the number of euros [from] industry compared to NGOs, it's the other way around."

Karlsson said legislators needed to "take responsibility. Politicians just can't surrender and put it in the hands of scientists."

Risk and regulation

The Risk Conference focuses on the balance between risk and regulation, concerns that routinely surface in debates about the EU's REACH chemicals regulation or genetically modified crops.

For Girling, who is a member of the Parliament's agricultural committee, determining risk goes well beyond emotional or political debates. There is also concern that regulation will stifle economic growth and Europe's competitive edge against less-regulated emerging markets.

"If you take the precautionary view every time, it is a risk to innovation," said Girling.

World leaders warned on risks of climate change

With time running short to agree a post-2020 international deal to tackle climate change, a new report warns that inaction puts the world at risk of greater climate volatility.

Climate change stands as one of the most controversial global challenges, often pitting the European Union against the rest of the world in what measures should be taken and who should pay for them.

Yet even the effectiveness of EU policies is in doubt, with its market-based Emissions Trading System (ETS) struggling and efforts to extend the scheme's reach to international aviation on hold.

Weather volatility headlines are often held up as proof of climate change: melting glaciers, catastrophic weather events like the recent flooding in Central Europe, killer cyclones in the United States, and droughts that have raised doubts about food security. There is also mounting scientific evidence.

"The climate change debate is a good example where the mainstream consensus opinion is that things are happening that will be adverse unless corrective action is taken [and] from a scientific perspective that principle holds," said Mark Ferguson, director-general of the Irish Science Foundation.

"The debate is what action we need to take," he told EurActiv at the European Risk Summit in Dublin.

Mixed response

So far, there is no clear consensus on remedies and post-Cold War efforts like the 1997 Kyoto agreement to reduce greenhouse gas emission have been met with scepticism despite concerns about the risk of inaction.

The United States, for instance, never ratified Kyoto and Canada withdrew from the protocol in 2011, citing the economic costs of reducing annual carbon dioxide emissions below 1990 levels. Developing countries won concessions at climate talks in 2010 to have rich nations pay for the shift away from fossil fuels through the Green Climate Fund although it has struggled to raise cash.

Christiana Figueres, the UN's top

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climate change official, recently told international negotiators in Bonn that they needed to speed up climate talks if they are to meet a 2015 deadline for a new agreement that would come into force in 2020.

Those talks suffered a setback on Tuesday (11 June) when Belarus, Russia and Ukraine blocked further work by one of three key technical committees involved in climate change talks that began in the former German capital a week earlier. The move could slow progress before the next round of climate talks in Warsaw in November.

This week, the Paris-based International Energy Agency (IEA) – a body known best for its forecasting and market reports - warned that governments need to adopt new energy policies if the world is to limit the world's temperature rise to 2° Celsius, the threshold level that is seen as avoiding climate upheaval.

But the report – Redrawing the Energy-Climate Map – shows the world is on course to exceed that marker.

"Climate change has quite frankly slipped to the back burner of policy priorities," said Maria van der Hoeven, the agency's executive director.

The report, the former Dutch economy minister said, "shows that the path we are currently on is more likely to result in a temperature increase of between 3.6°C and 5.3 °C but also finds that much more can be done to tackle energy-sector emissions without jeopardising economic growth, an important concern for many governments."

Still, concern about the economic risks is seen as a roadblock to progress, underscored by Canada's decision to renege on its earlier endorsement of Kyoto. The economic growth argument blocked significant progress at the 2009 Copenhagen climate talks, and last year, emerging and developing nations teamed up against EU efforts to seek binding sustainability targets at the 20th anniversary of the Earth Summit in Rio de Janeiro, Brazil.

The first post-Cold War Earth Summit produced landmark environmental agreements on biodiversity, climate change and desertification, opening the door to the Kyoto Protocol on climate change that is to by succeeded by the new framework agreement in 2015.

The Rio event produced no major binding deals and the 100 leaders attending signed off on a conference document - The Future We Want - that was negotiated in advance.

'Almost irrefutable' evidence

Ferguson, who is also the chief science advisor to the Irish government, said the scientific evidence was "almost irrefutable" that human activities are fuelling climate change, including the use of fossil fuels and intensive agriculture.

