



Briefing Paper on the Precautionary Principle

“We recommend that where synthetic chemicals are found in elevated concentrations in biological fluids such as breast milk and tissues of humans, marine mammals or top predators, regulatory steps be taken to remove them from the market immediately.”

(Royal Commission on Environmental Pollution 2003)¹

Numerous analyses of the umbilical cord blood of newborn infants and of mothers' breast milk have revealed the presence of a number of synthetic chemicals.² The exact lifetime effects of these accumulating mixtures of synthetic chemicals, on health, are currently unknown and may never be known. However, there is evidence from laboratory studies that many of these chemicals can be hazardous to health. Therefore the UK Royal Commission deemed it prudent to reduce the accumulation of these chemicals in humans and animals, by removing them from the market – *immediately*.

This is a clear expression of the precautionary principle in action.

The precautionary principle explained

Essentially the precautionary principle directs that action be taken to reduce risk from chemicals in the face of uncertain but suggestive evidence of harm.

There are many definitions of the precautionary principle, but the most well known are those of the 1992 Rio Declaration's definition of a precautionary approach and the 1998 Wingspread Conference on Implementing the Precautionary Principle.

The Rio Declaration from the UN Conference on Environment and Development (Principle 15) stated:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

The Wingspread Conference included human health in their definition of the precautionary principle:³

When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

In 1995, the 4th North Sea Conference of Ministers directly addressed the issue of hazardous chemicals in the environment:

"The Ministers agree that the objective is to ensure a sustainable, sound and healthy North Sea ecosystem. The guiding principle for achieving this objective is the precautionary principle. This implies the prevention of the pollution of the North Sea by continuously reducing discharges, emissions and losses of hazardous substances thereby moving towards the target of their cessation within one generation (25 years) with the ultimate aim of concentrations in the environment near background values for naturally occurring substances and close to zero concentrations for man-made synthetic substances.

In 2000 the European Commission Communication on the Precautionary Principle stated:

The precautionary principle applies where scientific evidence is insufficient, inconclusive or uncertain and preliminary scientific evaluation indicates that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the high level of protection chosen by the EU.

In its most recently proposed new Regulation on the placing of pesticides in the European Union market (12 July 2006), the European Commission has been even more explicit in its use of the precautionary principle to protect human health and the environment:

"The purpose of this Regulation is to ensure a high level of protection of both human and animal health and the environment. Particular attention should be paid to the protection of vulnerable groups of the population, including pregnant women, infants and children. The precautionary principle should be applied and ensure that industry demonstrates that substances or products produced or placed on the market do not adversely affect human health or the environment."⁴

The precautionary principle has been reiterated in many forms in many documents, but the central message remains the same: **action should be taken to prevent harm to the environment and human health, even if scientific evidence is inconclusive.** It permits a lower level of proof of harm to be used in policy making whenever the consequences of waiting for higher levels of proof may be very costly and/or irreversible.

The Wingspread Statement on the Precautionary Principle identifies four central components of precautionary policies, and these have since been elaborated frequently:

- taking preventive action in the face of uncertainty
- placing responsibility on those who create risks to study and prevent them
- seeking alternatives to potentially harmful activities
- increasing public participation and transparency in decision-making.

In contrast, current pesticide regimes worldwide require substantial evidence of harm before regulatory action is taken, regardless of the availability of safer alternatives.

The precautionary principle emerged into public thinking about the risks resulting from various human activities during the 1980s and 90s, although it actually found expression in Scandinavian and European legislation as far back as the 1970s. In Sweden, the principle first found expression in the 1973 Act on Products Hazardous to Man or the Environment; in Germany, the 'Vorsorgeprinzip' or 'foresight principle' was established in water protection law in 1970.⁵

It has been incorporated in some form in regional, national and state legislation in a number of countries, such as a 2000 European Union directive regarding food safety (Article 7 of Regulation (EC) No 178/2002).⁶

The precautionary principle in conventions

Since then it has been incorporated, in some form, in many international conventions:⁷

