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Strengthening the school of environmental studies, MOI-University, Kenya; (final) report of phase I, II,III, 01.01.1991-29.02.2004

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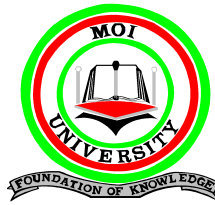
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MOI UNIVERSITY

STRENGTHENING THE SCHOOL OF ENVIRONMENTAL STUDIES

MOI UNIVERSITY, KENYA, MHO/MUSES REPORT

Programme for Institutional Co-operation

Between

School of Environmental Studies

Moi University, Eldoret, Kenya

&

Faculty of Environmental Sciences

University of Amsterdam, the Netherlands

PHASE I, II & III

1.1.1991 – 30.6.2004

KENYA/MHO/MU/UvA/ENVIRONMENTAL STUDIES

JULY 2004

CONTEXT AND GENERAL BACKGROUND (BASIC DATA AND SUMMARY)

A. CONTEXT

1. Project Name

Kenya/Moi/UvA/environmental studies

2. Name And Abbreviation Or Acronym Of The Implementing Institutes

Moi University, Eldoret, School of Environmental Studies

&

University of Amsterdam, Faculty of Environmental Studies

3. Country and Location

Republic of Kenya

Eldoret Town, Rift Valley Province.

4. Starting and Completion Dates of the Project

Plan of operations phase I: January 1991

Phase I*January 1993 – December 1997

Phase II: January 1994 – June 1998

Phase III: July 1998 – June 2004

5. Short Description of the Plan of Operation

Objective:

To support the staff development and the field-work-oriented Ph.D. and Master's research training programmes of the School of Environmental Studies at Moi University, Eldoret, Kenya.

Main activities:

- a) Staff development at Ph.D. level, especially in the fields of human ecology/population and the environment and environmental planning and preparation of staff development in the fields of soil & water conservation, environmental/natural resources economics, environmental monitoring;
- b) Assistance to courses in the Master's programme and to the development and implementation of a Ph.D. programme;
- c) Assistance to fieldwork components of the Master's programme and to sponsorship of female Master's students and of Master's students from ASAL districts;
- d) Establishment of a Documentation Centre,
- e) Development of central and field laboratories;

- f) Planning of research capacity;
- g) Planning of phase II and Phase III.

Main inputs:

- a) Supervision of Ph.D. training of 5 prospective lecturers, both in Kenya and in the Netherlands (using the 'sandwich formula'), in the Netherlands to be coordinated by the Graduate School in the Faculty of Environmental Studies, University of Amsterdam,
- b) At least one visiting (associate) professor for two to three years, during Phase I and II.
- c) A fieldwork and field trip fund for the Master's programme and 12 sponsorships;
- d) Books, journals and Documentation Centre equipment; besides a reconnaissance visit of librarian to the Netherlands;
- e) Laboratory training and preparation of equipment and working materials for laboratories.

Main results of activities

- a) At least 7 Ph.D. graduates, who returned as Lecturers to the School and 4 Ph.D. local graduates who can join as lecturers in MUSES.
- b) Improved Master's curriculum and preliminary Ph.D. curriculum at the School. Experience with consultancies and extension activities and established research/research training programmes.
- c) All Master's graduates to have had sound fieldwork training including female and ASAL sponsored students.
- d) Documentation Centre with at least 1,500 books, 48 journals and equipment.
- e) Developed central and field laboratories through procurement of equipment. Trained GIS laboratory and technical staff.
- f) A detailed plan for activities during phase II and phase III.

6. Contribution of the Netherlands Government

From: Programme for Interinstitutional Co-operation (Programmer Samenwerking sverbanden) funded by DGIS.

- ♦ Phase 1 (1991-95) DFI 3, 145,284
- ♦ Phase II (1994-1998) DFI 4,390,000.
- ♦ Phase III (1998-2004) DFI 1, 694, 374 BY MHO through Nuffic.

7. Contribution by Implementing Institutions

University of Amsterdam: Preparation costs, research participation in joint projects, supervision of Dutch Master's and Ph.D. participants, further assistance to Documentation Centre.

Moi University: Preparations, buildings; pre-project year(s) of Ph.D. candidates in staff development programme; guaranteed staff position upon return supervision of Master's and Ph.D. students.

8 Contribution by Others

None: Other sponsors for related activities: UNDP/UNEP, UNESCO CIDA. EU, IDRC, NOW, NIRP and LVEMP.

Apart from the project the Netherlands government was asked to supply funds from the 'suppletiedeskundigen' programme and later MHO through NUFFIC.

B. BACKGROUND

1. General Background: The Need For Environmental Studies

Environmental problems have become key issues within the development debate and policy statements in Africa in General and in Kenya in particular:

- ♦ High population growth and meager high-potential agricultural land resources result in overexploitation of soil nutrients, in deforestation because of the expansion of cultivation and firewood needs, in ecological marginalisation (especially the immigration towards semi-arid lands and mountain/escarpment slopes), in erosion and desertification and in over-fishing of marine and lake resources
- ♦ Rapid urbanization and settlement in unplanned shanty-towns result in deteriorating urban and peri-urban living environments with poor water; unhygienic and inadequate refuse services which threatens human health; rising demand for energy because of population growth and industrialization results in environmental destruction (e.g. the charcoal business) and changes of which the impact is not well assessed (e.g. hydro-power), while long-term planning, based on sound knowledge of the options, is badly needed, especially after the possibility of oil exploitation in Kenya has become more realistic;
- ♦ The rich wildlife becomes threatened by increasing expansion of human land use and killings partly for criminal economic gain;
- ♦ Water and air pollution is on the increase in industrial estates and mining centers, with their consequent impact on human health.

In Kenya, most of these problems were taboo-issues during the 1960s and 1970s, because they were very much related to the authoritarian and harsh environmental approaches of the Colonial government during the 1930s. A drastic change in attitude, both of the general public and of government officials can be noticed, with lead taken by former President Daniel arap Moi himself. One can even say that Kenya's political leadership is at the forefront of environmental awareness on a world scale. In Kenya, soil and water conservation – e.g. by many women groups – afforestation projects, agro-forestry, water harvesting techniques, grazing management, are parts of a massive approach to counter environmental degradation. Earlier on, a high-ranking function of District Officer (Environment) was created in each district. The Ministries (with the regional development authorities like the Kerio Valley Development Authority, the Lake Basin Development Authority) and the Ministry of Environment and Natural Resources have become key ministries to fight environmental problems, beside specific sections in the Ministries of Agriculture and of Livestock Development, especially Soil Conservation and Range Management. The interest development is the act of parliament that establishes the National

Environmental Management Authority (NEMA) that is charged with laws on environment.

In Kenya, and in surrounding countries, there was and still is a large and rapidly increasing need for highly-trained environmental specialists in research environmental management and training environmental and education officers at various levels. On the other hand there were hardly any specialists available at the time. This lack of manpower was a major bottleneck to management and protection of the natural resources. In the field of energy the possibility of Kenya becoming an oil-producing country enhances the necessity for high-level management capabilities, avoiding the chance that Kenya becomes completely dependent on foreign expertise in this field and avoiding the destructive 'bonanza' as evident in e.g. Nigeria during and after the oil boom. As a result of this project alleviation of most of these problems has been seen

2 Training Opportunities

In the whole of East and Central Africa there was only one specialized university institute for high-level training in environmental matter: the School of Environmental Studies of Moi University at Eldoret, Kenya. Its graduates are on high demand, not only in Kenya, but almost certainly in the eastern and central African region as a while not withstanding National and the international institutions. The School and the School's graduates will, inter alia, play a major role in training high-level environmental workers. The training would inculcate high level discipline in both the new generation and the existing environmental workers, whose number rapidly increased recently, but who often lack a sound training.

The prospects for the deployment of M.Phil. and D.Phil. graduates

The identification of the possible employment positions for the graduates can be based on the nature of their training. The most important feature of the training in the School is that the programme offers interdisciplinary preparation with field specialization. Graduates are broadly educated while at the same time they are specialists in given fields. A number of employees are ready to engage them.

The salient possibilities are:

1. Teaching: the graduates are suitable for recruitment as tutorial fellows and lecturers in Universities in Kenya and surrounding countries;
2. Environmental officers: the Kenya Government has instituted the positions of Environmental Officer through NEMA.
3. Municipal authorities and the private sector have shown a growing need for environmental specialists;
4. Non-Governmental Organizations: a number of NGOs in Kenya have already acquired the graduates of the School for possible deployment in environmental matters;

5. SES Staff Development: the highest priority was for the School of Environmental Studies to keep the best of its graduates for Ph.D. in staff development.
6. Industries: a number of industries have already established and acquired the graduates as environmental managers.