"A good principle in addressing situations – whether it's looking at drugs, food, climate, natural disasters or what have you – is that the greater the consistency and the coherence of the evidence and the analysis, the lower the likely that the principle conclusions derived from it will be overturned," he said in a speech at the European Risk Summit.

But he said it was up to politicians, not scientific advisors like himself, to make the hard decisions on what policies should be pursued.

Risk expert: Policymakers often misuse precautionary principle

Evaluating risk requires a balance of quantitative assessment and regulatory review. But often in the European Union, there is a "misuse" of the precautionary principle to appease national of political interests, says Ragnar Löfstedt.

Ragnar Löfstedt is a professor of risk management and the director of the King's College Centre for Risk Management in London. He spoke to EurActiv's Timothy Spence ahead of the European Risk Summit, 11-12 June, in Dublin.

Your research interests are quite diverse – health, energy, trans-boundary environmental issues, biosafety. How do these relate to risk management?

My interest in this whole field started back in the '80s with the Chernobyl accident. And I was very interested then to uncover how people viewed nuclear power in different nations. So I did my undergraduate dissertation on this and I compared Germany, Finland and Sweden focusing on how people's perceptions changed over time.

All these three countries were more or less rather pro-nuclear power before Chernobyl and then afterwards it changed quite dramatically - in Germany the levels never got back to be being pro-nuclear power as witnessed by [Chancellor Angela] Merkel's recent decision to phase out nuclear power. In Sweden it basically dipped for a period of months and then it came back to more or less in favour of nuclear again, and in Finland it dipped as well and came back up, but not as high as Sweden. So I was fascinated to see how public perceptions changes over time and the reasons for that …

During my post-doc, which I carried out at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria, I got interested in transboundary risk issues because of what you can call the cultural dimension. Why did the Danes have such opposite views to nuclear power compared to the Swedes? Then from energy I got involved in space – I did some work for NASA – and that's how I got involved in biosafety … and from there I got involved in food… I was heavily involved in the whole acrylamide scare in Sweden back in 2002 at which time I examined how the Swedish food agency mishandled this scare from a communication perspective. And from there into pharmaceuticals.

As time has gone by, people have encouraged me to look at different avenues and move away from energy and it has been a fascinating journey. I have looked at risk from two perspectives: one is from the risk communication side of things, the other is the risk management side of things.

With regard to the risk communication, I try to find out, for example, how regulators do good or bad communication – hence this acrylamide paper, where the food agency did a bad a job. I try to figure out what Agencies can do to rebuild trust if something goes wrong. That is, if there is some form of "incident", how can the regulators rebuild the trust that has gone missing?

And the other part of it is the whole risk management area, a topic that I have been working on for many years since completing my PhD at Clark University [in Massachusetts]. It is interesting to note, for example, how risk management has very much started from a core US competency. Until the last 20 years, over 90% of all the work in risk management had been done in the United States … and it is only recently that the Europeans have gotten interested in both risk assessment and risk analysis.

Why is that?

What happened was that in the US the risk analysis field started in three sectors - nuclear power, space and chemicals. It took off following the infamous so-called benzene decision of 1980 [AFL-CIO vs. American Petroleum Institute] where the US Supreme Court more or less ruled that all regulations affecting human health should be based on quantitative risk assessments. And that has been the case ever since. … So the Americans started with this in a very strong way, and it's only more recently that it came to Europe.

One of the topics for discussion at the European Risk Summit raises the question: Risk-based policy-making and the precautionary principle – have we got it right? What is your answer?

If we look at the European Commission's communication on the precautionary principle from 2000, I think that is a very balanced and well-written statement. The European Commission had to write it at the time because they were being criticised, particularly with regard to trade disputes with a number partners, especially the United States, that they were misusing their principle. Hence, they had to come forward with a "communication" on it.

The communication discusses the

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importance of having a risk assessment as the basis for using the precautionary principle. As the Commission itself argues, "An assessment of risk should be considered where feasible when deciding whether or not to invoke the precautionary principle." So I think that's a good document and I'd like to see risk management decisions that invoke the precautionary principle going forward being based on that communication.

The problem that we have today, however, is that I see right now a number of organisations, as well as policymakers, are using the precautionary principle without basically going back to the communication the way the European Commission actually intended its use. As a result, I see a misuse of the precautionary principle which is very unfortunate.

