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BIORegMeru

A PILOT PROJECT FOR SUSTAINABLE DEVELOPMENT
IN MERU, KENYA



EXECUTIVE SUMMARY

BIORegMeru is an acronym for a pilot development project based on a bioregional approach to sustainable development. The new strategy developed at the University of Duisburg-Essen in Germany is planned to be implemented as a pilot project in Meru District of Kenya by the university's Sustainable Development Group based in the Faculty of Biology and Geography. The implementation will be supported by the Programme for Academic Cooperation and Transfer (PACT), currently being designed to be run between the University of Duisburg–Essen and the corresponding institutions in Kenya. PACT, will, among others, serve as a long term back up for the bioregional approach to sustainable development in providing for the manpower development, research and planning programmes and basing these on technical, educational and scientific expert advice in order to support the active participation of the local residents.

BIORegMeru development strategy aims at integrating the ecology and resource conservation of a bioregion with the socio-cultural and economical developments therein. A bioregion is defined as a geographical area scientifically delineated using its nested natural ecosystems and landforms and characterised by its unique flora, fauna, its socio-economic activities and the culture and history of its human populations. The bioregional strategy is developed on the understanding that the gravity of the growing poverty, that devastates Africa today, is likely to be compounded in the future driven by the diminishing ecological resources and the emerging socio-cultural and environmental conflicts. The dispersal, into the urban areas and across international borders, of those emerging problems is also likely to accelerate during this century if these trends are not reversed.

The Bioregional strategy emphasises that ecosystem health is a prerequisite to sustainable development. By bringing together research and development experts from developed and developing countries, we hope to equip the resident population of the bioregions with the necessary know-how and tools to effectively respond to the environmental, cultural and social-economical problems and to initiate a culture of sustainable development activities in the bioregion.

In Africa “[...] nature conservation is one of the most important instruments in the fight against poverty in Africa [...]. This is particularly the case because nature and its resources are the main sources of income for the majority of the poverty stricken rural populations in the continent” (TOEPFER 2003, recommendation letter for the BIORegMeru project). To avoid the past mistakes responsible for the current landscape fragmentation and destruction of the cultural ties between the people and their environment, implementation of the BIORegMeru strategy will be based on, a) extensive multidisciplinary research on the natural, social and economical aspects of the bioregion including the nexus between those aspects that may be responsible for the bioregion's status quo, b) integration of cultural and the social knowledge and values of the population, and c) participation of the local residents in research, plan development and plan implementation.

In so doing, it is our hope that the BIORegMeru strategy will respond to the UNEP Executive Director, Prof. Dr. Klaus Toepfer's call, that *“[...] we have all the resources, both financial and technological, to build Africa and the lives of its citizens and to conserve its astonishing biological richness and diversity” (UNEP 2002).*

BIORegMeru

A MODEL PROJECT FOR SUSTAINABLE DEVELOPMENT

- PROJECT INFORMATION -

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The Rationale for BIORegMeru

The dawn of the 21st century has brought with it the realities of the long brooding problems of poverty we can no longer bluff. These are the realities of the world's changing demographic trends and social structures, immerging levels of ignorance and poverty and the emerging socio-cultural and environmental conflicts that are likely to dominate the century and most likely threaten our common co-existence and deprive the planet of its future. The potential threats, both at the local and global scales, of the conflicts and poverty issues, currently rooted in the developing world necessitate an immediate change in our relationships and in our response and approach to the immerging problems and the root causes underlying them. Such responses and approaches basically require that people and institutions develop the will to work together, sharing their know-how, ideas and resources in collaborative relationships. Such an approach will not only ensure a co-operate approach to solving our social and environmental problems, but also our co-existence and common global future as together we strife to safeguard our socio-economical, cultural and environmental resources.

BIORegMeru strategy presents a new paradigm for development based on the above understanding. It is a translation into concrete actions of a strategic vision for sustainable development developed in tandem by Mr. Klaus Krumme (German, M.Sc. Environmental Science) and Mr. Henry Muraaj Athi (Kenyan, M.Sc. Ecology). The strategy has been approved by the University of Duisburg-Essen and integrated into the research programmes of the Faculty of Biology and Geography under the management of the Sustainable Development Group chaired by Prof. Dr. Ulrich Schreiber. Preparations for the implementation of the strategy in Meru district, Kenya are in progress.

BIORegMeru has also been recognised by the Executive Director of the United Nations Environment Programme (UNEP), Prof. Dr. Klaus Töpfer, as being a highly relevant development strategy for sustainable development in developing countries. The relevance of the strategy to sustainable development and biodiversity conservation was also recognised by the Mayor of Essen, Germany who awarded an Environmental prize to the initiators of the bioregional strategy.

An interdisciplinary group of experts has been appointed by Prof. Dr. Ulrich Schreiber, both Chairman of the Department of Geology and Dean of the Faculty of Biology and Geography at the university to make the necessary preparations for the implementation of the strategy. At the same time, the university administration has provided the facilities for the development of Programme for Academic Cooperation and Transfer (PACT) between the University of Duisburg-Essen and the corresponding institutions in Kenya.