Although a quantitative assessment is not available (e.g. not available in the recent 'Human Resources' report of the World Bank), it can safely be estimated that the employment opportunities for graduates from the School was beyond the graduates of the planned intake each year probably even more than double.

3. **Ground for the Project**

Moi University was established as Kenya's second University by an Act of Parliament whose Date of Commencement was June 8th 1984. The establishment of School of Environmental Studies at Moi University was a part of the declared national policy towards rational management of natural resources and the environment for sustainable development. To that effect the concept of the School was built into the Report of the Presidential Working Party on the Second University in Kenya, issued in September 1981. The Working Party took note of the "increasing emphasis being laid on environmental management in the country..." which unfortunately had "... not received sufficient intellectual and scholarly backing: After observing that Kenya's own limited resources required management in such a matter that they can be made to last, the Working Party concluded: *"It is fitting that the country should strive to be in the forefront in the advancement of environmental knowledge and practice. The proposed university therefore provided Kenya with an opportunity to give environmental studies a planned home"*

These then are principles on which the establishment of the School was to be built. In making the suggestion the prestigious Working Party was mindful of the problem of resources for the School. To this effect the Report suggested that the "University should be prepared to tap international expertise on environmental issues right from its inception".

The concept of the School found strong support in December 1985 at the First International University Seminar. The ideas were elaborated the following year by the Senate of the new University which sanctioned the establishment of the School as a centre for research, postgraduate (Master's and Ph.D.) education, extension and consultancy in the broad field of environmental studies, in which a fieldwork-oriented and multi-disciplinary integrated approach would be followed.

The shortage of staff nationally delayed the development of the postgraduate degree programmes. By late 1988 basic staff came on board to start preparatory works on the curriculum and later it was resolved that classes should begin during the 1989-90 academic year. UNDP, with the cooperation of UNEP, allocated funds to assist the School in the preparatory phase.

As the School developed its curriculum and programmes in teaching and research, there was a strong preoccupation with a fundamental principle in the origins of Moi University. The University was required to engage in action-oriented programmes, steeped in the needs and interests in the rural settings where the country's natural resources exist. Among other things, the programmes of teaching and research must seek to address national energy problems, environmental management, and the use of science and technology in the solving of national development problems under limited natural resources. These then are the reasons why the School sought to mount programmes emphasizing fieldwork, including the establishment of field research stations. These are also the reasons why, apart from the field-oriented teaching and research, the School must build up a strong extension programme ensuring that findings in the foregoing activities reach the policy makers, industries, government operatives and the farmers directly. These are to be the ethos guiding the teachers and resource at the School and to be matrix of the acculturation for its students. It is a spirit and practice, which the School must build up, as is expected of the whole University.

The situation at the School of Environmental Studies was particularly difficult because the concept of environmental studies as an integrated interdisciplinary field was new, generally. It was exacerbated in Kenya by the shortage of university teaching staff. This required that the School develops its own staff imbued with the culture of depth, rigour and field operation as well as the comprehensive concept of integrated interdisciplinary environmental studies, irrespective of an individual's field of specialization.

To support these developments the School was also to establish its own Documentation Centre with high quality literature to support advanced level of competitive and universal learning standards and as a top-level study Centre catering for the eastern and central African region. Besides, the teaching must be backed by laboratories sophisticated enough to support postgraduate studies, staff research, consultancy and extension. All of these facilities were in woefully short supply at Moi University, which was barely starting and with faculty work largely at the undergraduate (Bachelor's) level. It was for these reasons that the School must, from the start, look for international resources and expertise to launch its programmes.

Postgraduate students were to have a variety of backgrounds, both in terms of former specialization and in terms of prior job experience. Not only Kenyan students were expected, but students from nearby countries as well.

Few would have a prior academic specialization in environmental studies as such. Only from Uganda one would expect students with a Bachelor's degree in environmental studies, to be started at Makerere University. Most other students have a Bachelor's (or in case of Ph.D. candidates a Master's) level in physical sciences, biological sciences, health sciences, geography, law or economics.

In the broad field of environmental studies within the School, eight sub-fields were differentiated, each with its own (and high) demand for highly-trained professionals by public and private sectors in Kenya and nearby English-speaking countries (especially

Uganda, Sudan, Tanzania, Zambia, Zimbabwe and Malawi, but probably also Ethiopia and Somalia). These eight sub-fields, (known as subject Divisions) are as follows:

- ♦ Physical Sciences, with special attention for soil and water conservation oceanography and for environmental climatology;
- ♦ Biological Sciences (e.g. tropical ecology, both terrestrial and aquatic) and chemistry.
- ♦ Environmental Information Systems (including remote sensing and cartography),
- ♦ Environmental Economics, including energy and resource economics;
- ♦ Environmental Health, both public health and health aspects of the working environment; (e.g. pollution studies) and chemistry.
- ♦ Human Ecology, with special attention for population and the environment and for environmental education/extension.
- ♦ Environmental Law;
- ♦ Environmental Planning and Management including energy policy, human settlement and urban ecology planning

4. Relevance of the Project

In Kenya, and elsewhere in Africa, the environmental problems needed long-term commitment, backed by professional expertise, rooted in public and private institutions. For decades to come a top-level training and research institution is badly needed and its graduates will be in high demand. Currently, there is considerably political and social support for sound environmental management and planning. On all levels and in all sub fields, however, expertise was lacking badly. A concentrated effort was needed to supply the School of Environmental Studies with academic professionals with the highest qualifications in their specialization, who are also equipped with an integrated, field-oriented and extension/policy-oriented approach to environmental problems.

Women and ethnic marginal and marginalised groups feel the most severe consequences of environmental mismanagement in densely populated pockets of rural poverty, in semi-arid and arid lands, in urban slums and everywhere.

Therefore the approach followed by the School of Environmental Studies at Moi University will have far-reaching consequences for sustainable development in these situations, and for these groups, in particular.

In the management of natural resources new employment opportunities will likely be created, leading to new income-generating activities, especially for the poor, with the probability of more equitable distribution of income and resources.

THE LONG-TERM PROJECT

1. Developmental Objective

The major developmental objective is the national integrated management of the environment in Eastern and Central Africa, and in Kenya in particular, to enable sustainable development despite further dramatic increase in human population, (Kenya was then the country with the highest natural population increase in the world, with an expected population growth from approx. 22 million in 1987 to approx. 83 million in 2025; only 12% of its 583,000 sq. kms. can be regarded as high or medium potential land. In managing the environment local expertise is needed from highly trained research experts to environmental extension workers. With the project a sound basis would be established for top-level training and research for an adequate supply of environmental experts to Kenya, with a demonstration and supply effect to other parts of Africa. These experts would, inter alia, have a major influence on the upgrading and establishment of training activities for middle and lower environmental cadres.

A strong fieldwork and policy orientation of the research training and other activities of the School mean that contacts would be established with development institutions in the region and in Kenya in particular, especially with Regional Development Authorities and District Development Committees. Requests for research assistance from these institutions would be honoured as far as possible. Although in principle research training would cover the whole eastern and central African Region, in practice most projects would be located in Western Kenya; the Rift Valley, Western and Nyanza Provinces. Special contacts were established with the Lake Basin Development Authority, with the Kerio Valley Development Authority, with District Development Committees in e.g. Turkana, West Pokot, Baringo, Kakamega Narok, South Nyanza and Kajiado as well as with Eldoret and Kisumu Urban Councils.

2 Long-Term Project Objectives

The major long-term objective was to fully establish School of Environmental Studies at Moi University, Eldoret, Kenya.

It was the intention of Moi University to achieve the following objectives in about fifteen years, partly assisted with this project in its various phases.

- ♦ A complete staff of one dean, nine full professors, 16 associate professors, 20 senior lecturers and 32 lecturers, all of Ph.D. level, in all eight sub fields (or Divisions). It was the intention that in total at least 20 of the total of 78 will have been directly trained under the project; for the others training places would have been found elsewhere (it was the deliberate policy of the School to avoid a dependency on one donor and to have a staff with a wide array of backgrounds);
- ♦ An established fieldwork-oriented Master's and Ph.D. programme at the School itself, with an annual intake of 20 Master's and 10 Ph.D. students and until 2007 a

number of approx. 220 graduates of the Master'' Programme and at least 50 own graduates of the Ph.D. programme (assuming a 75% success rate).