Can you give an example?

One famous example, highlighted by the eminent political scientist Giandomenico Majone, was the decision taken by the European Commission in the late 1990s with regard to adopting strict standards for aflatoxins on the basis of the precautionary principle. The World Bank showed that implementing the new standards would decrease the exports of dried fruits, cereals and nuts from Africa by 64% resulting in some $700 million [equivalent to €541 million today] a year in lost income for these poor economies, all for reducing the deaths from liver cancer by 1.4 deaths per billion in Europe per year.

A more recent example is Åsa Westlund's endocrine disruptor opinion … It is a fascinating read in which more or less argues that because of the feared effects of endocrine disrupters this should override any evidence-based reasoning.

Such statements can be applied to more or less anything – you basically could apply it to chocolate, milk or why not coffee. The document is rather woolly, unfortunately, and it's not as clear as it could have been. It's certainly not based on the Commission's communication. … I've used that Westlund opinion as a case study in my risk assessment class showing this is a clear misuse of the precautionary principle.

How effective are the European agencies – the medicines, food safety and chemicals agencies come to mind – in evaluating risks and protecting European consumers?

I should declare an interest here. I sit on a risk communication advisory board for the European Food Safety Authority, and so EFSA I know well. And I think it's very clear EFSA is a risk-assessment body and not a risk-management body. Risk management is done by DG Sanco, EFSA does risk assessment.

In terms of EFSA's risk assessment, I am not a risk assessor myself, but from what I've read, from what I've seen of them, I find them highly professional [and their assessments are] well done in a strong academic way. And this is, by the way, shared by my colleagues who are risk assessors. We think EFSA is doing a good job.

EFSA, of course, has been and is attacked by a number of NGOs - it is very unfortunate that some individuals have not been clear and transparent in terms of declaring their interests … But as a risk-assessment agency, EFSA is seen as credible.

In terms of the European Medicines Agency, I know them a bit as well, I think the [EMA] is also overall doing a good job. If you look at what the EMA has been doing and you compare it, for example, to the US [Food and Drug Administration], in terms of pharmaceuticals they are equally credible – I don't see a problem with them. With ECHA [European Chemicals Agency], I don't know it well at all … so I really don't have an opinion of them.

They've also been criticised for being too slow in making decisions. Do you find that the case?

I don't think so. EFSA especially is under quite a bit of pressure to ensure they get their science right from certain NGOs and also from the European Parliament. Hence, they need to take the time to make sure that their science is right.

Science is an uncertain business and businesses use science all the time to take risks. Are there examples where businesses hide behind scientific uncertainty to takes risks that pose a threat to human health or the environment?

The classic example comes from the tobacco sector. There is very clear evidence that Philip Morris and others tried to halt legislation on tobacco by throwing in scientific uncertainty. And to be very frank, I think that is disgraceful and it is horrible thing they have done. It gives us academics who have been devoting our entire lives to the field of risk a bad name. What happens now is that campaign groups will say because of what Philip Morris and those folks did, the purpose of all risk assessments is basically about trying to help business slow down the regulatory process. And that simply is not the case … but people will believe it.

Overall, of course, I have to admit I am biased myself. I think that risk management science is trying to put forward a balanced perspective to ensure that the regulations that are coming out are as much as possible based on the best available evidence. And do those of us in the risk community always succeed? Absolutely not, there have been a number of failures in the past but that is something we have tried to improve and work on.

GMOs have been debated for years if not decades. It's an emotional debate as well as political ...

The issue in many countries here is that nations have so-called pet risks. The Austrians are very strongly anti-GMOs, they always have been. Austria can afford to do because Monsanto is headquartered in St. Louis, Missouri, not in Vienna.

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The Swedes are very strongly anti-chemicals. Why is Sweden anti-chemicals? They can afford to do so because there is not a real chemical industry in Sweden. Therefore [Sweden] is being super tough on chemicals and trying to phase out one chemical after another, using both precautionary and substitution principles, combined with hazard classification. Sweden's objective has long been to have a so called non-toxic society by the year 2020.

Yet at the same time they are pushing for tough chemical regulations, Sweden has been attempting to persuade the European Commission and European Parliament that they should be [allowed] to continue to consume fatty Baltic Sea fish, especially fermented herring as well as salmon.