Unlike the past development approaches, bioregional based development underlines the importance of basing development, environmental management, the socio-cultural and economic activities of a given area on an ecologically functional bioregion. The strategy understands a bioregion as a geographical area defined by its nested natural ecosystems and landforms and characterised by its unique flora, fauna, its socio-economic activities, culture and the history of its human populations (MILLER 1996; AJATHI & KRUMME 2002). It is an innovative framework for achieving harmonious and mutually dependent sustainable development of the society and the environment through an integrated planning approach of a bioregion. It is a development strategy that bases the development of the human populations, natural systems, built habitats and their resources on such a region defined not necessarily by its political boundaries, but most importantly by its physio-geographic character, history, culture and its socio-economic and ecological uniqueness. Development activities in such a region should be based on the fact that all needs for human development and resource conservation, as far as possible, be met with own resources and in a manner that does not erode the bioregion of its potential to sustain its future.

The strategy emphasises that cooperate participation of the bioregion's residents, cooperation with local and international research and development agents and institutions, and the healthy functioning of the regions ecological attributes, should be the explicit basis for viable development of the bioregion. An active participation of the local residents is underlined as a vital component of a bioregional development approach. In this way the bioregional strategy serves not only to strengthen the credo of the Agenda 21 (Rio Conference 1992) and Johannesburg Conference 2002, but also gives the Local Agenda another dimension of being a regionally focused and holistic strategy, whose guidelines for sectoral development activities, resource and biodiversity conservation are scientifically stipulated in a manner that bases their implementation on a holistic and harmonious equilibrium with the natural, socio-

cultural and economical processes of the bioregion. The most unique dimension of the new bioregional focus to development is the fact that the implementation of any individual project in the bioregion is based on the results of interdisciplinary and inter-sectoral research activities, which provide the information of the status quo of the bioregion, and also on the fact that the implementation is based on a corporate effort from both the local residents and a wide range of local and international institutions and based on development scenarios chosen through participative forums by the local community and planning experts. The need for such a widespread participation and combined effort from the local and international levels can only be justified by the fact that the effects of poverty and environmental problems have no regard of place and persons and respect no frontier.

We, the steering committee of the BIORegMeru strategy, highly believe that the implementation of the strategy will not only bring the desired change in the targeted region, but will also gain the support it deserves to make it an outstanding example of a sustainable development approach for Africa. We hope therefore that other countries, institutions and decision makers will follow the example of Germany and awaken to the urgent need for forming international coalitions in the fight against the worst enemies of mankind: poverty and ecological catastrophes.

Justification for a Bioregional Model Project for Africa

Since the early 1970s, expectations were emerging that planning for sustainable development should recognize the linkages between man-made and natural resources and integrate social, cultural, political, economic and environmental issues. *The Stockholm Conference on the Human Environment* in 1972 called for comprehensive planning to incorporate environmental concerns. In 1980, the United Nations Environment Programme (UNEP), International Union for the Conservation of Nature (IUCN) and World Wildlife Fund (WWF), launched the *World Conservation Strategy*, linking living resource conservation and sustainable development. This was followed by the United Nations (UN) General Assembly's adoption of the *World Charter for Nature* in 1982. The World Commission on Environment and Development (WCED) in 1987 concluded that sustainable policy paths require the ecological policy

be considered alongside economic and other development policies. Subsequently, the *United Nations Conference on Environment and Development (UNCED)* at Rio de Janeiro in 1992, endorsed by more than 150 nations, called for national sustainable development strategies to be developed which would integrate social and economic development activities with the environmental and conservation activities (Agenda 21). However, despite the numerous conferences and agreements, appropriate methods for achieving the new expectations and development strategies were never prescribed.

The Agenda 21 that resulted from the Rio conference also fails to prescribe standard and adaptable methods for achieving such multidimensional and multidisciplinary integrated development plans for sustainable development. Instead it was assumed that sustainability would be built into existing planning processes. In Africa, until today, these excellent environmental strategies and plans have neither been adequately financed nor are they adequately linked to economic development plans. They also have no adequate political support. As a result they barely influence major social, economical or natural resource development plans. On the contrary they have triggered new conflicts (EMERTON 1998; AJATHI & KRUMME 2002). Until today, there is little evidence in Africa that this integration has occurred in either mainstream development planning or environmental planning as economic planners and ecologists continue to work in separate worlds.

A New Paradigm of Sustainable Development

Despite the scenario described above, a new thinking and debates on the new development paradigm for sustainability has been injected into the development work through the Agenda 21. Debates are on going, especially in the developed world, where suggestions are being made for sustainable development plans to integrate:

- a hierarchy of scales from global to local,
- a time frame from days to eras (with multi-scale synthesis),
- a species frame that connects humans and nature at the ecosystem level, and
- a primary macro-goal of seeking a sustainable ecological-socio-economic system.

Developed countries are or have already responded to the new thinking and are creating or have already created holistic development plans for their regions.

Meanwhile, governments and citizens in Africa have continued to pre-occupy themselves with the vicious cycle of worsening poverty caused by the deteriorating ecological and economical resources. The poverty and the environmental problems depriving the continent of its hope today is already being revealed by the statistics of the famished populations, HIV infections, Malaria, crime, increasing mortality and other related issues. The chains connecting the continents economic, ecological and social structures are slowly falling off as ecosystems continue to deteriorate, and population pressure on the diminishing resources intensify. It is also worth noting that no development policy or strategy has been able to reverse the chain reaction of resource misuse and unsustainable exploitation triggered early this century by the colonising governments and their successor post-colonial administrations.

