

**CHEMICAL SAFETY, AND BEYOND.  
A MATTER OF TRAINING IN SCIENCE, AND ETHICS**

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Environmental problem-solving to attain sustainability regionally and globally is, in principle, an attempt of balancing scientific, industrial, economic and public interests under the ethical imperative for social fairness, the latter a main prerequisite for political stability. The respective stakeholders often have different priorities, but if these are not properly considered and balanced, societal gains derived from scientific-technological advances become marginal or even negative. Information exchange - among scientists and between scientists and the public - is the actual means of enabling the transformation of scientific knowledge into technological advances and ultimately into societal wealth. So reliability and truthfulness in communication of research outcomes in journals, as patents, or by other media is of major importance for the well-being of a socio-political system and its members. The needed free interplay to find the best balance can, however, only function well under participatory-democratic conditions; ideological constraints make modern scientific-technological systems inefficient, even destructive.

Therefore, scientists must understand their immense responsibility for the well-being of the social system they live in. Unfortunately, many are not aware of the negative repercussions on their own working conditions when this relationship is neglected. In order to be competent as environmental scientist, besides proper scientific-technical training, education in applied ethics is a core need. Finding a good balance of the diverse positions of various stakeholders requires the ability of understanding the view of others – even if opposing and conflictive. Thus, besides intellectual capabilities, for fair environmental governance empathic competence is equally important. This requires a new concept of academic education in environmental science within an ethical, perhaps even spiritual paradigm.