- ♦ A sound environmental research programme, organized around problem-oriented research centers and making use of various field research training stations, spread over Kenya, with additional extension and consultancy services; it was the intention of the University of Amsterdam to support this objective outside the project as well;
- ♦ A well-established Documentation Centre; also here the University of Amsterdam would provide its assistance beyond the project as well.
- ♦ Central and Field laboratories;

The co-operation between Moi University and the University of Amsterdam was a long-term arrangement, at least covering a period of fifteen years. It was intended to use the first two years of phase I (1991-1992) for the formulation of a thorough long-term planning of Dutch project support within a wider framework of University of Amsterdam – Moi University co-operation. A proposal for phase II would be submitted in January 1993 and start phase II in January 1994 for another period of five years. A third phase followed. Monitoring and evaluations of past performance were to be used to formulate project documents for these additional phases and proposals were submitted to DGIS & Nuffic for consideration. This was done successfully.

3. Assumptions for Achieving Long-Term Objectives

Kenyan government funds were available for all buildings, which were needed for the School of Environmental Studies.

Besides the Dutch-sponsored project, other donors were found to sponsor other parts for the staff development programme.

For the Dutch-sponsored students in the staff development programme, the rate of success was high. A high rate of success and retention of graduates were (partly) ensured by guaranteed "soft landing" and a lecturer's position at the School upon return. The rate of success of the postgraduate programmes of Moi University itself is over 80%.

An important prerequisite for the success rate was the availability and quality of staff teaching at Moi University, laboratory and library/Documentation Centers and of field work successes, as well as the quality of Ph.D. supervision and research training assistance from the Netherlands.

Part of the success was to depend on the speed with which student and staff accommodation could become available at the main University Campus and in Eldoret town.

Of course, the achievement of the objectives also depended on the general stability of Kenya and on the 'resilience' of the environmental issue in policy circles and among the general public, which has led to a continuously high demand of environmental workers of various levels. It is important that all training sought to be problem and resource-sector-oriented, which attribute makes the graduates attractive to the public as well as private-commercial establishment.

The core of the long-term project was to assist in building up a strong Master's and Ph.D. programme at the School as well as a good research programme. An important element was staff development, the training of junior research fellows of the School of Environmental Studies of Moi University up to Ph.D. level. It was the intention that the Dutch-funded project would assist in training at least twenty of them. The first group of five started during the first project period (1991-1995). Depending on the formulation of the following phases, a second group started during the second period (1994-1998); a third group during the third period (1998-2002) graduating during a final period (2003-2006).

It was assumed that the graduates would join the staff of Moi University as lecturers. Some of them would later become part of the senior staff of the various Divisions within the School. Accepting inclusion in the Netherlands sponsored programme means accepting a three-year obligatory staff position at Moi University, after four years of Ph.D./staff development training: a bond for seven years. The Chief Academic Officer administered the bond on oath.

During the first phase a particular type of 'sandwich formula' Ph.D. training was tested. During a first, exploratory period within phase I (1991-92) an important output was a detailed five-year plan (1994-98) for Dutch support in phase 2 and plans for phases 3. In the plan the experiences with the first part of staff development training (1991-92) would determine the type of training during phases 2 and 3. However staff development for the phase 3 was not carried out.

One visiting (associate) professor who was part of the project, had a function as 'liaison officer', being the counterpart at field level for the Dean of the School as far as planning of Dutch support was concerned. He was also responsible for some courses in the Master's Programme, for fieldwork support to the Master's and Ph.D. Programmes at the School and other duties.

Apart from the visiting (associate) professor in the project, specific additional long-mission expertise was needed during the project period to fill vacancies for senior staff. Whenever advertisements could not be filled with Kenyans/Africans, requests would be made abroad, e.g. the Netherlands supplementation ('suppletie')

programme. For two specific vacancies this had been done. *This though was not part of the project.*

A workshop in 1991 about research planning (with participation from Kenya, Canada and the Netherlands) resulted in inputs for the five-year plan submitted for phase 2. The writing of the plan for phase 2 was a specific responsibility for a project visiting (associate) professor, in collaboration with the Kenyan and Dutch Project Coordinators.

In addition a Documentation Centre, Central laboratories and Field laboratories as well as field research training stations were established.

Field research stations for the SES were both for facilitating field research as well as outreach/demonstration centres. It was intended that they help the SES cover the whole country in research and influence to policy. It was already clear that one such station would be in Kilifi near the mouth of Sabaki River at the Kenya coast. The GoK allocated 50 acres for that purpose and these is where the Cost Environmental Research station (CERS) was build.

Secondly the Kerio Valley Development Authority had agreed to allocate land and facilities at Turkwell Gorge (West Pokot/Turkana boundary). This was not done.

This would assist concentration on the unique situation brought about by the new hydropower dam. Thirdly the GoK allocated 100 metres of land for work on soil/water conservation, geothermal energy and Lake Victoria Fisheries at Homa Hills. This is where the Homa Hills research station was build. Requests for land at Isiolo for a station to cover Ewaso Nyiro as well as the Eastern and Northeastern Arid and Semi-arid Lands. Was not done.

The School would utilize the facilities of the University's Dept. of Forestry in Baringo to cover Baringo and adjoining Arid and Semi-arid lands. From campus the problems of highland resources in Uasin Gishu and Nandi Districts and of the extremely rapidly expanding Eldoret Town could be studied. Finally a location was to be sought near Mount Kenya to study Kenya's mountain ecology.

IMPLEMENTATION OF THE PROJECT ACTIVITIES

PHASE I OF THE PROJECT: FUNDS DFL 3,145,284

1. Staff Development

The School's focus is on postgraduate education leading to Master's and Doctoral degrees; the staff development programme was aimed at doctoral (Ph.D.) degrees.

Five candidates were recruited with specialization in the following fields of study.

- ♦ Human ecology/population and the environment and environmental extension.
- ♦ Environmental planning/urban ecology
- ♦ Land degradation/erosion/soil and water conservation,
- ♦ Environmental information systems
- ♦ Environmental economics
- ♦ Tropical ecology
- ♦ Organic environmental chemistry
- ♦ Environmental law
- ♦ Environmental Health

For each individual Kenyan Ph.D. student while in the Netherlands would be

- ♦ A Dutch supervisor, (promoter)
- ♦ A research programme
- ♦ Adequate courses including study tours of major environmental
- ♦ A studies centres in Europe and
- ♦ A social home while in the Netherlands.

Staff Ph.D. training was to use the sandwich formula in which most of the four years were spent in Kenya, 10 months in Netherlands for preparation and finalize research proposal, 28 months in Kenya for field work and preliminary analysis, 4 months advanced analysis in the Netherlands 4 - 6 months in which the manuscript was to be accepted by a manuscript commission, eventually producing a book. Upon return the graduate were to be paid for one year "soft lending" to enable the graduate write one or more research articles or start new research/research training activities. Provision for Dutch supervisor to pay a visit during the fieldwork period and the Kenyan co-supervisor goes to the Netherlands at the beginning and again during graduation ceremony.

Provision of separate category for financing the fieldwork of each Ph.D. student as well as acquisition and maintenance by the School of two four-wheel drive vehicles for fieldwork use. Two candidates were also recruited in the Phase I*(extension)

2. Assistance by a Visiting (Associate) Professor

Because of shortage of staff an arrangement was made for visiting senior academic staff from the Netherlands and preferably in the field of human ecology or environmental planning. Duties for the visiting professor included;

- ♦ Participation of research planning workshop and preparation of the project documents for Phase II and Phase III.
- ♦ Organizational support to fieldwork activities of the staff development candidates.
- ♦ In his or her own field the visiting member of staff was to be an active researcher, responsible for a number of M.PHIL. And D.Phil. courses.
- ♦ Assist in the selection of books and journals for the Documentation Centre.

**(To enable the professor to do research, the budget included a project car at his disposal during the local tenure.)*

3. Support for Masters Programme Fellowships

- ♦ Two, two year sponsorship per year for candidates from Arid and Semi-arid Lands (ASAL) districts were available. Preferable one sponsorship should be for a female student.
- ♦ To counteract the male dominance of university education also in environmental studies, two two-year sponsorships per year were available to female students.
- ♦ The sponsorship per annum would consist of tuition fees supervision fee, registration, examination and thesis fee use of Moi University facilities, book allowance and stipend for accommodation, food and transport.