- World Charter for Nature, adopted by the UN General Assembly in 1982
- [Montreal] Protocol on Substances that Deplete the Ozone Layer (1987)
- Second North Sea Declaration – Calling for Reduction of Pollution (1987)
- Nordic Council's International Conference on Pollution of the seas (1989)
- Paris convention for the Prevention of Marine Pollution from Land-based sources (PARCOM) (1989)
- Bergen Declaration of Sustainable Development (1990)
- Second World Climate Conference – Ministerial Declaration (1990)
- Bamako Convention on Transboundary Hazardous Waste into Africa (1991)
- Rio Declaration on Environment and Development (1992)
- Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992)
- Framework Convention on Climate change (1992)
- Maastricht Treaty on the European Union (1994)
- 4th North Sea Conference of Ministers (1995)
- Barcelona Convention
- United Nations Agreement on the Conservation and Management of Straddling Stocks and Highly Migratory Fish Stocks (1995)
- UN Intergovernmental Panel on Climate Change used the precautionary principle in concluding that "the balance of evidence ... suggests a discernible human influence on global climate" (IPCC 1995).
- Article 10 of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2000).
- Stockholm Convention on Persistent Organic Pollutants (2004)
- REACH (2006) - Registration, Evaluation, Authorisation and Restriction of Chemicals – European Union
- SAICM (2006) - the Strategic Approach to International Chemicals Management, agreed at Dubai.

In 1989, the United Nations Environmental programme recommend that "all governments adopt the principle of precautionary action", with regard to the prevention and elimination of marine pollution.⁸

Implementing the precautionary principle for pesticides

Public authorities are increasingly adopting the "precautionary principle" as a prudent response to potential chemical hazards. It is still however, inadequately applied to pesticides management worldwide.

There is a massive volume of laboratory generated-toxicological data on pesticides showing that many of them are potentially hazardous to humans and the environment. There is a smaller amount of somewhat equivocal epidemiological data that, whilst it frequently does not prove a link between exposures to pesticides and chronic diseases such as cancer and Parkinson's disease, certainly does not disprove a link.

Therefore, although a direct casual link has not been established in most cases, there is significant suggestive evidence of harm to humans and the environment, and it is in precisely this situation of scientific uncertainty that the precautionary principle should be applied.

The application of the precautionary principle to pesticides policy and regulation will require a shifting thinking and a number of policy and process adjustments.

1. The level of scientific proof

Under current pesticide regulatory regimes action to remove pesticides or reduce exposure is usually taken only after significant proof of harm is established, at the cost of substantial human suffering and/or environmental damage. The benefit of doubt is given to the chemical, safety is assumed until proven otherwise.

The risk assessment process seeks to set a level of acceptable risk from hazardous substances. However if the precautionary principle is applied to this process, instead of seeking a level of acceptable risk, the potential for harm is acknowledged and ways are sought to reduce that harm. The benefit of doubt is given to humans and the environment instead of the chemical and safety is no longer assumed.

The assessments of hazard and fate are important and valuable parts of the risk assessment process. The problem lies with attempts to determine whether the risk resulting from the proposed use of the chemical is acceptable or not:

- the process cannot identify accurately the real risk because of lack of information about the effects of mixtures and ongoing low-dose exposure, and the effects on especially sensitive people
- acceptability is a social, not a scientific decision, and the practice of unilaterally deciding what is acceptable risk is fundamentally undemocratic.

Therefore in a pesticide regulatory process incorporating the precautionary principle, the relative risks of substances are determined, without any attempt to decree that these are acceptable or safe. Bottom lines for unacceptability can be set, for example persistence in the environment or carcinogenicity, and if these are breached the substance can be removed from the market.

