Suggestions for EU proposal – Roos Wemmenhove, University of Amsterdam

Section B4 innovation, creating capacity: (additions)

- Addition of creating capacity within local communities concerning water management and building/maintaining dams?
- capacity building within the participating institutions could be emphasised more: why a project with so many participants? What do staff and students learn from each other? (including intercultural exchange etc)
- Focus not only on designers but also on opportunities to build capacity among students of all disciplines concerning: participatory research and participatory approaches. (still a rather new field for students – especially for students in developing countries - untill now students have hardly any chance to learn skills on this matter), integrating local and scientific knowledge, interdisciplinary skills, intercultural cooperation – working in groups with students with other cultural backgrounds ect also see under W4

W4 Education

Objectives:

* Capacity building for Msc students from all participating higher learning institutions from various disciplines on:
    - Ecological, social and economical aspects of sustainable development, specified to design and performance of small groundwater retaining structures under local management
    - Integrating local and scientific knowledge
    - Interdisciplinarity: conceptual
    - Social & organisational skills (interdisciplinarity), creativity & self-employment skills

* Educational development: improvement of the above goals in education

Description of work:

Communication, project educational management, tutoring, evaluative research on educational approach

Background:

Capacity building on sustainable development has been recognised as one of the major instruments in creating a common sustainable future by various international bodies and organisations (UNCED, 1992; ULSF, 1990; CRE, 1993). However especially within higher learning institutions the response to this is slow; sustainable development is not part of most university curricula although almost all disciplines are closely related to sustainable development issues. This accounts for universities worldwide; in Europe as well as in Africa universities have expressed their intention to work on capacity building

for sustainable development but actual results are so far meagre (Docter & Peschier 1995, Wemmenhove 2000).

Sustainable development is complex because it encompasses a variety of aspects, cross-cutting traditional scientific boundaries on various levels:

- disciplinary: covering ecological, social and economical development
- knowledge level: current scientific knowledge is still insufficient and often inapplicable to local situations; local (indigenous) knowledge can add to overall knowledge improvement

The above calls for the development and improvement of new methodologies for knowledge integration. Recent developments on this issue include experiences with interdisciplinary educational models and various participative methodologies.

For a full understanding of the concept of sustainable development students need to combine a general overview with an in-depth experience. Van Woerden (Van Woerden, 2000) argues that actual learning only occurs in case theory is linked to practice and vice versa by the student. It has been recognised that especially in African universities learning is too theoretical (UNESCO…….) A recent study on education on environment and sustainability at the university of Dar es Salaam concludes capacity building on sustainable development in Tanzania should especially include *environment for development* (strongly linking ecological and economic sustainable development), *in interaction with Tanzanian society* (with participation of local communities) and in *a student-activating style* stimulating creativity and self-employment (Wemmenhove & de Groot, 2001).

The design and performance of small groundwater retaining structures under local management at the selected sites in Kenya and Tanzania offer a learning environment well responding to the challenges exposed above.

Educational approach

A general introduction to sustainable development, linking this to site-specific aspects and including a short training on participative research methods will be followed by groupwork in the field. Existing experience with interdisciplinary student groups is used; students from various disciplines define a common research object – being part of or closely related to the ongoing research - and work towards a common product. Not only has this model shown good results with (disciplinary) knowledge integration, it is also a very student-activating model stimulating important social and organisational skills (learning to work together with people from different disciplinary backgrounds, learning to set up a research project together). Tutoring of the group as such is done by one central person; in-depth disciplinary support is given by the various experts connected to the research. Student groups have 6 to 8 members, half of the students from European partners and half from African partners.