It turns out that these herring and salmon have four to five times the level of dioxin above the recommended daily intake allowance - four to five times higher. Why is this? This is about saving jobs along the northern coast of Sweden. So is this hypocrisy? Yes, it's hypocrisy. But basically with regard to those fatty fish, the Swedes are letting their own population be poisoned by eating the fatty fish because they want to protect jobs. But it's very easy for them to be anti-chemicals because there is no chemical industry …

So let's put this in context. What's happening here is that nations have so-called pet risks. The Austrians are anti-GMOs, the Danes are anti-nuclear power. Is there nuclear power in Denmark? No. Swedes are anti-chemicals. Are there any chemical plants in Sweden? No ...

... So economic factors trump risk management?

You can say that. Economic factors have a crucial bearing on how countries view regulatory affairs. It's an absolutely crucial factor. And now what I find interesting is that these countries are putting forward these policies but ignoring the bigger picture. In Sweden, rather than spend all this time trying to put forward

a non-toxic environment, we should be focusing on the real risks - for example, let's ensure that children and women of child-bearing aid are aware about the high levels of dioxin in Baltic Sea fish …

You have a research interest in transboundary environmental issues. What is the biggest such risk today in Europe?

Air pollution is still a very big factor. We need to get our hands on it. What I find interesting here that we should really be focusing on reducing fine particulate matter emissions from cars, especially from diesel engines. And this is an area that needs much greater attention that it has today …

And why aren't we paying much attention to this? It goes back to the issue of risk perception. Regulators, media, various interest groups and others focus on risks that have a number of different categories attached to them. These are (a) involuntary rather than voluntary; (b) unfamiliar rather than familiar; (c) uncontrollable rather than controllable; (d) they affect children rather than, say, old people. There are a number of these crucial factors - also, they may be produced by individuals who are not trusted - the so-called risk-perception factors. And if you look at any kind of campaign, they focus on unknown risk say a new chemical - it's unfamiliar, it's involuntary, it affects kids, it's produced by a distrusted chemical industry, and is also technological rather than natural … And that's the crucial issue.

With cars, they are familiar, they have been around forever. A 2-year-old can see exhaust coming out of a car. We accept that. Cars are familiar. But small amounts of chemicals we have never heard of before, they hit all those risk-factor buttons. And that's how these campaigns are drawn up because people will listen to them.

What should regulators and policymakers being doing to minimise environmental risk?

They should be working much more with the broader academic risk committees. In addition the regulatory bodies themselves should also have attached to them some kind of risk communication advisory board or even a risk science advisory board, to ensure that they focus on the right risks and not on the wrong risks, so they are not basically being driven by media amplification … Having media reporting on food and chemical scares that are not based on evidence is worrying and this is something that we need to address going forward.

Food safety agency seeks to repair its risk assessor reputation

More than a decade after it was established, the European Food Safety Authority (EFSA) still struggles to persuade consumers that it is a credible risk assessor working for the public good and not unduly influenced by corporate lobbyists.

A recent scandal exposing EFSA's links with the agro-chemical sector have led the agency to strengthen rules related to conflicts of interests and show greater openness to various stakeholders.

The EU established EFSA in 2002 after a series of food-related alerts, including the chicken dioxin scare and mad cow disease, which shook public confidence in food safety during the 1990s.

The General Food Law, passed in 2002, was meant to provide a comprehensive framework to ensure that the European food regulatory system was based on reliable science. One of the key elements was the functional separation of "risk assessment" and "risk management" activities, which led to the establishment of EFSA as an EU agency providing independent scientific advice to policymakers on risks associated with the food chain.

"Confident consumers are the cornerstone of a competitive economy, and the EFSA has an important role to play in boosting this confidence," said European Commission President José Manuel Barroso at the 2005 inauguration of EFSA's new headquarters in Parma, Italy.

As a consequence, EFSA's key activity is scientific "risk assessment", a specialised field of applied science that involves reviewing scientific data and studies in order to evaluate the risks associated with certain products or substances.

Meanwhile, EU policymakers – the European Commission, Council and Parliament – have retained control over the the "risk management" part, which includes policy responses, as well as prevention and control measures to address emerging risks.