Development in the continent is also deterred by other issues. These include the legal issues related to settlements, land ownership and unsustainable methods of land use among others. Development planning and investments in infrastructure has in many cases, been concentrated in or around the towns, urban centres, wildlife reserves and tourist centres. Few major socio-economical development are going on in the vast rural areas where the majority of poor citizens live and where most of the biodiversity is found. There is also no coordination and no nested hierarchy of sustainable development planning in the continent. Even in those development projects, said to be based on the Agenda 21 or on Local Agenda 21, the link through a nested hierarchy of sustainable development plans is simply not there. As a result, the good intentions of the conservationist or development agent/helper can never be sustainable enough (see also HULME & MURPRHEE 1999; BALMFORT et al. 2001). The sting of poverty and deteriorating resources continue unabated to devastate Africa despite the continents debt burden.

It our duty to study and to work towards the solution of Africa's poverty and environmental problems. We believe therefore, that the BIORegMeru development strategy is a step in the right direction. Developed in a tandem by an African, who was born and raised in a poor rural village of Gaitu in Meru district of Kenya, and a German, born and raised in the metropolitan city of Dortmund in a developed

German economy and culture, the BIORegMeru development strategy is a new development paradigm with a new dimension and synthesis of ideas enriched by the two different cultural and environmental backgrounds and experiences. Though very specific in its strategy of being bioregional focused, it is nevertheless assuming an international character and awakening profound of interest among the institutions of higher learning, politicians, development agencies and church organisations. The University of Duisburg-Essen, the Essen local government, the UNEP and the World Council of Churches (WCC) are just but a few of them. We believe that the strategy will serve as a model of the missing link for sustainable development, environmental management and poverty eradication in Africa.

Bioregional Model for Sustainable Development in Africa: in Meru, Kenya

As defined by the *Global Biodiversity Strategy* (WRI, IUCN & UNEP 1992), a bioregion should be an area large enough to maintain the integrity of its biological communities, habitats and ecosystems. It is defined as a land and water territory whose limits are defined not necessarily by political boundaries but rather by the extents of its ecosystem/landscape functionality, including the cultural identity and a home for its human communities. It could be as large as a small state, a district or a province. In some cases, a bioregion might span the borders of two or more countries. A bioregion is also defined by its people for whom it should serve not only as a home, but also as their cultural identity. It should provide an ecological and social framework in which the community of its inhabitants have the primary right to determine their own destiny. It should provide the framework by which its citizens, through democratic ideals, can cooperate with one another, and with their leaders and other institutions operating in their area, as well as the local and international development partners and research institutions, to bring about sustainable development of its people and share responsibility in land-use planning and implementation of development options that ensure that human needs are met in an equitable and sustainable manner.

The BIORegMeru, delineated on the basis of the Meru ecological/geographical attributes and the culture of its inhabitants,

will be an interacting network of dynamic components of ecosystems, habitats and communities: a harmony of the economic, social, cultural, technological, scientific and environmental resources, a sustainable heterogeneous system maintained in a state of temporal and spatial equilibrium.

