

## Introduction

Duncan Mills is Social Ecologist of 20years study. Social Ecology is the study of how the human ecosystem is understood and explained. It is meta disciplinary with a focus on qualitative relationships in order to understand how the social world works in relation to its natural environment. Prior to entering the field he was medium scale mixed.farmer in the dry North Midlands of Tasmania for 30years. During that time he was president of the Tasmanian branch of the Australian Farm Management Society, a member of the National Executive and President. The study of Social Ecology was inspired by resource constraints identified by the Club of Rome and in Australia by the Decade of Landcare project the 1980s.

## Critical Overview.

The charter of the APVMA does not have the protection of humans, animals and the ecosystem as its stated mission. ( There is perhaps token protection to field operators but this fails to to meet the standard required for true objectivity and rigorous peer review such as that required for pharmaceuticals.). The interest of the chemical industry should always be a secondary consideration to long run human and ecosystem health and safety.

## APVMA Charter deficiencies

It's charter [interprets.as](http://interprets.as) being structured in a way to:

- A. To protect the short term material interests of the synthetic chemical industry commerce chain as it priority.
- B. To protect the pesticide industry from critical enquiry by consumers and users of products.

An example being the recent lifting of allowable residue limits of Glyphosate in produce without consultation with consumer.or users. For many users including the author only nil detectable as satisfactory.

- C. With no inbuilt fail safety precautions, so that if regulatory processes and responses are not implemented chemicals may still be used.

Continued use should be subject to annual audit of regulation implementation and effectiveness periodic safety reviews. For example the compliance with label guidelines and sanctions against off label use.

- D.To exclude the precautionary principle.

Given the now known toxic, carcinogen, mutagenic, and epigenetics effects of many pesticides the precautionary principle should be applied at all stages; from a preregistration risk cost benefit analysis, investigation, through to periodic registration review.

## Failings of the APVMA enquiry word view and methodology.

The overarching cultural framework of chemical use in the environment in Australia has been developed pragmatically using the lens of orthodox reductionist science who's prime tool is assumed objectivity, focus and dissection. The frame of reference has focussed on short utility without regard to the availability of non chemical options or consideration of long term risks to human and ecosystem health. Any short term benefits being capitalised into increased land or stockmarket values.

The reductionist.science approach fails at three levels.

1. It fails to disclose or protect investigation from the system wide social interests of the enquirer, employing organisation and commissioning authority and as well it sources of scientific data. As much as these entities may proclaim morality, objectivity and disinterest, their existence is tied to the source of funding and the sources interests, which is either maximising short term profits or the considerations of a three year electoral cycle. Factors which we know to produce massive unconscious and conscious bias and denial.

2. Because of this systemic bias it is in the first place defensive when receiving complaints or critical enquiries; or it is reluctant to investigate issue or tardy in reviewing chemicals or their adjuvants [relationships.in](#) their ecological field of use.

3.Reductionist inquiry has to exclude (reduce) non core relationships and in doing ignores ecosystem effects. This then partial knowledge is then selectively used and quoted in service of the marketers commercial interests.(1) Then this distorted knowledge has to accommodate the largely unknowable complexity of the field ecosystem. A classic example being the multigenerational effects on Vietnamese people of wartime defoliants, now better understood by the emerging field of DNA technology and epigenetics. There many smaller scale accounts of serious health impacts here in Australia.

Glyphosate as a case study.

Glyphosate has had a profound impact on agriculture with perhaps 90% of grain crops in "developed" agriculture using it for seed bed preparation and often used for Preharvest desiccation in wet harvest seasons.. This grain is then used both for human and animal feed. Alternative and less risky (but slightly more expensive techniques do exist like blade cultivation, rod and saturated steam weeding or swathing in the case of wet harvest.) It's short term benefits have been in fact been illusory with the slightly increased profit margins just being capitalised into increased land and stock market valuation.

The ecological costs and risks.

The ecological costs have been many and systemic, and pose extraordinary risks to the health of humans and their ecosystem. Monsanto(1) selectively quoted the attributes of Glyphosate osate to placate user concerns, to say that used according to label there were no known health risks to human. (in the short term). This is because it's principal form of biocidal activity is through the "shikimate" molecular pathway of protein synthesis in plants. What they did not say, but knew, is this pathway is common in many biota in the soil and the biome of humans animals and insects. The principal effect being the suppression of beneficial bacteria both in the soil and animal biome, with consequent complex and systemic deleterious effects on the health of the animal and soil biome, even the bacteria in bee guts and colonies.