4. Support for fieldwork based M.PHIL

- ♦ 5-10 field trips, mostly long weekends, one weeklong excursion were planned though the project would sponsored five field trips in the initial year 1991-1993 and trim them as the year's progress.
- ♦ The project was to support fieldwork for M.PHIL. Students during there research period.
- ♦ The support to include traveling allowances for all M.PHIL. Students, supervisors and the project visiting (associate) professor. Each supervisor would visit his/her student's fieldwork (at least) twice three days from project funds.

5. Documentation Centre

As the only academic centre in the field of environmental studies and with postgraduate training programme and research, the School needed a rich Documentation Centre. The School was to begin ambitiously and in a hurry to establish one, subscribe to scientific journals, acquisition of book titles and some hardware video player, TV set and slide projectors scanner and personal computers with network possibilities. There would be need for desktop publishing facilities and a copier.

To assist in the planning of priority areas for acquisition, the librarian would visit Dutch libraries in the field of environmental studies.

6. Equipment

The school was to acquire office equipment including computers, vehicles and research equipment required by staff development candidates.

7. Short Mission

- ♦ Organize a research workshop to discuss the research priorities of the School.
- ♦ A Dutch Geographical Information Systems (GIS) Laboratory expert to visit the school and offer advice on the establishment of a GIS facility.
- ♦ Two GIS laboratory assistants to participate in a ten months GIS course in 1992 and 1993 respectively in the Netherlands.
- ♦ Once a year Dutch project coordinator and Kenya Coordinator to visit Kenya and Netherlands respectively.

6. Scientific and Project Management

- ♦ 24 days per annum available for scientific and project management in the Netherlands, plus one additional day for each Dfl 100,000.

PHASE II FUNDS DFI 4,390,000

Under Phase II, the following activities were undertaken, some of which were a continuation of some of Phase I activities.

1. Staff Development

- ♦ Finalization of Ph.D. research by the Ph.D. 5 candidates under phases I in the Netherlands.
- ♦ Course work in the Netherlands and fieldwork in Kenya for 2 junior research fellows in resource economics under phase I*
- ♦ Preparation and eventually engaging 5 new junior research fellows.

2. Local D.Phil. Programme

- ♦ Preparations and mounting of local MUSES D.Phil programmes.

3. Visiting Professor

- ♦ Finalization of visiting Prof. G. Linden's stay under Phase I.
- ♦ Start of Prof. P. Jungerius stay as new visiting professor under Phase II.

4. Support Fieldwork Based M.PHIL. & D.Phil. Programmes

- ♦ Support for field trips of all M.PHIL. students
- ♦ Support for field work and field supervision of M.PHIL. students
- ♦ Support for Environmental Information Systems (EIS) training.
- ♦ Support for further curriculum development

5. Support to Master's Programme Fellowships

- ♦ Continuation of M.PHIL. Fellowships for female students and for students from ASAL areas recruited in 1992 & 1993 under phase I.
- ♦ Fellowships for 2 new students from ASAL areas and 2 new female students recruited for the 1994 - cohort.

6. Equipment

- ♦ Maintenance of 4 project vehicles procured in phase I including the one used at the Coastal Environmental Research Station (CERS)
- ♦ Acquisition of further items for coastal Environmental Research Station (CERS) under phase I*
- ♦ Maintenance of other equipment especially the computers and a copying machine acquired with project funds.

- ♦ Procurement of additional project vehicle to be used by the new visiting professor.

7. Development of Laboratories

- ♦ Procurement of planned equipment for Bio-chemical Lab, Biological Lab, Physical lab and Planning Studio.
- ♦ Maintenance of EIS Laboratory
- ♦ Training of laboratory staff

8. Documentation Centre

- ♦ Further acquisition of books and continue additional journal titles.

9. Outreach Activities

- ♦ Preparation of contract research assisted by a Dutch scientist.
- ♦ Building and equipment for planned Homa Hills Research Station.
- ♦ One planned visit to the Netherlands by Kenyan scientist.
- ♦ Support for MUSES staff for fieldwork in the preparation of contract research

10. Coordinators Visits

- ♦ Planned visit to Kenya by Dutch Project Manager
- ♦ Planned visit to Kenya by Dutch Coordinator
- ♦ Planned visit to Netherlands by Kenyan coordinator

Phase III 1998-2003 Dfl 1,684,374

1. Staff Development

In order to have enough and capable staffs, the following activities were planned: -

- ♦ Field work, supervision and time in the Netherlands
- ♦ Visit to the Netherlands by Kenyan co-promoters
- ♦ Visit to Kenya by Dutch co-promoters

2. Local D.Phil. Fellows

- ♦ Fieldwork and supervision
- ♦ Visit to Kenya by Dutch co-promoters

3. Support field based D.Phil. & M.PHIL. Programme

- ♦ Fieldwork support
- ♦ Maintenance of automotive equipment
- ♦ Procurement of vehicle
- ♦ Fieldtrips
- ♦ Fieldwork supervision
- ♦ Course monographs
- ♦ EIS/GIS support
- ♦ Environmental Impact Assessment (EIA) course

4. Development Laboratories & Laboratory staff

- ♦ Procurement and installation of equipment.
- ♦ Training laboratory staff by Dutch scientist
- ♦ Support for short courses laboratory staff

Field Stations

To have a well coordinated and fully operational research field stations at Malindi and Homa Hills planned activities were as follows:

(a) Visiting Professor

- ♦ Equipment for visiting professor
- ♦ Supervision of staff development fieldwork
- ♦ Training and Lectures
- ♦ Research at Coast Environmental Research Station in Malindi.
- ♦ Extension and consultancy activities

(b) Support MUSES Field Stations

- ♦ Finalise building the research stations
- ♦ Equipment for research stations acquisition.

To have a high calibre research team the following activities were planned.

5. Support Research Activities of MUSES Staff

- ♦ Conference, seminar and papers
- ♦ Research, Conference and conference books

To develop MUSES information and documentation centre into a regional clearinghouse, the activities below were planned.

6. Support MUSES Information and Documentation Centre

- ♦ Procurement and installation of software
- ♦ Procurement of journals
- ♦ Recording number of use support for short courses for staff in documentation center
- ♦ Masters courses for staff member Documentation Centre.

7. Coordination Visits

- ♦ Visits to Kenya and Netherlands by Dutch coordinator and Kenya coordinator respectively.

8. Scientific Management

- ♦ Time spend on project work in the Netherlands by Dutch Scientific Coordinator.

9. Project Management

- ♦ Time spend on project work in the Netherlands by Dutch project Manager.

RESULTS

PHASE I

1. Staff Development

In the period under review, the 5 candidates recruited for Ph.D., undertook their D.Phil. in the Netherlands included:

- | | |
|--------------------|---------------------|
| 1. Godfrey Anyumba | 4. Edward D'jivetti |
| 2. Carey Ombura | 5. Joseph Abuodha |
| 3. Basilida Mutoro | |

Out of the 5 Joseph Abuodha and Edward D'jivetti (later discontinued) did not complete their studies in Phase I, while the remaining 3 completed their Ph.D. in this phase .

In phase I* two new Junior Research Fellows in resource economics were recruited and sent to the Netherlands. These were Ikiara Moses and Frederick Nyang. Who completed their course work and started research.

Both candidates joined MUSES staff list teaching, supervising and carrying out research.

2. Assistance by a Visiting Associate Professor

Prof. Gerald Linden was appointed a visiting professor. While in MUSES, he participated in teaching, supervision completion of Phase II project Documents, assisted in the selection of books and journals for the Documentation Centre, Planning and organizing training seminars and workshops.

3. Support for Master Programme Fellowships

In the period under review, a total of ten (10) female fellows were awarded full scholarships. They included: -

- | | |
|-----------------------|----------------------|
| 1. Kitui Gladys | 6. Grace Kiplagat |
| 2. Achieng Auko | 7. Emma Akkello |
| 3. Reginalda Wanyonyi | 8. Nyaora Wilkister |
| 4. Judith Wandere | 9. Rachael Kolomiy |
| 5. Grace Kiplagat | 10. Roselyne Lwenya. |

And additional nine (9) fellows from ASAL areas who were awarded full scholarships. These were: -

- | | |
|----------------------|-------------------|
| 1. Shem Mwasi | 6. Matiku Paul |
| 2. Addirizak Nunow | 7. Musila Winfred |
| 3. Saina Christopher | 8. Muthini Mwendo |
| 4. Ahmed Maalim | 9. Samwel Katana |
| 5. Adano Wario | |

Two of the female fellows however, completed their course work but did not complete their research. Work. These were Rael Kolomiy and Achieng Ouko.