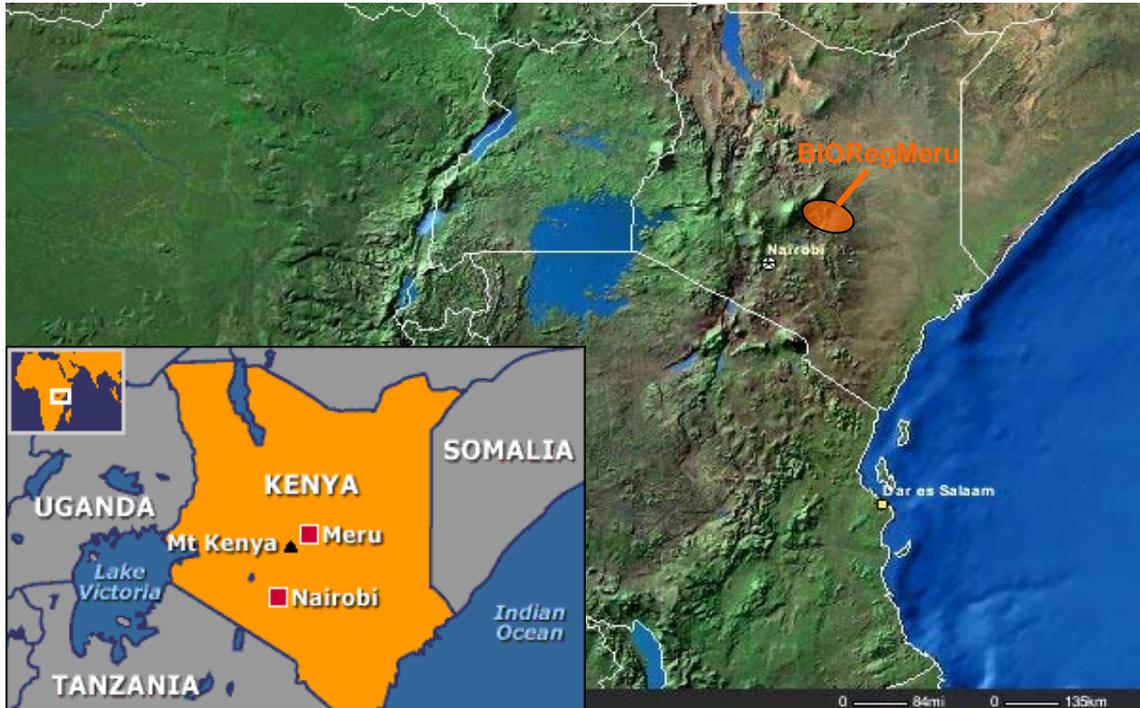


Fig. 1: The location of Meru in Kenya

The BIORegMeru is therefore expected to integrate the goals and objectives of a sustainable economy and harmonise the socio-cultural, environmental and natural resource activities in the bioregion. Corporate and educated participation of its members, the stakeholders, local authorities, research institutes and development agents will produce integrated packages of policies, programmes, and plans to achieve those objectives in a sustainable manner.

Meru – A good Choice

The choice of Meru region as a suitable location in Africa to implement the new conservation and development strategy is based mainly on the unique nature of the region’s ecological, economical and social-cultural landscapes. The Meru region is a mosaic of

varying geomorphologic landscapes, characterised by overlapping climatic zones, varying vegetation cover, drainage systems and varying degrees of the population densities of its ethnic groups.

The social structure and lifestyle of the Meru folk are strongly influenced by its rich culture which is founded on common beliefs that the entire Meru folk has its origins in some "Far East land/island" known as "Mbuaa", where the Ameru lived under captivity serving the "Nguo Ntune" ("Red" People), and that together, united under a chosen leader "Komenjue", braved the escape and found their own new and free home on the fertile slopes of the second largest mountain in Africa: Mount Kenya. The Ameru governed themselves through a council of elders known as "Njuri Ncheke" which up to date plays a role in the Meru culture. The culture comprises of rich religious practices based on these common beliefs and binds together about 1.3 million inhabitants, or 4% of the total Kenyan population. The Meru culture remains a unique culture in Kenya. Despite the deepening roots of poverty in the region, the Meru people are characterised by hard work, peaceful democratic values and harmonious Christian religion practices, occupying the slopes of Mount Kenya and Nyambene hills and spreading to the plains below them. Their main economical activity is small scale farming. The Meru region has a high potential for the production of tea, coffee, fruits and roots crops, cereals, cotton, forest and animal products. The recently discovered "muraa" plant and the aspiring Meru National Park, have brought Meru to the international attention through local and international media, in which among others, the Meru people and its region are portrayed as rare and unique, with a special potential for development and modernity in Africa.

The fact that one of the co-developers of this development strategy is from the region and well familiar with the socio-cultural, economical and environmental constraints of the region, gives the Meru region the necessary qualification for being a model area for this development strategy and gives the Study Group "Sustainable Development" of the University of Duisburg-Essen the best opportunity to work in a region where one of them is well known and knows very well.

Goals and Objectives

The main goal of BIORegMeru is to introduce into the Meru region a new concept for sustainable development and resource conservation that requires the integration of all the development sectors, participation of its inhabitants and cooperation with the local and international institutions through mutual sharing of resources, know-how and technology. Sustainability of the bioregional resources implies that, a long term availability of bioregional resources must be accompanied by a long term ecological stability of the resource base. Ecological stability is therefore considered as the prerequisite for economic and social development activities.

It is also our goal that the Meru people of Kenya, with our help and with the help of the local and international institutions and governments, will be able to identify the extents of their own bioregion, the resources and potentials therein, and communally through strengthened democratic principles, develop strategies for using and managing their own resources in their own region and attain self-sufficiency in all aspects of their developmental, political, social and cultural needs.

Drawing upon the elements bioregionalism (MILLER 1996), the BIORegMeru will be expected to present the following characteristics:

- **A large ecologically viable region**
The Meru bioregion should be a region large enough to include the habitats and ecosystem functions and processes needed to make biotic communities and populations, over the long-term, ecologically viable. The region should thus be strengthened to compensate impacts of global change.
- **A structure of cores, corridors and matrices**
The Meru bioregion should include core wild land sites that feature representative samples of the region's characteristic biodiversity. Sites already designated as protected areas shall be linked by corridors of natural or restored wild cover to permit natural migrations of wildlife. Both the core sites and corridors shall be nested within a matrix of mixed land uses and ownership patterns.
- **Economic sustainability**
The livelihoods of people living and working within the bioregion, including those in industry, and especially those deriving their livelihood directly from the bioregion's matrix,

will be encouraged to make optimal use of local resources and apply sustainable land uses, technologies and fair cost sharing of the benefits of biodiversity resources. Scientific, local and traditional knowledge will be combined during the planning and management activities in a bind to help the community, programme managers and other stakeholders in the bioregion, understand the social, cultural and economic potentials of the region as well as the nature's long and short cycles before any economic activity is put into place.

