

BIO-EDUCATIONAL REFORMS IN ACADEMIC CURRICULA

[Albert Th. Ten Houten](#)

ATHMO, Wageningen
The Netherlands

Goals for Environmental Education

- Elementary level: Methods appealing to the natural curiosity of children, basics of the living world around us and respect for life.
- High school level: Methods for the development of individualism in students, more thorough knowledge of biology and a basic understanding of the concept of carrying capacity.
- Undergraduate level: Bases for environmental positions in society, in-depth knowledge of interrelationships in nature, legal framework for environmental protection, practical skills needed to analyse pollution levels, estimate potential damage and irreversibility, and understanding of social attitudes toward nature.
- Graduate level: In-depth knowledge of environmental relationships using expertise for development in the future, identification of environmental consequences of present decisions and decision making (e.g. with EIA), and preparation of strategies with sustainable economic, social and environmental long-term goals.

Common Constraints in Curricular Reforms

- School Management Systems: Vested interests of school-boards and managers, organisational problems, uncertainty about future demands and disbelief.
- Teachers: Not feeling capable of teaching new concepts, feeling nervous about changing co-operation patterns within schools and tired of curricular reforms which always follow trends.
- Parents: Uncertainty about education in new concepts (PTA-bonds?) and fears that traditions may be lost.
- Societal Institutions/Labour market: Not certain about effectiveness of new education, preference for conventional education with specialisation, peer pressure and uncertainty about the long-term usefulness of environmental graduates.

Present Situation in the Netherlands

- Elementary level: Little attention, if any, paid to the environment and the responsibility lies on the individual teacher.
- High School level: Recent reforms reduced attention paid to biology and environmental issues. Teachers are tired of reforms.
- Undergraduate level: Large school-merger operations took place. In the past three to five years many new "environmental education programmes" started under the ambiguous name "Environmentology," trying to achieve an integrated multi-disciplinary education. Differences between technical, legal and liberal arts are masked for everybody, but the students are all very enthusiastic.
- Graduate level: Developing, since new multi-disciplinary schools exist after specialisations in existing schools were formed earlier. Less pronounced than at the undergraduate level. More competition between universities and no mergers.

Hope and Goals for the Future

- An ideal curriculum is difficult to define. The process rather than the product counts and the process of change needs to be geared toward adding more environmental disciplines in existing curricula. This process may be slow at first, but new specialisations, such as "Environmentology," are continuously being implemented.
- Some schools already realise that within two or three generations, environmental issues must form the basis for all other disciplines.
- The key to change, in the long run, is the students with their unlimited desire to learn. Children also want to prove their independence from their parents, are willing to try new methods, have few or no vested interests and think of themselves as world citizens now, more than ever before.

Coloniser = Frontier Economist (anthropocentric): 80%
Shepherd = Resource Manager (modif. anthropoc.): 15%
Partner = Eco Developer (ecocentric relation): 5%

Albert Th. Ten Houten, an M.Sc. graduate in Chemical Engineering, is the owner and general manager of ATHMO, a Dutch firm specialising in the management of environmental projects, impact assessments and decision-making processes. Since 1993, he has been Chairman of the Board of de Straat Environmental Consultancy, and Vice Chairman of the Verifying Committee, Dutch Environmental Education. He has also been a partner of CEC-International, Environmental Consultants, Edinburgh, Scotland since 1992. Other activities have included involvement with the PRISMA project in Holland, working for the Indian Ministry of the Environment (GEOPLAN-team) in India, and assistance with information for industrial start-ups in Berenschot, White Plains, New York. His publications include co-authorship of the book *What is Environment* and he is editor-in-chief of the handbook *Recycling of Industrial Wastes* (1991).