4. Support for Field Work Base M.PHIL.

During Phase I, the project sponsored five (5) field trips per academic year to several environmental regions i.e ASAL, Lake Basin, Mountain regions and highlands regions besides the coastal Environments.

In addition M.Phil Students supervision was sponsored by the project besides students not sponsored by the Government of Kenya being given some stipends while in the field.

5. Documentation Centre

A Documentation centre was established in 1991. During Phase I the Documentation Centre acquired Computer equipment and Peripheral Scanner, CD-ROM player, photocopier, overhead projector and slide projector through the project besides over 3,000 books and several journals subscribed to.

6. Equipment

MUSES in the period under review managed to acquire a number of vehicles. These included.

Vehicle Reg. No.	Make
1. KAC 283W -	Suzuki Samurai
2. KAC 502G -	Mitsubishi Combi
3. KAC 503G -	Mitsubishi Combi
4. KAC 504g -	Mitsubishi Pajero

A Ph.D. student at the Coastal Environmental Research Station also acquired some research equipment for his use.(See annex 1)

7. Short Missions

- ♦ A research workshop to discuss the research priorities was conducted in 1992 at Malindi where the Schools' research priorities were established.
- ♦ The Geographical Information Systems (GIS) Laboratory expert who was scheduled to visit the school to offer advice on the establishment of a GIS Facility didn't come. Further the two GIS laboratory Assistant who were to be trained in a ten months in 1992 and 1993 in the Netherlands didn't go for training. However, a team of three GIS experts from Clarke University of the USA mounted GIS training in the School with Permission from NUFFIC using the funds that were meant for the two GIS Laboratory assistants.
- ♦ Each year in the Phase under review, a Dutch Project coordinator and a Kenyan Project coordinator visited Kenya and the Netherlands respectively.

8. Scientific and Project Management

The 24 days per annum dedicated for scientific and project management in the Netherlands was utilized and works done in the Netherlands.

PHASE II

It is important to note that, some phase I activities spilled over to Phase II.

1. Staff Development

- ♦ In this phase out of the 5 Ph.D. candidates, 3 finalized their research and graduated i.e. Godfrey Anyumba, (1995), Carey Ombura (1996) and Basilida Mutoro (1995).
- ♦ Mr. D'jivetti was discontinued in 1994 and Mr. Abuodha to continued, as he still needed more time to complete his thesis beyond this phase.
- ♦ Two JRFs in resource economics Phase I, Mr. Nyang and Mr. Ikiara finalized their thesis during this phase and graduated.
- ♦ Preparation for appointing 5 new Junior Research Fellows went on well, the Ph.D. fellowships took up the offer except one

2. Local D.Phil. Fellows

- ♦ Five (5) new Junior Research Fellows were appointed during this phase. These were Ruth Kinagwi (Environmental Law), Francis Odipo Osano (Ecotoxicology, Environmental Health), Shem Mwasi (terrestrial ecology, Biological Sciences), Benjamin Mwasi (Environmental Monitoring & Cartography now Environmental Information Systems), Jembe declined the offer and did not start the Ph.D programme. Due to time no replacement could be made.
- ♦ Course work and fieldwork went on well with the assistance of the financial management by the visiting Professor Jungerius.

3. Visiting Professor

- ♦ Four (4) Local D.Phil fellows were appointed during these phase. These were Samuel Marigi, Thomas Munyao, Joel Kobiy (Physical sciences) and Genevieve Atamba (Biological Sciences).
- ♦ Prof. G. Linden completed his term and left and was replaced by Professor Jungerious.
- ♦ Dr. T. Stol replaced Prof. Jungerius and his major task was teaching and supervision of both M.Phil and D.Phil candidates in addition to helping JRF. They both left during these phase.

- ♦ Prof. Sharma continued his most appreciated work as supplication expert (funded by DGIS)

4. Support fieldwork Based M.Phil and D.Phil Programme

- ♦ 4 fieldtrips were conducted in each academic year in phase II. The fifth fieldtrip was carried out during EIA Seminar excursions.
- ♦ 64 M.Phil students were supported during fieldwork and field supervision. In addition 17 D.Phil candidates were supported during their fieldwork and supervision in the period under review.

5. Support for Environmental Information Systems Training (EIS)

EIS training could not take place as planned due to insufficient funds but the little amount was used to supplement EIA training.

6. Support further Curriculum Development

- ♦ A M.PHIL., D.Phil. Curriculum review workshop, was organized between 3rd - 7th March 1996 at Midwest, Hotel Kericho and the reviewed curriculum is currently in use.
- ♦ Further Diploma and Certificate courses curriculum was developed at a workshop held in Bogoria Hotel between 28th -31st August 1996, the curriculum however did not go through the process of approval in the university for it required additional inputs that required extra funding.

7. Support for M.PHIL. programmes Fellows

- ♦ The 8 female students and 7 students from ASAL areas who were recruited in phase I completed their studies except 2 female students Ms Achieng Auko who left for fieldwork and never returned and Mrs. Racheal Kolomiy who could not complete her data analysis.
- ♦ The 2 female students and 2 students from ASAL areas who were recruited in 1994 continued and completed their M.Phil courses.

8. Equipment

- ♦ Vehicles acquired in Phase I and Phase II were maintained and remained in good working condition during Phase II except one minibus that had an accident.
- ♦ Maintenance of photocopiers and computers was done as per schedule. Unfortunately six computers in the students computer rooms were stolen in 1996. The University took up the matter with the insurance, which paid up, and the funds used to replace the computers.
- ♦ Acquisition for CERS items under Phase I was done.
- ♦ A new vehicle Suzuki Vitara was acquired for use by the new visiting professor.

9. Development of Laboratories

- ♦ Equipment for Bio-chemical Lab, Biological Lab Physical Lab and Planning Studio were acquired though delivery used to delay at the Airport due to clearing processes.
- ♦ Equipment in the EIS Lab continued to function except two digitizers that remained obsolete for they could never be connected to the computer with EIS software. However a new digitizer was acquired.
- ♦ Training of Laboratory staff was done for two technicians Mr. Olala on computer packages in Nairobi and Mr. Lubira on the new technology of Desktop cartography at ITC Enschede in the Netherlands.
- ♦ The other technicians Mr. Ndwiga and Mr. Lewela trained in Britain but funded by the World Bank Project.

10. Documentation

- ♦ Acquisition of books and journals were completed as planned. A staff development candidate Dr. Mutoro won a book donation for MUSES Documentation Centre from the African Studies and Research Forum (a subgroup of the Association of Third World Studies, Inc USA) during her visit in the USA.
- ♦ Automation of the Documentation Centre in the provision of hardware, software LAN and TINLIB Library System was completed.
- ♦ CERS collection of documents was done including indexing and creation of a database.

11. Outreach Activities

- ♦ EIA outreach training was successfully conducted each year through out Phase II involving students from MUSES and UvA, staff from Ministries and NGOs.
- ♦ A Greening of Universities Project funded by UNEP was completed. A book, which was expected from the project results, is still in the press.
- ♦ Dr. Basilida Mutoro carried out a survey for NOVIB at the Kenya Coast in Kilifi to study the impact of PRA (Participatory Rural Appraisal) activities in Kilifi that were initiated by Dr. Robert Chambers of the Institute of Development Studies at Sussex. Dr. R Chambers sent a letter of acknowledgement.
- ♦ A member of staff (Dr. Kibe. Muigai) worked for UNHCR on matters of Environmental Planning and Management of refugee camps in Kenya, Tanzania and Democratic Republic of Congo.

12. Research

- ♦ Construction of Homa Hill Research Station was started but could not be completed in Phase II.
- ♦ Research activities by six MUSES staff i.e. Prof. Otieno, Prof Davies, Dr. Rao, Dr. Stol, Dr. Mutoro and Dr. Yabann was conducted in the Lake region.
- ♦ Dr. Ombura did a research about Environmental Impact of Land Use changes in Homa Hills and made a video documentary on the water Hyacinth menace on Lake Victoria.
- ♦ The planned visit of a Kenyan Scientist to the Netherlands did not take place as the funds for the trip was deviated and used to fund Dr. Mutoro's visit of the Association of Third World Studies Conference in Alabama, USA.
- ♦ The planned visit for a Dutch scientist to assist in contact research preparation did not take place.