- **Education and full participation of the bioregional community and others involved**

Education for all community members and other parties involved and likely to affect or benefit from the resources in the bioregion, will be made a priority. The aim here is to build the local capacity by way of developing skills, sharing information and opportunities for the local residents to be fully involved in planning and managing the bioregional programmes and to have the capacity to participate, negotiate and perform the various tasks involved in the development process of their bioregion.

- **Research and international cooperation**

Any activity in the bioregion will have to be justified by the results of concerted research activities. These research activities will be done through an integrated and inter-sectoral approach to meet the global challenges and avoid the past mistakes of sectoral development approaches. Studies will focus on the people-environment interactions, the development of innovative methods for managing natural resources, and the long-term monitoring of environmental factors and the impacts of management practices. Resources and manpower for such studies will be drawn from the local and international experts. Cooperation with international institutions on research and knowledge transfer will aim at establishing home grown knowledge pools. Due to the fact that environmental problems and the effects of poverty can no longer be contained to remain at a particular location, further international cooperation and agreements, mechanisms for joint research, information management and investments will be part of the international relations work of BIORegMeru.

General Approach

Any region managed on the basis of the goals listed above, is likely to display a biological diversity and ecological integrity that serve as the basis for a sustainable development of its human society. The BIORegMeru, based on this understanding, is designed to induce a sustainable development process, whose underlying principle has roots on BRUNDTLAND et al. (1987): “[...] *the rearrangement of the technological, scientific, environmental, economic and social resources in a heterogeneous system that can be maintained in a state of temporal and spatial equilibrium [...]*”, and MILLER (1996): “[...] *(that) we must expand the geographical scales of conservation and development, shifting their traditional scope to embrace whole ecosystems and changing the process of those programs to involve the broad array of people and institutions who have a stake in the management of their region.*”

The BIORegMeru approach thus differs from the conventional development and planning approaches in that the strategy gives emphasis on the functional interrelationships between the social, cultural and economic activities of the region and the ecological processes on which they are based and not on their structural composition. It requires that development activities in the bioregion be based on the functional pattern, ecological carrying capacities and ecological vulnerabilities of the bioregion, and that these should be verified through a series of scientific studies, carried out prior to the implementation.

To help determine the extents of the Meru bioregion, a series of studies of the Meru landscape’s biological and physio-geographical attributes will have to be carried out. These studies will cut across the regions ecological, socio-cultural and economic fronts. The result of the study will be the delineation and presentation of an ecologically functional Meru bioregion. An inventory/environmental profile of all the resources of the region will then be made to help understand the state of the art of the bioregion’s resource base. The existing gaps and potential biodiversity centres: nodes, corridors, new and old managed protected areas, will be specified. The degree of integration and sustainability of the economic, social and cultural activities will be assessed on the basis of the land’s carrying capacity and vulnerability. Long term solutions to the economical, socio-cultural or environmental problems will be proposed for implementation.

Example:

The menace of the diminishing vegetation cover resulting into accelerated soil erosion, water pollution, reduced crop yield, malnutrition and poor health etc., will be combated through exploration of alternative sources of energy to reduce the use of fuel wood which is the only source of energy in the area. Being on the equator, with plenty of sun and heat, the Meru bioregion can be an example for the use of solar energy and biogas as the main sources of domestic energy needs.

The existing and the potential ecological priority centres (both in the protected and outside the protected areas) in the bioregion are an object of special attention of the BIORegMeru strategy. While we concede to the need for biodiversity to be protected in reserves as a necessity, BIORegMeru strategy nevertheless believes that efficient conservation of all ecosystems and their biological components require the commitment of the wider community in and outside the reserved areas. In the wake of the increasing human population accompanied by the growing poverty and environmental degradation in the targeted region, it is clear therefore, that mere pristine isolated protected areas can no longer meet all species' habitat needs and satisfy the essential ecological services. It is certain that even the already protected areas would be transformed by human use in the coming decades as far as appropriate measures are not stimulated. BIORegMeru strategy will present a plan for the habitat sites, ecological nodes and corridors nested within a matrix of mixed land uses and ownership patterns, linking the existing and potential protected areas. International cooperation and agreements will also be explored for trans-boundary protected area network. This will, among others, include joint research, information management, security and investments etc. This way, the BIORegMeru strategy will provide a comprehensive ecosystem-based bioregion plan, which will be developed and maintained as a permanent stable network of ecosystems and provide the basic framework for ecological functioning through time.

Links between biodiversity conservation and the meeting of the socio-cultural and economical needs of the bioregional residents and the resolving of conflicts between biodiversity conservation needs and the needs and rights of resident population will be a priority. Direct involvement and informed participation by those groups, directly and indirectly involved with the management of the biodiversity centres, will be the object of the BIORegMeru as a way

of recognising the rights of the bioregion residents to land and resources, and the right to benefit equitably from the resources in their own region. This will strengthen the bond between the people's culture and their home region and thus increase individual responsibility to their resource conservation, the betterment of their socio-economic, cultural and economic resources of their bioregion.

A strong bond between the peoples culture and their home region will revitalize and enhance the strengthening of the local indigenous culture, which is a valuable asset not only as a medium for unity among the Meru community, but also an archive for valuable indigenous and cultural knowledge, an essential component of a dynamic development and a basis for an enriched and diverse modern Meru culture.

Plan for Implementation

There are several ways in which the bioregional development strategy can be implemented.