With mad cow disease still fresh in their memory, policymakers sought to root risk management decisions in the precautionary principle, which allows politicians to make discretionary decisions in matters where scientific knowledge is lacking, with a view to protecting the public from exposure to potential harm.

This means that EFSA officials might be asked to answer scientific questions from the European Parliament or the member states, and provide the public with scientific information.

Conflict of interest

But while the public has rarely criticised the risk management track record of politicians, EFSA has received repeated flak for a perceived lack of credibility in its risk assessment processes.

Health and environment NGOs in particular have pointed to close corporate links amongst EFSA's network of over 500 experts. One of the biggest rows has centered on genetically-modified organisms (GMOs), with NGOs claiming that EFSA had been unduly influenced by industry. EFSA has routinely found no human health risk from GMO consumption while dismissing studies indicating the opposite as of "insufficient scientific quality".

A recent controversy also includes EFSA's definition of endocrine disruptors, which led the anti-pesticides NGO PAN Europe to send an open complaint to Health and Consumer Affairs Commissioner Tonio Borg, accusing EFSA of creating loopholes for industry.

Unfortunately for EFSA, some of the criticism has had more than a grain of truth.

In May last year European Parliament lawmakers urged EFSA to tighten safeguards against potential conflicts of interest amongst its staff after Diána Bánáti, then the chairperson of EFSA's management board, failed to mention that she was also a member of ILSI-Europe, a body funded by the food and agro-chemical industry.

Bánáti eventually resigned from

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EFSA and announced that she would join ILSI-Europe on a permanent basis but the damage had been done, seriously putting into question EFSA's reputation as an independent body.

New conflicts of interest rules

To address the issue, EFSA unveiled new rules in March last year for its in-house staff, as well as its outside experts, including specified lists of activities that would preclude scientific experts from serving on advisory panels.

Scientists previously employed by industry must now have a two-year "cooling-off" period before they can sit on EFSA's scientific panels and scientists who receive more than 25% of their research funding from industry face other restrictions on the roles they can undertake at the authority, for example.

Former staff - but not scientific advisers - must notify EFSA of all new employment for two years after their departure, and EFSA can ask them to refrain from working with the authority in their new job for one year.

Ragnar Löfstedt, professor of risk management and the director of the King's College Centre for Risk Management in London, told EurActiv in an interview that he finds EFSA "highly professional". His collegues also shared that view, Löfstedt added.

"EFSA, of course, has been and is attacked by a number of NGOs. It is very unfortunate that some individuals have not been clear and transparent in terms of declaring their interests… But as a risk-assessment agency, EFSA is seen as credible," the professor said.

Public involvement

Through its advisory forum, EFSA works in cooperation with the national food safety authorities on scientific data collection and monitoring, and communications activities.

EFSA also holds regular meetings with organisations representing consumers, industry, environmental NGOs and other stakeholders.

To ensure public involvement and transparency EFSA has recently had an online public consultation on its draft opinion on the food additive aspartame and a follow-up stakeholder meeting.

Research Director at the International Prevention Research Institute Philippe Autier who took part in EFSA's stakeholder meeting told EurActiv that he "sincerely" believed EFSA was doing the right thing to ensure transparency.

"I'm pretty sure that some of the points and opinions raised during the meeting will be evaluated by the EFSA panel on aspartame and incorporated in the final report," Autier said.

"Otherwise, I do not see why EFSA would have had the public consultation and organised the conference. Under the current circumstances, it is the best EFSA can do. It's up to anyone to make his own perception of the EFSA report and the opinions they received," the research director added.

The challenge now for EFSA will be to convince the general public of its renewed sense of integrity. But that may take a while.

How volcanoes and airplanes offer lessons for risk taking

When Iceland's Eyjafjallajökull volcano erupted in 2010, EU aviation authorities saw little choice but to shut down airspace across much of Europe as a precaution against ash and grit choking aircraft engines.

Though the decision minimised the risk of an airline accident, it had profound effects on the air and travel industries, causing an international bottleneck not seen since the 2001 terror attacks on New York and Washington.

In the first three days, 15-17 April, more than 42,000 flights were cancelled and ultimately 10 million travellers were affected. A month later, an eruption at the island's Grímsvötn volcano would cause another scare though with far fewer disruptions.