Unexpected secondary effects.

Glyphosate residues are found in most human tissue in "developed" countries and in grain fed animals. It has occurs in commercial gelatine, an extract of collagen from such animal's. This defies the claims of Monsanto that it is all locked up in the soil and has a short half life.

Molecular biologist believe it may be substituting for the similarly structured natural amino acid Glycine in the synthesis of the protein collagen, a significant component of skin, tendons and nerve sheaths. This is the source of Glyphosate in gelatine. Gelatine used in the production of many processed foods and vaccines. The implication of this is that it is incriminated a range of neurological and autoimmune disorders..Coincidentally there has been rise in these diseases paralleling the use of Glyphosate for grain production in the USA.(2), raising the possibility of parallels in Australia.

Genetic and possible epigenetic effects.

What makes the glycine substitution problematic is that it is a component of DNA and so becomes implicated in diseases like cancer and mutagenic disorder. Whilst the claims made by some researchers are few in number, they have not been refuted other than "ad hominen" attacks, possibly chem industry sponsored. Clinical and legal evidence is also accumulating to the point where Glyphosates carcinogenicity can be confirmed more confidently.

Lessons from the Glyphosate case

1. The complexity of ecosystems, in most cases practically denies a categorical understanding of cause and effect.
2. This ambiguity makes the exploitation of short term commercial advantage possible with little likelihood of being definitively responsible for possible or unexpected long term consequences.
3. It is too easy for commercial interest to selectively choose evidence to suit their aims.
4. Regulatory authorities as constituted do not have the independence or the resources to adequately screen, monitor and control chemical use, or to regularly review against the latest literature.
5. The APVMA is not constituted and resourced to act in a critical and precautionary manner in the best long term interests of consumers or agricultural operators.
6. A chemical with such widescale and systemic effects can do extraordinary damage:
  - A) To soil ecology that can only be ameliorated by further synthetic interventions to sustain production.
  - B) The extraordinary market risk to the food grain industry when negative consequences emerge to customers.
  - C) To human health and productivity and cost to the health system in added public clinical costs.

References : 1) The Monsanto Papers 2) Samsell and Seneff 2017

#### Alternate regulatory approaches

1. The aim of regulatory authority has to be changed to the protection of long-term human and ecological approaches using the precautionary principle.
2. The interest of the Australian population would be best served by moving reconstituted APVMA to within the Primary Health section of the Federal Health Department as its commission is to minimise long term health costs.  
The product registration evaluation to be conducted in accordance with peer review double blind protocols used for human health. The costs of administration and research to be recovered by a flat general levy on Non Organic production, similar to existing R&D levies, paid to consolidated revenue.
3. The reconstituted APVMA adopt a primary strategic goal of being as fully transparent and responsible to consumers and users as possible outside of absolutely necessary CinC provisions.
4. APVMA to maintain a secure and open database of public concerns and responses about proposed or registered products.
5. All duties and records required in the charter to be audited annually by the Auditor General.
6. The new APVMA to establish units attached to State Primary Health Departments legally bound by the revised charter.

#### User Licencing.

#### Introduction.

Because of the profound risks to human and ecosystem health of toxins in pesticides; trustworthiness, accountability and responsibility can not be ensured without a bombproof system of user licencing .

Industry may argue extra costs handicap their competitiveness; but that is only a factor of ignorance of the long term and systemic costs to markets, consumer health and eventually

government services. They do have a choice as well, they can choose Organic Conversion and reap the market premiums given to more trustworthy produce.

#### Elements

- 1.All users of known biotoxins should be licenced and suitably qualified to apply them.
- 2.A condition of this licence should be the maintance of reconciled stock sheets and an application log.
- 3.Licencing should be subject to audited annual reports and random field audits.
- 4.An open and transparent quality management system should be maintained online with complaints remaining until actioned to the satisfaction of all parties.
- 5.No environmental toxins should be sold to unlicensed users.
- 6.Breaches of licencing conditions should invoke suspension and if recurrent cancellation of licences.