Participation by community members takes a central position in the bioregional planning and can range from consultative to fully active in the process of creating a bioregional development plan:

In the "consultative participation" the plans are created by specialists. Community members are involved in consultation with experts for sharing information, but do not actively participate in the creation of the plans.

In the "cooperative participatory" approach, the plan maps are created by specialists in cooperation with community members. Both community members and the specialists participate in the collection of data and its representation on the plan. The process is however directed by a specialist.

In "self-directed participatory" approach, the plans are created by community members alone by consulting specialists. The specialist does not direct the community's actions.

Methods and Planning Process

The concept of an integrated sustainable development, based on a bioregional approach is relatively new and has no concrete prescribed planning methods for developing a nested hierarchy of economical, ecological and socio-cultural mixture. It follows therefore that the methods for implementing the BIORegMeru will start with the classical known methods, but evolve with time to produce a methodology suited to the needs of an integrated bioregional plan for an African landscape. A 3-step-sequential-approach, proposed by AJATHI & KRUMME (2002) is one such method that begins by integrating several other methods including ecological carrying capacities and vulnerabilities: ecological sensitivity to disturbance (ESD), rural appraisal assessment (RAA) methods etc.. The suitability of the most appropriate methods that can integrate the ecological concerns, economical concerns and the socio-cultural concerns of the bioregion can only be expected to evolve during the field application of such models.

The process of study and planning work of the BIORegMeru is expected to include the major activities described below. These activities are however tentative and subject to alterations or improvements in the field. The depth of the feasibility studies, assessments and detailed design for the planning process will be finalised and agreed upon in consensus with all participants after the familiarisation tour and pre-assessment studies of the study area. Then, among others, a plan for monitoring progress and plan revision, will be put into place so that the plan remains a process rather than a static exercise.

- **Analysis of the existing system**

The goal of this is to recognise the extents, boundaries and composition of the planning area. It is also aimed at understanding the conditions of the social, economical, cultural and natural resources of the study area as well as its potentials.

This information is expected to be derived from both secondary (to begin with) and primary sources of the region. Data from the GTZ (office in Nairobi) will be a great asset.

Unavailable or outdated data will be derived through appropriate assessment methods of the respective areas. Cultural information, not available in record, will be derived directly from

the local cultural experts through interviews. Direct assessments of the respective economical activities and social infrastructure will be given a priority as much of this information in records does not reflect on the actual realities on the ground. Verification of the state of the geological features like the mines and quarries, river basins, relief, etc., and the conditions of the protected and non-protected ecosystems, reserves or some other ecologically defined “bio-region attributes”, will be emphasised as the reliance of recorded information is most of the time misleading.

The study shall start with a comprehensive description of the environmental systems: large ecosystems, drainage patterns, geomorphologic features and natural resources etc. This shall be followed by the study of the existing social, cultural and economic resources in sufficient detail to gain a thorough understanding of how all these dimensions interact to create a functioning system. A synthesis of all previous investigations in the study area based on the available data will be done to reveal the gaps. Careful extrapolations and predictions derived through use of models (mathematical or GIS) will be attempted.

To be included in the description of the study area are the inventories of projects that have been planned, approved for planning or are waiting to be approved.

- **Analysis of the policy framework of the study area**

The goal of this will be to highlight any overlaps or conflicts between the policies applied to different economic, natural and socio-cultural sectors. It will also aim at understanding the laws and regulations influencing the activities in the region. Assessing and analysis of all the documentation of relevant policies in the study area will thus have to be done. Gaps here will be filled with direct interviews with officials of the policy instruments like legislation, regulations, planning and environmental standards to the extent possible. Decision making processes in the study area, including political systems and influences, will also be investigated and documented.

- **Workshops/seminars**

After familiarisation and initial pre-assessment of the study area by the research scientists from the University of Duisburg-Essen, a committee of the representative members (from all walks of life) of the communities representing the entire study area, will

be appointed with the help of the local leadership. This will include among others representatives of the municipalities and townships, community leaders, NGO's, teachers, women groups and university students from the area. This will be a major participatory element of the planning process. It will serve the purpose of the initial community visioning needed to generate community interest, and lay out a timetable for the community involvement sessions. The idea of the bioregionalism and the tasks expected of the respective community members will be discussed and timetabled.

Before the decision on the extents of the Meru bioregion should taken, a series of workshops/seminars with larger community representatives, stakeholders, government and party representatives, university lecturers and students as well as development planners and other development agents in the area will be necessary. The aim will be to explain the scientific basis for the bioregion extents to the community, politicians and the administrators of the land matters. Once the scientific basis for the delineation is well understood by all affected, a democratic consensus will be reached and the bioregion will be defined on the basis of science, law for territorial and regional and district boundaries and the culture of the people. Apart from the scientific basis for the bioregion playing a big role in the discussions, the goals and expected value of the bioregional strategies for sustainable development will be a fundamental basis for the discussions.

Further workshops will need to be conducted after the delineation and presentation of the bioregion. Among others, preparations for the participative formulation of the scenarios for sustainable development of the bioregion will be initiated.

The manner, the frequency and the composition of the community involvement will evolve with the project.

- **Identification of the BIORegMeru**

Layering and amalgamating the bio- and physio-geographical data, economical and socio-cultural data corrected in the study area, will produce a synthesis map of a region to be known as the Meru bioregion.