EU risk assessment for aviation

At the time, airlines and aviation safety authorities could only draw on isolated incidents in the past where ash plumes caused aircraft engines to stall in mid air.

"The only international rule around volcanoes - in capital letters - was AVOID, AVOID, AVOID ...," Dame Deidre Hutton, chairwoman of the British Civil Aviation Authority, told the European Risk Summit in Dublin on Wednesday (12 June).

The European Commission has since instituted risk-assessment procedures and other policies to address airspace disruption, including creation a European Crisis Co-ordination Cell (EACCC). The Commission also:

- Established that airlines would provide risk assessments in future events and that national safety authorities would made the decision on whether it was safe to fly;
- Organised ash simulation exercises;
- Called for speeding up of European airspace and air traffic control integration to improve crisis response.

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Eyjafjallajökull is an extreme example of how regulators apply the precautionary principle to ensure public safety.

Caution vs. competition

While there was acceptance of the restrictions, at least initially, other uses of the precautionary principle in Europe have proved far more contentious.

These include the longstanding disputes over genetically modified foods that have led some leading GM manufacturers to scale back their presence in the EU market and shift research operations to the United States.

Other battles involve opposition to the development of shale gas, which is booming in North America; calls by the European Parliament for tighter rules on chemicals that some scientists say can lead to human hormonal problems; and emerging about the development technologies at the microscopic level, or nanotechnology.

"We must be careful not to regulate ourselves out of this opportunity," Sean Sherlock, the Irish minister for research and innovation, told the Risk Conference, a concern echoed by other speakers citing Europe's ability to compete with less risk-averse markets.

Fear of flying

Aviation may offer a less murky tradeoff between risk and regulation. A lost plane is immediate while it can take years to understand the impact of exposure to dangerous substances, or years of scientific review to understand the potential risks of new products and technologies.

As the Eyjafjallajökull eruption continued to cause havoc with airlines, pressure grew for remedies as airlines losses approached €200 million per day. Initially, planes were rerouted around the ash cloud to flight paths and airports in Southern Europe, which was less affected by the ash.

Regulators, the airlines and aircraft engine producers also agreed that adjusting engines to increase their tolerance to ash, lava fragments and dust would minimise the risk to passenger safety.

The events of 2010, however, left regulators and the aviation industry having to decide how much risk was acceptable.

"The interesting question is, if this situation had carried on for a number of days, where does precaution meet practicality?" Hutton told the risk summit. "The economy is losing hundreds of millions of pounds a day, and millions of people are being stranded. At some point the risk-based assessment changes, the cost-benefit analysis changes."

"And I think it is perfectly possible that if it had gone on longer than it did without being able to reach an agreement from the engine manufacturers, that difficult decisions would have started to be taken."

Asked if the same risk assessments applied to aviation safety would change the assessments on Europe's recurring disagreements, such as the lingering uncertainties about GM crops, Hutton, a former British food safety regulator, said "it would be difficult to do anything other than" authorise GM crops.

EU countries in deadlock over genetically modified maize approvals

EU member states failed on Monday (10 June) to agree on whether to approve three genetically modified maize varieties for use in food and feed.

As the bloc's standing committee on food chain and animal health failed to reach a majority either for or against, the decisions will pass to an appeal committee over the coming weeks, a Commission spokesman said.

Should the appeal committee also be unable to reach an agreement, the Commission will be free to grant EU marketing approval.

Two of the applications are for maize varieties containing multiple or "stacked" gene traits. These are designed to protect the growing plants from multiple insect pests and both products are developed jointly by Monsanto Co and Dow Chemical Co.

Neither variety is approved for cultivation in Europe. The authorisation would cover the use of imports in food and feed products sold in Europe, although there is little or no demand for genetically modified food among EU consumers.

The third approval covers the pollen of Monsanto's insect-resistant MON810 maize. This is the only genetically modified crop which is currently grown commercially in Europe.

The bid for approval followed a ruling by the Europe's highest court in 2011 that even small traces of the pollen in honey must receive EU authorisation before the product can be sold.

Five out of 27 EU member states grew MON810 maize on 129,000 hectares in 2012, according to data from the International Service for the Acquisition of Agri-biotech Applications (ISAAA). Spain was the top producer, followed by Portugal, the Czech Republic, Slovakia and Romania.