13. Coordinators Visits

- ♦ Dutch Project coordinator and Project manager respectively visited Kenya as scheduled.
- ♦ The Kenyan Project coordinator also visited the Netherlands as scheduled.

PHASE III

1. Staff Development

- ♦ Fieldwork and Supervision for planned activities for the remaining staff development candidates was completed on schedule and the candidates had to leave for Netherlands to complete and graduate after their studies. These were Ben Mwasi, Benjamin Mwasi, and Odipo Osano. The other candidate Ruth Kinagwi could not return to the Netherlands after fieldwork due to some problems with her work and the supervisors.
- ♦ Kenyan co-promoters visited the Netherlands during the finalization and defense of there candidates.
- ♦ Dutch promoters also visited the candidates in Kenya during fieldwork.

2. Local D.Phil. Fellows

- ♦ Fieldwork and supervision for the remaining local D.Phil. candidate was completed.

- ♦ Out of the 4 local D.Phil. fellows supported by the project, 3 completed and graduated (Dr. Marigi, Dr. Munyao and Dr. Kibii) 1 Ms Atamba has successfully defended her thesis and waiting for graduation these year 2004.
- ♦ All visits to Kenya by Dutch Co-promoters were accomplished.

3. Support fieldwork Based M.PHIL. & D.Phil. Programme

- ♦ Support for fieldwork student's research was accomplished.
- ♦ Two fieldtrips were carried out each year for M.PHIL. Students. Some D.Phil. candidates joined the trips at their cost and the others supported if they had registered for the M.Phil course.
- ♦ Fieldwork supervision carried out as scheduled though this was supplemented by other funds from LVEMP project.
- ♦ One-vehicle Isuzu minibus 33 seater was acquired to supplement fieldtrips and is in good running condition.
- ♦ Course monographs were not produced instead a first series of SES journals was produced and the 3rd Edition is in the print and expected to be out and the end of the year.
- ♦ EIA courses have been very successful each year throughout the phases and its popularity has picked up. Such that the numbers of participants from UvA in the Netherlands has been increasing each year from 5 students when we started to the current 30 students though this reduced to 2 students this year after the change of UVA programme.
- ♦ Support for EIS/GIS training was done inform of improving the GIS hardware, software and training of staff in SES and other department.

4. Development of Laboratories and Laboratory Staff

- ♦ Acquisition of laboratory equipment was accomplished through very little funds for this purpose was availed as most equipment was acquired in Phase II. However funds available from the previous phases enabled the school to acquire additional laboratory equipment especially in the Biochemical laboratory.
- ♦ Training laboratory staff by Dutch Scientist was accomplished in September 2002 for GIS where 9 staff members and 2 Government Officers were trained. In October 2002 for AAS and GC where 5 staff members were trained.
- ♦ 3 Laboratory staff and 1 lecturer undertook short courses for laboratory staff. However, busy schedules in the School made it difficult for further short courses

training for this group, but all the technical staff were trained in research methods in December of 2004 at the Coastal Environment Research Station.

5. Support for MUSES Field Stations

6. Visiting Professor

- ♦ Prof. J. Hoorweg come and was stationed at CERS Malindi where he helped in supervision of staff development fieldwork training and lectures, extension and consultancy as well as manning and undertaking research at CERS.

7. Construction of MUSES Field Stations

- ♦ The construction of both the research stations at Malindi and Homa Hills were to be completed during this period. These had delayed due to availability of funds. However, some funds were allocated during the extension period. The University Development Unit under Mr. Maina, the University Architect has worked out modalities of completing the projects however the government new procurement procedure takes time, funds for these work has been set aside.
- ♦ The CERS is currently still being housed in a rented premises and already support staff are in place. Supported for in the recurrent Moi University Budget.

8. Support for Research activities of MUSES Staff

- ♦ The project has in one way or another supported staff to attended conferences and seminars to present papers.
- ♦ The conference on research in ASAL areas of Kenya took place in August of 2003 the papers presented have been complied read for the press though effort are being made to have them published in a book.

9. Support for MUSES Information Documentation Centre

- ♦ Procurement and installation of TINLIB Series V300 software on Windows NT server was accomplished.
- ♦ Procurement of e-mail/ Internet connectivity was accomplished.
- ♦ Statistics indicate that use of Documentation Centre greatly increased since the introduction of recording users numbers.
- ♦ Support for courses for staff in the documentation centre was carried out and 7 staff have benefited.
- ♦ One staff attended and finished a course in Britain

10. Co-ordination Visits

- ♦ Co-ordination visit to Kenya by Dutch coordinator and to Netherlands by Kenyan Coordinator was carried out on schedule.

11. Scientific and Project Management

Time spend on project work in the Netherlands by the Scientific Manager and project Manager was included in the Project budget and was successful administered in the Netherlands.

ANALYSIS

The MHO project programme for Inter-institutional cooperation between the School of Environmental Studies, Moi University Eldoret Kenya and the Faculty of Social and Behavioral Sciences, University of Amsterdam, the Netherlands. Aimed at strengthening the School of Environmental Studies, in that:

a) Influence

The School is relatively well equipped and is currently able to execute high quality training at M.Phil and D.Phil level, provide information, research; staff upgrading and advisory services on policy issues and development interventions concerning environmental problems in Kenya.

The project through its effective implementation has created an environmental awareness on the university community, students, staff and also the local communities.

The start of other MHO project in Moi University was a direct result of these project implementation performances, and these greatly improved the phase of the University hence its impacts being felt by the university and the local communities.

More and more applicants for M.Phil programs are being received despite the fact that there is no fellowship thus many are ready to sponsor themselves.

b) Effectiveness

The project ran for 15 years in three phases of five years each between 1991-2004 with a budget totaling of Dfl 9,219658 to achieve its objectives.

- i. A total of 11 Ph.D. fellowships in the Netherlands were given out, of which 2 could not finish after completing field work. 1 is deceased, 5 have left for greener pastures after serving SES. It is hoped that the remaining 3 will stay in MUSES for sometime.
- ii. A total of 4 Local D.Phil. fellowships in MUSES were given out as a support to inaugurate the local D.Phil. programme in SES. All 4 have completed 3 graduated and 1 to graduate this year. 1 of the 3 who have graduated has joined MUSES and another one has joined Civil and Structural Eng. Dept., Moi University. The subsequent Local D.Phil. graduates are also joining MUSES staff.
- iii. A total of 34 M.Phil fellowships were given out, out of which 18 were female fellowships and 16 fellowship from ASAL areas.
- iv. The project has supported the field trip course that initially started at 5 trips and now reduced to the current 3 trips. The support enhanced the M.Phil programme's success.
- v. The fieldwork support to M.Phil and D.Phil candidates has also enhanced students research costs especially to those students who are self-sponsored.

- vi. The project has enabled MUSES to establish an Information and Documentation Centre, which is completely automated and networked, alongside the rest of the School, in addition to very many volumes of books and subscribed journals. It is one of the best Documentation Centre in Africa with material on Environmental Information. Training support for Doc Centre staff has also enhanced efficiency in the Doc. Centre.
- vii. Out of the Total 11 vehicles in MUSES, 7 were acquired through MHO project of which 1 caused a fatal accident, and another one had an accident. However, they are both under repair and nearing completion and will soon be back in the fleet. The remaining 5 are in good condition despite having passed the required life period of 5 years as per the government policy.
- viii. The project has assisted in developing the laboratories by way of acquisition of equipment for Biochemical Lab, Biological Lab, Physical Lab, Planning Studio and Environmental Information Systems Lab. This has enhanced the teaching and research activities in the School. Support for short courses training for laboratory technical staff has also enhanced efficient although this could not fully be achieved due to shortage in technical staff.
- ix. The project enabled the School to review its Certificate, M.Phil & D.Phil curriculum during phase II though the reviewed curriculum was reviewed in Phase III and awaiting senate approval.
- x. Training for Environmental Information Systems and Geographical Information Systems (EIS/GIS) and the support for GIS hardware and software are one of the achievements MUSES has gained through this project.
- xi. The School has participated in outreach activities that have had very positive impacts. This activities include EIA course carried out each year involving students from University of Amsterdam, staff from government ministries, staff from NGO and of course students from other faculties in addition to our own. Attending of Conferences in different areas nationwide and global.
- xii. The project has supported the establishment of Field research stations through construction, furnishing and equipping the station labs. However though the structures are in place for both CERS Malindi Station and Homa Hills Station they have not been completed. This was partly due to insufficient funds from the project and the University Management after identifying funds to complete the structures could not release the same hence furnishing and equipping the labs could not be done. CERS is currently housed in rented premises with support staff from the University in place. Homa Hills, which was to have the same facilities of support staff, is yet to be achieved. The university currently caters for the stations expenditure. Funds for completion have been set aside and will be accomplished soon.