- **Formulation of sustainable development scenarios**

The scenarios are projections from the baseline data derived from the description of existing conditions. They cover social, economic, natural resource and ecological dimensions.

Scenario building will be done as a collaborative process to develop strategies and policies through a combination of narrative (stories and discussions) and quantitative (computer models, tables or graphs) approaches, after the bioregion has fully been researched and its attributes are thoroughly understood. Through the narrative aspects of the process, the quantitative data will be discussed and made transparent and understandable to the affected rural community. Discussions and vision building will help avoid the seduction by the seeming rigor and precision of the computer models of the region produced during the research. In Meru, like in many other rural set-ups in the African continent, the state of knowledge concerning sustainability issues is so limited and the uncertainties so great, that computer models alone are likely to exclude certain important elements in the operating on the ground. The elements of culture tied up in and influencing the community behaviour and development activities in the society could be brought out only through such a narrative process of the scenario building.

Alternative development scenarios of the planned area will thus be constructed to provide realistic development options and avoid theoretical and unachievable extremes. The social, economical and environmental implications of each scenario will be presented in a form that local decision makers can understand. In consultation with the local administration government and stakeholders, a preferred development scenario will be chosen as a consensus vision of the long term future of the BIORegMeru.

- **Plan formulation**

Detailed plans comprising a natural resource development plan, environmental management plan and socio-economic development plan are elaborated in consistency with the preferred development scenario. The interactions between the plans are documented to illustrate the integrated approach that is needed to attain the sustainability goal of the BIORegMeru.

It is very important for the community members to feel that they are actively involved in the creation of the maps through their active participation in decisions about what features are to be

mapped, in order to build community stewardship. A corporative participatory approach between the experts of the University of Duisburg-Essen and the bioregion community members will thus be explored in the creation of the bioregional maps and plans. Cooperative Participatory approach means that the maps and plans for sustainable development will be created by the specialists in collaboration with community members. That means both the community members and the specialists will participate in the collection of data and its representation on the maps and plans. Such an approach will be a breaking ground for the regions citizens.

- **Spatial and sector plans**

The spatial context of the preferred scenario is conceived to be an ecological base of the bioregion consisting of a network of conservation priority areas and ecological corridors. The various plan components will be fused in the various sectors in the bioregion (e.g. agriculture, conservation, mining, forestry etc.). For example, an agriculture sector plan will contain social, economic and environmental strategies consistent with the preferred sustainability scenario. Separate sector studies and presentations may require refinement of the plans in accordance with the sectoral agencies and interest groups.

- **Selection of sustainable projects**

Ideas for new sustainable projects, to be included in the ultimate development plan, will be discussed during the preparation of scenarios. The economic viability, resource demands, social and environmental impacts of each project will then be assessed before implementation.

- **A synthesis development plan**

The various components of the plan are thus combined and presented as a synthesis development plan of the BIORegMeru. It will cover the goals, objectives, strategies and a vision for the future. The plan is thus presented in draft form for public comment and consultation.

- **Presentation of the outputs**

A synthesis development plan for BIORegMeru will comprise of a socio-economic development plan, natural resources development plan and environmental management plan as well as a cultural development plan. This plan will be presented as a consolidated, action plan for the region. It will be divided into

short-term, medium-term and long-term phases. The individual priority projects of the plan will need detailed feasibility studies before implementation.

- **A coordination centre for the bioregion activities**

To uphold the momentum for sustainable development in the bioregion and maintain an enduring and sturdy follow-up of the BIORegMeru strategy and the programmes therein, a “Coordination Centre for Bioregional Activities” will be erected at a suitable central location in the bioregion. This will be explored early in the planning process, possibly in the second phase, as an urgent priority project. Among others it will serve as centre for educational and cultural activities in the bioregion. This will serve in the enhancement of the communication, formal and informal environmental education and discussions and presentations of the cultural activities among all the bioregioners. Other activities will include: education preparation of the strategy multipliers, holding open days, cultural and agricultural exhibitions for the bioregional residents and guests and also serve as a centre for public relations of the bioregion.

The centre will also explore possibilities for serving as a coordinating centre for the bioregions touristic activities, scientific research activities and regional and international meetings. These activities, and most important the tourism, are regarded as a big economic boost and employment for the bioregion.