2. Evaluating less harmful methods – reducing risk

The precautionary approach brings a focus onto safer alternatives to a hazardous pesticide, rather than simply attempting to define a level of acceptable risk. It seeks to reduce the risk by providing/using a safer chemical or method for managing pests, weed and diseases. This approach is sometimes described as alternatives assessment,⁹ the principle of minimum harm,¹⁰ or the substitution principle. The later is embodied in

Swedish policy and law, first appearing in the Swedish Act on Chemical Properties, SFA 1965, p426, section 5.¹¹ It is employed in Swedish pesticide policy in a manner that only partially addresses the precautionary principle: it does not allow for the substitution of a harmful pesticide by non-pesticide methods to manage weeds, pest and diseases.¹²

The European Union's Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), proposed by the European Commission in 2003, is in its final stage of discussion and will be agreed by the European Parliament and Council in November 2006. This new policy includes the substitution principle with the aim of replacing substances of very high concern by suitable alternative substances or technologies. All companies applying for authorisation of chemical substances should provide an analysis of alternatives considering their risks and the technical and economic feasibility of substitution. Furthermore, authorisations will be subject to time-limited review whose periods would be determined on a case-by-case basis and normally be subject to conditions, including monitoring.¹³

Both the principle of minimum harm and alternatives assessment satisfy the precautionary principle by requiring a full risk-benefit analysis comparing the pesticide in question with other appropriate pesticides and all known techniques of controlling the particular organism of concern. The principal of minimum harm then states that the least harmful method should be used.

The precautionary approach requires that the practicable method least harmful to human health and the environment be used to control pests, weeds, and diseases.

3. Looking at the larger picture – banning persistent, accumulative and highly toxic pesticides

Instead of focusing simply on one chemical at a time, as the current risk assessment process does, the precautionary principle encourages a focus on the larger picture – for example developing policies for banning or phasing out persistent and bioaccumulative chemicals – Sweden for example has taken a precautionary approach to these chemicals and set a timeframe for their phase out by 2007.¹⁴ This attention to the larger picture provides space to acknowledge the problem of ongoing low doses exposures to mixtures of chemicals, and the cumulative effects of small doses.

4. The burdens of proof and responsibility

Those who have the power, resources and control to act and prevent harm must bear responsibility for preventing the harm. This includes the manufacturers of hazardous pesticides, who should have financial liability for the effects of their products and, together with the authorities that permit use of the products, a duty to monitor environmental and health effects.

5. Regulating on the basis of the most affected

Exposure limits for pesticides should be set on the basis of the most sensitive people, not the average, for example pregnant women and babies.

6. Inclusion of democratic principles: participation and knowledge

Greater transparency and public involvement in pesticide policy and regulatory processes are required to satisfy democratic principles. Additionally the public and workers have the right to know what pesticides they are exposed to and the hazardous natures of those pesticides. Without such knowledge they cannot take precautionary measures themselves to avoid potential harm.

7. Act on early warnings

International and national pesticide management regimes must act on early warnings that a pesticide is posing an unnecessary risk, such as evidence of accumulation in the environment or human tissue, and evidence of ill health. This includes listening to and acting on the experiences of those who are exposed to pesticides, such as plantation workers in Asia and small farmers in Africa, or bystanders and neighbours in the UK, USA, New Zealand and many other countries.

PAN's Position

Taking into consideration that:

- pesticide use poses grave consequences for human health, the environment and livelihoods;
- current regulatory regimes generally require significant proof of harm to be established before action is taken to remove pesticides or reduce exposure;
- there is significant uncertainty about the effects of pesticides, especially long-term effects, on present and future generations and the environment present and future; and that
- precaution is more thorough and more scientific than the standard risk assessment process because it requires recognition of the limitations of science such as uncertainty about the chronic effects from ongoing low-dose exposure to mixtures of chemicals, recognition of the lack of knowledge about causal links, recognition of the value judgements involved in risk assessment, and attention to all other factors involved such as less harmful alternatives;

PAN International demands the application of the precautionary principle in national and international pesticide regulatory mechanisms, including:

1. Early preventative action be taken to eliminate harmful pesticides including those that are persistent, accumulative or highly toxic such as WHO Class Ia and Ib and those that cause or are suspected to cause chronic health effects including cancer, reproductive problems, birth defects, developmental and behavioural impacts, and effects on the immune, endocrine and neurological systems.
2. Substitution of harmful pesticides with less harmful alternatives, including agro-ecological methods, and holistic approaches to control pests, weeds, and diseases.
3. Regulation on the basis of the most vulnerable groups affected, for example pregnant women, the unborn foetus and the newly-born child.
4. A full data set including long-term effects before pesticides are released into the environment.
5. Recognition of the experiences of workers and communities with regard to adverse effects of pesticides.
6. The right of those using or exposed to pesticides to know what it is they are exposed to, and the hazardous properties of the pesticide.
7. The right of popular participation in decision-making regarding pesticide regulation, including active participation in national pesticides committees.

Endnotes

- ¹ Royal Commission on Environmental Pollution. 2003. Twenty-fourth Report, Chemicals in Products: Safeguarding the Environment and Human Health. June 2003. UK.
- ² See for example: Kunisue T, Someya M, Monirith I, Watanabe M, Tana TS, Tanabe S. 2004. Occurrence of PCBs, organochlorine insecticides, tris(4-chlorophenyl)methane, and tris(4-chlorophenyl)methanol in human breast milk collected from Cambodia. *Arch Environ Contam Toxicol* 46(3):405-12.
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- ³ Wingspread Conference on the Precautionary Principle. January 26, 1998. <http://www.sehn.org/wing.html>
- ⁴ Commission of the European Communities. 2006. Proposal for a Regulation of the European Parliament and of the Council concerning the placing of plant protection products on the market. COM (2006) 388 final. Brussels. p. 14
- ⁵ Raffensperger C, Tickner J. 1999. Introduction: to foresee and to forestall. In: Raffensperger C, Tickner J, editors. *Protecting Public Health and the Environment: Implementing the Precautionary Principle*. Washington, D.C.: Island. p 1-11.
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- ⁶ Official Journal of the European Communities, L 31, Vol 45, 1 February 2002. <http://europa.eu.int/eur-lex>.
- ⁷ Sources include the agreements and Conventions listed, and:
Raffensperger C. 1999. Uses of the Precautionary Principle in International Treaties and Agreements. http://www.biotech-info.net/treaties_and_agreements.html.
- Raffensperger C, Tickner J. 1999. Introduction: to foresee and to forestall. In: Raffensperger C, Tickner J, editors. *Protecting Public Health and the Environment: Implementing the Precautionary Principle*. Washington, D.C.: Island. p 1-11.
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- ⁸ UNEP. 1989. Report of the Governing Council on the Work of its Fifteenth Session, United Nations Environment Programme, UN GAOR, 44th Sess. Supp No 25, 12th mtg at 153, UN DOC A44/25 (1989).
- ⁹ O'Brien M. 2000. Making Better Environmental Decisions: An Alternative to Risk Management. Cambridge (MA): MIT Pr.
- ¹⁰ Watts MA. 2000. *Ethical Pesticide Policy: Beyond Risk Assessment*. PhD thesis, University of Auckland, Auckland.

- ¹¹ Bergkvist P, Bernson V, Jarl S, Tornlund M. 1996. Re-registration of pesticides in Sweden— results from the review 1990-1995. *Pestic Outlook* Dec:12-8.
- ¹² Bergkvist P. 1999 Nov 1. The use of the substitution principle in regulation of pesticides in Sweden. National Chemicals Inspectorate, Solna.
- ¹³ Council of the European Union. 2006. Common position adopted by the Council with a view to the adoption of REACH, Interinstitutional File: 2003/0256 (COD). <http://register.consilium.europa.eu/pdf/en/06/st07/st07524.en06.pdf>
- ¹⁴ Tickner J, Raffensperger C, Myers N. undated. The Precautionary Principle in Action: A Handbook. 1st edition. Science and the Environment Health Network. <http://www.sehn.org/>