- xiii. The 4 project visiting professors served the project well and achieved their goals as stipulated in project documents.
- xiv. Scientific and project management together with coordination visits was successfully carried out as scheduled.
- xv. Other projects that were offshoots of this project included: The EU-Waste Management which was completed and a book is now available,
 - ♦ The NOW Machakos Project which is in its final stages and will produce 2 D.Phil graduants. Mr. Kibowen and Dr. Mwakubo the later has graduated.
 - ♦ NIRP project which was completed and produced one Ph.D., Dr. Nunow who though being a staff member is seconded to the Constitutional Review Commission of Kenya

Other project carried out in the School alongside the MHO projects are:

- ♦ IDRC – Tourism and Environment in Kenya project completed and the results in form of documentary and the report is in its final stages of the print.
- ♦ LVEMP project which has completed its first phase, but with an extension to December, 2005 and plans are underway for phase II
- ♦ ALO project, which is in its initial stages, is being planned.
- ♦ Individual MUSES staff also carried out other projects alongside this project.

*The MHO project has been successful considering the aims and objectives in the project documents.

c) Efficiency

The relationship between the resource allocation and activities and the achieved objectives was very effective though in some cases delays in implementation was partly due to the bureaucracy in Moi University and delayed financial audited reports required for disbursement from donors.

d) Sustainability.

Moi University and UvA were aware of the fact that Phase III was substantial phase of Nuffic MHO support for the School of Environmental Studies. Much emphasis was put on sustainability after Phase III.

MUSES will certainly need continued international, national and NGO funding to sustain part of its activities after Phase III. In the recent past, MUSES staff together with UvA partners has acquired research projects beyond MHO funding. We hope this will further be developed in future with the help of UvA and other Dutch partners. Further, the Phase III addition, which was approved conditionally was to strengthen the School in its

preparation to be self-reliant and hence be able to sustain its activities beyond the project life.

e) Academic Staff Position

At the moment, there are 18 academic staff in positions and there are 6 Junior Research Fellows in training (Ph.D.) of whom 1 was funded by MHO. In addition 10 new vacancies which recruitment is in progress and a number of local D.Phil as they complete their studies. In this light, therefore, it is hoped that 32 academic staff positions or more after the year 2004 will be in position. The D.Phil and associated Ph.D. students who excel will be targeted candidates for new vacancies.

In addition to twenty non-academic staff positions fifteen additional vacancies last year could not be filled due to financial constraints countrywide.

- ♦ Chief Technicians
- ♦ Senior Technicians
- ♦ Technicians
- ♦ Laboratory Assistants
- ♦ Administrative Assistants (Each for SES, CERS and Homa Hills)
- ♦ Computer Operator
- ♦ Clerk and Office Assistant
- ♦ Support staff in MUSES and the Research Stations

Recruitment process is being pursued and its hoped that the positions will soon be filled.

This reflects near adequate staffing for the situation at MUSES. Enough trained staff available for the academic divisions, central laboratories and the Documentation Centre.

Mr. Daniel Murgor a Documentation Centre staff who trained at Loughborough University, UK is handling all that pertains to automation, management, and maintenance of systems at the Documentation Centre and the computer lab. He is also supporting the Schools administrative systems development and network.

It is also important to mention that the University Management has continued to meet the remuneration and other allowances of its staff.

Moi University is already providing each of the two Research Stations with at least an administrator, one secretary, one Driver and adequate security staff. The University has also appointed a co-ordinator for all research stations.

The central MU Library will provide part time services to the small documentation centre at CERS and Homa-Hills Research Stations once fully operational.

Moi University accepts to pay for the running cost of the two research stations.

Modalities are being put in place on how other faculties and/or schools of Moi University and visiting members of staff and students could make proper use of the two Research Stations.

The Research stations will also be focal points for the acquisition for new external research grants dealing with research of Kenya Coast and Lake Victoria area respectively.

f) External Factors

The availability of the business plan for the laboratories will be form a major basis, for income generating unit (IGU) that will bring in funds to make the school sustain itself.

MUSES will continue to be dependent on affiliate part time staff from other faculties/schools within Moi University and from outside.

Moi University funds are and will be available to enable part-time lecturers and external examiners from elsewhere to come to Eldoret and teach at MUSES.

Part-time lecturers will be attracted by co-operating in MUSES research projects, joint Research supervision and by making free use of MUSES facilities.

g.) Added Value

Through the collaboration between MUSES and UvA our reputation as researchers had been recognized world wide and therefore many invitations as resource person in workshops and seminars plus invitations as external examiners has been on the lead. Most of our members of staff have facilitated workshops and seminars worldwide.

It must also be noted with appreciation that the relationship between MUSES and UvA is steadily and firmly in very good terms. This is exemplified during Environmental Impact Assessment Seminar when MUSES and UvA students work together as a unit. Plans are underway to continue our relationship with UvA beyond the expiry of the project.

The procurement of vehicles through the project support has made work easier for both the students in the field and the supervising lecturer. Other departments have also benefited from our equipment, laboratories and vehicles enhancing synergy in Moi University (to some extend since it did not work well due to phase one).

The photocopying machines fax machine, E-mail and Internet services will continue to earn the school a considerable amount of income that ensures sustainability of the above machines even after phase III.

The collaboration with the UvA (FMG) has led to other Universities in other countries proposing our collaboration with them. For instance, the requests from a University in Sweden, the University of Zimbabwe, and one from the Nicholas School of Environmental Studies, Duke University, Ken Gen and many others.

Teaching staff has been attracted to work in the School of Environmental Studies because of availability of research opportunities.

h) Other Information

We thank Moi University Management for their continuous support during this period of collaboration. The establishment of a full-fledged office of administrative staff, to take care of, processing of imprests, audit reports, procurement and clearing of project goods. Other support line includes obtaining license and insurance documents, maintenance for the vehicles.

The University Management and Council's request for the School to look into the possibility of starting undergraduate programmes has a high possibility of starting in the near future.

The School of Environmental Studies evaluated positively the launching of short-courses. Through the LVEMP project 37 short courses modules were developed and plans are under way to have them advertised and started. The income generated from this course will enhance sustainability operations of the School.

Nuffic approved a proposal for sustainability and a budget for Phase III Additional where a Master Business Plan for our laboratories was produced. The funds released enhanced our laboratory facilities, thus making SES sustain itself after the end of the Project.

The existence of other projects in the School such as Lake Victoria Environmental Management Project (LVEMP), and the proposal Geothermal centre and ALO Project USA will enhance teaching, research and other activities that will make the School sustain itself.]

Lessons learned and recommendation for post project period

- ♦ Sustaining the staff development PH.D fellows remained a big lesson. Those who left were because of better pay elsewhere. Contracts with promoters in collaborative research activities could have an effect in sustaining them for sometime. New improved pay for lecturers would form a good basis sustaining the staff.
- ♦ Follow up of the whereabouts of all M.Phil and D.Phil graduants was never done. MUSES is building students data base and possible follow up to update and data is inevitable.
- ♦ Journals subscription proved to be costly hence the reduction of numbers during the final stage of the project. A way out inform of requirement expenditure and other sponsor should be required to assist in subscribing for the journals until the funds available from income generating activities full take effect.

5. STATEMENTS

- ♦ Equipment Ownership and Transfer
All equipment and materials purchased through the project will be transferred and remain property of Moi University School of Environmental Studies.
- ♦ Maintenance will be funded by Moi University recurrent funds and be subsidized by the School of Environmental Studies income generated from its activities.
- ♦ Other sponsors and interested parties may provide funds for maintenance of equipment as the need arises.

We Professor Wilson K. Yabann, project Co-ordinator of MUSES and Professor dr Ton Dietz, Project Co-ordinator at the University of Amsterdam, agree that to the best of our knowledge and belief, that the above report is an accurate account of the final report on the project of collaboration between our two institutions.