Summary of the Activities

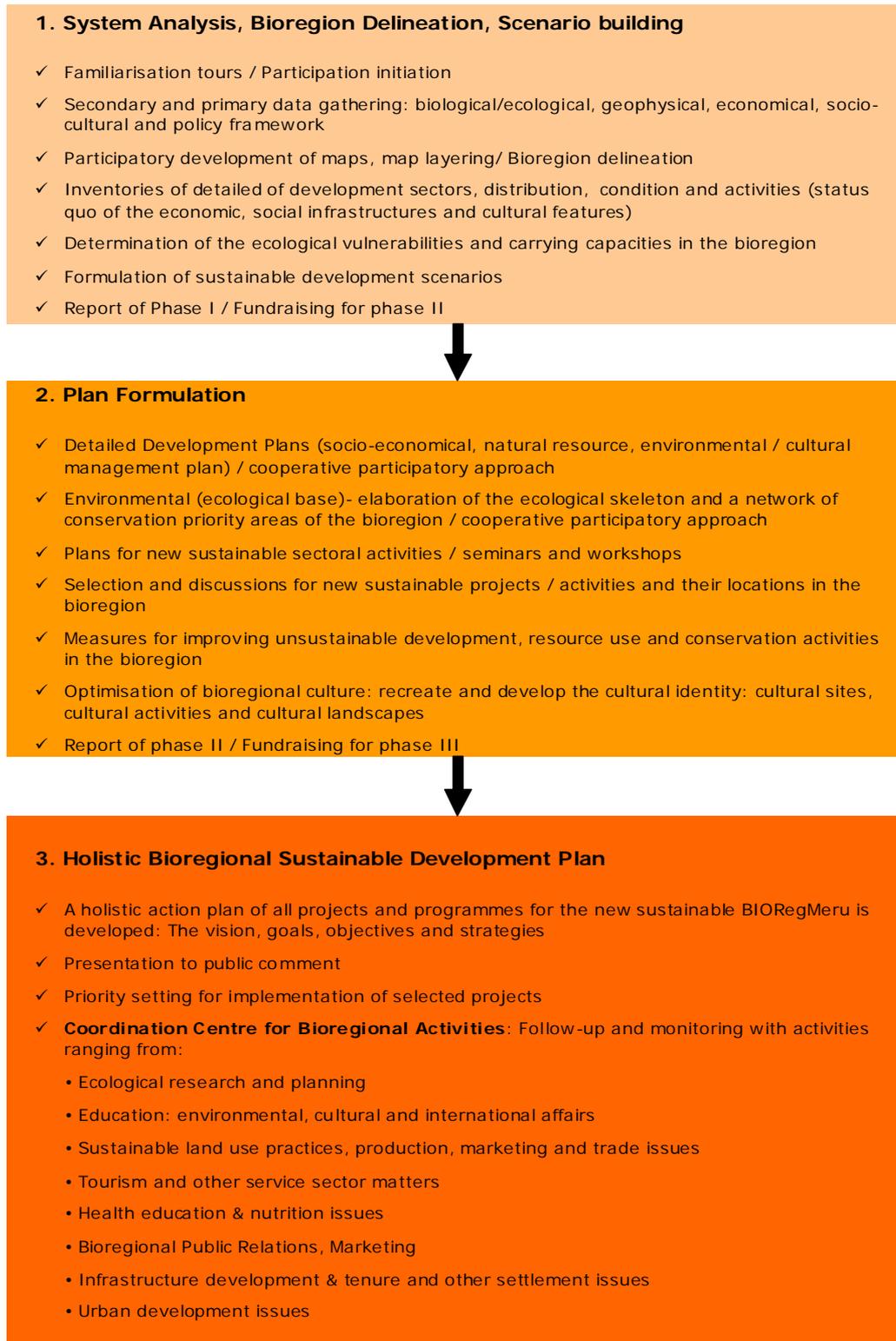


Fig. 2: Summary of the activities

Partners & Resources

University of Duisburg-Essen

The project is developed at and will be run by the University of Duisburg-Essen, using the intellectual capacity and resources of the university.

The Faculty of Biology and Geography of the University of Duisburg-Essen contains institutes and departments which cover all relevant natural and environmental sciences. Specific cooperation in form of PhD and Msc. research activities are planned to be carried out in the study area. Researchers will be posted to the research area as soon as arrangements are completed.

Sustainable Development Group

The BIORegMeru project is headed by Prof. Dr. Ulrich Schreiber, who is also the head of the Department of Geology and the dean of the Faculty of Biology and Geography. In cooperation with the university's Centre of Microscale Ecosystems (CME), headed by Mr. Oliver Locker-Gruetjen, the Faculty of Biology and Geography supports and directs the activities of the BIORegMeru and the Programme for Academic Cooperation and Transfer (PACT). Concerned with the technical aspects of the two programmes are Mr. Henry Muraa-Ajathi, Mr. Klaus Krumme and Mr. Thomas Hanke. Mr. Philip Dammann is currently an associate member of the group. For any further information, please, feel free to contact us:

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Other cooperating Agencies

Other organisations and institutions that have signalled their cooperation include: the GTZ (Gesellschaft für Technische Zusammenarbeit), the UNEP (United Nations Environment Programme) and the WCC (World Council of Churches). We hope this number will soon increase to cover all research fields for work to be done in the Meru bioregion.

You can be part of the BIORegMeru

To initiate the implementation process, BIORegMeru aims at cooperating with different partners in different sectors to build up a stable network for future activities in and out of the project area.

We consider this network the base for the project's evolutionary process. Being a pioneer project of its kind in the region, many people including ourselves are very anxious of its results. Our anxiety is however our motivation for making BIORegMeru a success.

You too could be part of this motivation by supporting the project with:

- ✓ finances or other material support
- ✓ expert advice / academically e.g. manpower development and training
- ✓ your membership to the project's advisory board/ participation in the BIORegMeru Think Tank
- ✓ provision of logistic or technical support
- ✓ participating in the BIORegMeru's public relations activities (Media: public press, documentations, etc.)
- ✓ useful contacts and recommendations

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