On the sites where focus lies on the *design* of the groundwater structures, students from the following disciplines may take part in research:

- technical – technical feasibility and sustainability of various options
- social sciences – demands of drinking water, long-term social implications of various options, gender issues, migration expectancies

- agricultural sciences – demands of water use for sustainable agriculture
- economics – cost-effectiveness of various options, possible long-term ecomic benefits for various parties within the community
- biologists – possible effects various options on the ecological environment
- geographical sciences – long-term hydrologic effecs of various options
- health sciences – expected long-term effects on health

On the sites where focus lies on the *performance* of the groundwater structures, students from the following disciplines may take part in research:

- technical – technical performance of the groundwater structures
- social sciences – long-term social implications of the chosen design, gender issues, migration
- agricultural sciences – effects of the groundwater structure on sustainable agriculture
- economics – cost-effectiveness of the groundwater structure, long-term ecomic benefits for various parties within the community
- biologists – effects of the chosen option on the ecological environment
- geographical sciences – long-term hydrologic effecs of the chosen option
- health sciences – long-term effects on health

All groups make use of participative research methods.

Educational development

Evaluation of the educational research projects systematically takes place through an evaluative method created for this purpose. This leads to development of higher education on sustainability, specifically concerning:

- conceptual aspects of sustainability versus local practice and problem-solving (what did the research sites offer in this respect?)
- knowledge integration (interdisciplinarity, local versus scientific knowledge)
- social and organisational (interdisciplinary) skills

Deliverables:

- academic programme
    - introductory short course (1 week) on (interdisciplinary aspects of) sustainable development, relation to the case: water management issues, participatory research methods for Msc students
    - Msc interdisciplinary research/exchange programme
- improved educational method for Msc students aiming at skills on sustainable development, integrating local and scientific knowledge, interdisciplinarity (conceptual), social & organisational skills (interdisciplinarity), creativity & self-employment skills

Milestones and expected results

Year 1: 2 interdisciplinary groups of Msc students

Development of evaluative method
Year 2: 3 interdisciplinary groups of Msc students
Year 3: evaluation and recommendations for educational method

Person-months UA: 3 ?

W 5 Integration

Deliverables
As part of the manual:

- opportunities for capacity building among Msc students on sustainable development, specified to design and performance of small groundwater retaining structures under local management
- recommendations on the use of educational methods in capacity building for Msc students

Person-months UA: 1 ?

Part C

Section C3 : addition
2) knowledge of the participants concerning the different aspects of water development….+ community participation, education, etc…??

Section C4 Background information on partners

University of Amsterdam – Dutch national network for Sustainable Higher Education

From the University of Amsterdam, Centre of Expertise on Sustainabile Development in Education (ECDO), the Dutch national network for Sustainable Higher Education is coordinated. This is a growing network within which more than 600 members of university boards, teaching staff, and students work actively on integrating sustainable development into curricula of all higher learning institutions in the Netherlands. Delegates from higher learning institutions, the ministries of Education, Environment, Economic Affairs and Agriculture in the Netherlands are represented in the steering committee of the network.

Through this network, expertise from a great number of higher learning institutions in the Netherlands concerning sustainability and higher education is gathered. For over 25 years ECDO (formerly the Department of Environment), has built expertise on interdisciplinary, problem-oriented education.

One of the projects of the Dutch national network for Sustainable Higher Education is 'North-South, projects for students in Africa, Asia and Latin America'. The focus of this project is creating possibilities for students in the Netherlands and students in the South on problem-oriented research on sustainable development. The research predominantly takes place in interdisciplinary groups with students from different cultural backgrounds.

UA personnel

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Sustainability in Higher Education / Project North-South – projects for students in Africa, Asia and Latin America
Social environmental sciences

Professional experience: 2 years
Present position:

- project assistant Project North-South – projects for students in Africa, Asia and Latin America
- education in sustainable development

Relevant publications:
Wemmenhove, R., B.J. van de Laar & P.A. Maarleveld, 1999. Poster Presentation: A method for measuring problem-solving-ability and interdisciplinary skills in environmental sciences modules in the Netherlands. 5th Conference on enviornmental education Zurich, Switzerland, April 15-17, 1999.
Wemmenhove, R., 2000. Field report - principles in environmental education at the University of Dar es Salaam. University of Nijmegen, the Netherlands.
Wemmenhove, R. & W.T. de Groot, 2001. Principles for university curriculum greening: An empirical case study from Tanzania. In: *International Journal of Sustainability in Higher Education; Volume 2 No. 3; 2001.*