Science in Policy Making: promoting ecological and social justice

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Mae-Wan was a scientific pioneer, way ahead of her time. She was holistic and transdisciplinary before the words became trendy. One thing she showed us was how organisms are coherent wholes, their beings pulsating and dancing with all the colours of the rainbow when viewed under a special microscope. Perhaps that is why she understood immediately how genetic engineering could never, in all its reductionist guises, be a solution.

Mae-Wan's contribution to the biosafety and genetic engineering debate internationally is immense. She played a major part in highlighting the failure of the Central Dogma, and in translating the science into easy to understand language so that peoples all over the world could articulate their views without being dismissed by the scientific establishment.

This has birthed a global resistance movement to GMOs, which continues to highlight the risks and failed promises of GM crops as well as the corporate collusion in the system. She called these corporations to account without fear or favour. Today, we have the recent legal opinion of the Monsanto Tribunal that concluded that Monsanto has engaged in practices tbat have negatively impacted the right to a healthy environment, the right to food and the right to health, as well as negatively affecting the right to freedom indispensable for scientific research. Better regulation is needed to protect the victims of multinational corporations.

As such, science is also essential to robust policy-making, and Mae-Wan helped to bring these issues to the attention of policy-makers, at many meetings leading up to the Cartagena Protocol on Biosafety and at other international fora such as the World Summit on Sustainable Development. Today, the fact that there is an international law – the Cartagena Protocol – and as a result, national legislation on biosafety in many countries, recognises that GMOs are significantly different from naturally occurring organisms and require special regulation. This is a major achievement of the global community and Mae-Wan played no small part in helping shape that. She worked closely with the Africa Group and the like-minded group of developing countries, offering scientific and technical advice where it was sorely needed due to the lack of biosafety capacity in those countries.

Of course, we still face challenges in the implementation of biosafety laws and policies, which is why it is critical that independent scientists remain engaged in the discussions, something that was also close to Mae-Wan's heart. She showed us how science can work for the public good, while remaining fiercely independent and passionate about what she believed in.

Apart from challenging genetic engineering, Mae-Wan also articulated a vision for agriculture – a zero-emission, zero-waste 'Dream Farm 2'. In true Mae-Wan fashion, she used thermodynamics to explain how Dream Farm 2 could maximise the use of renewable energies and turn waste into food and energy resources. A sustainable system's cycle contains more cycles within that are interlinked symmetrically to help one another thrive and prosper. This principle is well illustrated in sustainable integrated farming. And in diversified agroecological systems that mimic a naturally biodiverse ecosystem in maximising the reciprocal, symbiotic relationships that benefit all the species in the system.

Today, it is increasingly acknowledged that the current industrial model of agriculture is broken and that no less than a transformation of our agricultural and food systems is needed. This entails a paradigm shift towards diversified agroecological systems, as called for by several authoritative processes, starting with the IAASTD, and most recently articulated by the International Panel of Experts on Sustainable Food Systems.

Agroecology applies scientific ecological principles to the design and management of agroecosystems. Its practices are locally adapted, increase biodiversity, nurture soil health and soil biodiversity, and stimulate interactions between different species, such that the farm provides for its own soil organic matter, pest regulation and weed control, without resort to external chemical inputs.

Mae-Wan understood this, informed by her science on the organism. Today, as agroecology gains prominence in global discussions on agriculture, including within the FAO, it is no accident that she contributed to this by providing the scientific basis for sustainable agriculture, offering fresh insights on sustainability and diagnostic criteria that reflect system health.

Mae-Wan's science was also reflected in music she called quantum jazz, where improvision, spontaneity and freedom combined yet worked together in tune with the whole. Her work was outside the box, free to explore beyond boundaries and disciplines, yet came together in a vision for a better, ecologically and socially just world for all. Her legacy lives on today as many are continuing her work on genetic engineering and sustainable agriculture. In some way I am a testimony of that, having worked with and learnt from her for 3 years when I first ventured into these arenas – for that, and for the years of friendship, wisdom and laughter she offered me, I thank her and continue to miss her dearly.