Signed _____
Prof. Wilson K. Yabann
For MUSES

Prof. dr Ton Dietz
For University of Amsterdam

Date: August, 2004

ANNEX :

LIST OF EQUIPMENT PROCURED BY THE PROJECT

Below is the list of equipment and their status since they were brought:

PHASE I

COMPUTERS AND OTHER OFFICE ITEMS

Qty	Item	Usage	Status
5	486 PC Computers	EIS lab and staff	3 Good, 1 bad, 1 stolen
4	386 PC Computers	Doc. Centre and staff	3 Good, 1 obsolete
3	286 PC Computers	Secretaries	Obsolete
4	286 Lap Top	Staff Development	Obsolete
1	CD Rom	Doc Centre	Good
1	LC 24 Star Printer	Secretary	Obsolete
2	LC 20 Star Printer	Doc Centre and Staff	Not working
1	Hiplot 7100 Summa-Graphic Plotter	EIS Lab	Good
1	Summagraphic Image Maker Plotter	EIS Lab	Good
1	Summagraphic MM II digitizer	EIS Lab	Not working
1	Summagraphic Summagrid IV Digitizer	EIS Lab	Not working
1	Elproma printer sharing Unit	EIS	Good
1	HP Scanner	EIS Lab	Good
1	HP Paint Jet Printer	EIS Lab	Good
1	HP Laser Jet 4 Printer	EIS Lab	Good
1	Sony TV Monitor	EIS Lab	Good
1	Sony Video Player	EIS Lab	Good
1	3M Overhead Projector & Screen	EIS Lab	Good but lamps not available
1	Kodak Slide Projector	EIS Lab	Not working
1	Still Cannon Camera Plus lends & Stand	EIS Lab	Good
1	Panasonic Video Camera	EIS Lab	Good
1	Mitta Photocopier	Office	Good

VEHICLES

1	Mitsubishi Pajero KAC 504G	Garage under repair
1	Mitsubishi Minibus KAC 502G	Garage requires repair
1	Mitsubishi Minibus KAC 503G	Good
1	Suzuki Samurai KAC 283W	Good

COAST RESEARCH STATION (used in Abuodha's Research)

1	Minolta Camera, 2 lens Suncap, flash and carrying case	Good
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1	Weighing Balance Meter	Good
1	Dynamic 42 open Vinyl Boat	Punctured
1	Mariner 25 MH/ALT outboard engine	Good
1	Steering systems	Good
1	Hacksaw	Good
1	Electrical handdrilling tool	Good
1	L'Europea Generator	Good
1	Waterproof Aluminum tool box	Good
1	Vice	Good
1	Compass	Good
1	Inclinometer	Good
1	Level Planner	Good
1	Battery Cassette	Good
1	Aluminum Staff	Good
1	Back Aluminum Telescopic	Good
1	386 PC Computer	Obsolete
1	Wild Theodolite T2	Good
1	Wild Tripod GST 10	Good
1	Positive measuring staff 5m	Good
14	Sieves machines	Good
1	Data logger Incl wiring panel	Good
1	Weather resistance enclosure	Good
1	8 Channel switch module for A100R	Good
5	Cup Anemometers	Good
2	Windvanes	Good
1	Radiation meter	Not working
2	Temperature and RH probe	1 Good
1	Meteomast	Good
1	Keyboard Display Unit	Good
3	Cup Wheel Anemometers	Good
4	Contact Converters	Good
1	Wind Transmitter	Good
1	Remote Recording Thermograph	Good
1	Dry Rectifier	Good
1	DC Ammeter	Good
1	Fuel tank for outboard engine	Good
1	Abney level	Good
42	Sand trap dishes	Good
4	Boyers (balls)	Good
1	Tape measure	Good

PHASE II

VEHICLES

Qty	Items	Usage	Status
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1	Suzuki Vitara KAE 802E	School	Good
1	Mitsubishi Minibus KAG 207F	School	Under repair

COMPUTERS AND COPIERS

2	Mitta Photocopiers	Doc. Centre & Officer	Good
1	Calcomp Digitizer	EIS Lab	Good
9	586 HP Pentium Computers	EIS Lab & Staff	6 Good 3 Bad
4	586HP Pentium Computers	Students	2 Good 2 Bad
1	HP LaserJet 5L Printer	Dean's Officer	Good
1	UPS Backup APL (20-30 min)	EIS Lab	Good,
1	Fax Machine	Deans Officer	Good
1	ICL Team Server	Doc. Centre	Good
1	Superstack 11-12-port hub	Doc. Centre	Good
1	Epson LQ 2170 Printer	Doc. Centre	Good
1	Hp LaserJet 5L	Doc. Centre	Good
1	Modem	Doc. Centre	Not working
6	HP Pentium Computer	EIS Lab & Staff	Good
3	HP LaserJet 6L Printers	EIS Lab	Good
5	IBM old computers donated by UVA	EIS Lab	obsolete
1	Canon F131900 Copier	Deans Office	Not working
1	Canon Fax T20 Machine	Deans Officer	Good

BIOCHEMICAL LABORATORY

1	Spectrometer (AAS) Atomic Absorption	Good
1	Gas Chromatograph (GC)	Good

PHYSICAL SCIENCES LABORATORY

1	Current meter	Good
1	Magnetometer	Good
1	Differential Spectrometer	Good
3	Seismometers	Portably used Good
3	High Resolution Digitizer	Good
1	Disk Recording Subsystem	Good
1	Field set up Controller	Stolen
1	Contact Genges	Good
3	Ground Positioning System (GPS)	Good
1	Van Veen Grab (stainless steel)	Malindi Good
1	Wave measuring data Lager	Malindi Lost in the Sea in 19971
	Synthetic Cable Diam 8mm x 15m includes fasteners	Good

1	Temperature Probe	Malindi	Good
1	Soil moisture meter Trim FM		Good
1	Aluminum Tripod		Good
1	Leveling staff wooden		Good
1	Mechanical rain-gauge		Good
1	Soil sample Ring Kit		Good
1	Hand Sieve set		Good
1	Mechanical balance		Good
1	Memmet Universal Oven		Good
1	Reading Unit for Diver		Good
1	Double ring Infiltrometer		Good

BIOLOGICAL SCIENCE LABORATORY

1	Laboratory Incubator		Good
1	Centrifuge		Good
1	Bomb Calorimeter		Good
2	Portable KIT for soil and water analysis		Good
3	Haemocytometers		Good
1	Spectrophotometer 100		Good
1	Centrifuge Petex		Good
1	Vortex Machine		Good

PLANNING STUDIO

1	Adjustable Drawing Table frame with inclined Machine size AO		Fitted the Digitizer
10	Drawing Boards with Stand		Good
10	Adjustable Drawing table		Good
5	Mirror Stereoscopes		Good
1	Light table AO size		Good
1	Plans Chest Filling Cabinet		Good
10	French Curves		Good
10	Adjustable Set Squares		Good
4	Sets of Technical Pens		Obsolete
10	Engineering Templates		Good
1	Planimeter Digital		Good
1	Planimeter Manual		Good
1	Pantograph		Good

PHASE III

COMPUTER LABS

7	Sun Systems CPU Pentium (upgraded	EIS Lab	Good
1	APC Power Backup 650 MI	EIS Lab	Good

1	Gams/Base, Gams/Conopt, Gams/Cplex Software for PC Platform	Economics	Good
4	Compag Intel Pentium Computers	EIS Lab/ Students/ Malindi	Good
3	APC 650 VA Backup power		Good
1	9600 DPI Scanner	EIS Lab	Good
1	HP 845C Colour Printer	Deans Office	Good
1	HUB 16 3 Com.	Doc. Centre	Good
1	Compag Server	Computer Lab	Good
6	Compag HP Computers Pentium	Computer Lab	Good
1	HP Design Jet 500 Printer 42"	EIS Lab	Good

BIOCHEMICAL LAB

1	Balance 160m/0.1mg		Good
1	Multi Metre		Good
1	Heating Mantle 50ml		Good
1	Heating Mantle 250ml		Good
1	Heating Mantle 500ml		Good
1	Soxlet Extractor		Good
2	Heaters Hot Plate		Good
1	Rotary evaporator Bench R300		Good
1	Gas Chromatograph 3400-Varian GC2		Good
1	Gas Chromatograph HRGC 8560 Mega 2		Good
1	Philips Quad PC		Good
1	Hp Printer 3394A		Good
1	Hp Printer (Screen) Waters 600E		Good
1	HPLC Waters 600		Good
1	HPLC (Detector) Beckman Company		Good
1	Nitrogen Generator		Good
1	GCMS GC8060MSCB-11		Good
1	Philips Quad		Good
1	GCMS Screen MF8515G		Good
1	GCMS Printer C3884A		Good
1	20KV Generator (Procurement process near completion)		