

## Conclusions and Perspectives

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The workshop on „Sustainability in rural and urban environments“ focused – as already explained earlier – on four topics: (1) agricultural and urban environments, (2) future demands and use of water and energy, (3) disaster prevention, (4) implications for land use and land cover changes. It aimed at three major objectives: (1) deepening of the cooperation and academic networks of both countries, (2) identifying future fields of research, teaching and capacity building on both sides and (3) bringing together academics from different disciplinary backgrounds, institutional viewpoints and stages of scientific career to ensure future oriented capacity building within the participating universities.

In order to fulfill these requirements, the workshop programme was composed of four keynotes and four impulse lectures from scholars of both countries as well as two workshops for intensive scientific exchange and discussion. The underlying idea was to exchange ideas and viewpoints on relevant research topics, research priorities and to identify common fields of action as well as to consider potential future joint research projects.

The following summary of the basic discussions and considerations of the two workshop groups is based on comprehensive notes which were taken by the many authors of this chapter.

### Workshop group I: Rural sustainability

The first workshop group on “rural sustainability” focused on two major research ideas, combining the expertise of several colleagues:

- Biodiversity, tourism and agro-eco-environment
- Land-use and agricultural production systems.

The background of a potential project on “**Biodiversity, tourism and agro-eco-environment**” is evident, as Myanmar has unique monsoon rainforest resources, rich mangroves and further highly valuable sites of rich biodiversity with one of the best preserved biocoenoses in Asia. The group suggested to establish a joint research project with five potential test sites (Yangon/Nga Mo Yeik, Yezin, Hinthadda, Pyinmana and Mount Popa). It should focus on an inventory of forest and mangrove degradation, on the elasticity of agro-eco-environments – based on digitations of agro-ecological parameters in the test areas – as well as the development of a canopy exploration site for scientists and tourists, including participatory forestry development and restoration techniques for refurbishing degraded forests.

A joint project on **land-use and agricultural production systems** should focus on a better understanding and eco-friendly intensification of synergistic interactions between crops, animals and people within agricultural production systems. Increasing imbalances among rural and urban communities require market and income studies as well as the assessment of potential risks through antagonistic relations between sustainability and profitability. In a potential project the sustainability of past and present land-use should be assessed on the basis of an inventory of land-use patterns and degradation. Furthermore, land tenure systems and their applicability for future intensified agro-eco-farming should be appraised, and an inventory of farming systems (analyses of crop calendar, crop rotation, intercropping, crop diversity, cropping intensity etc.) as well as an ecological and agronomic risk analysis should be conducted. Post-harvesting losses, waste processing, market and marketing development in the transformation process as well as an analysis of commodity flows and market information systems would be included.

Furthermore, the group pointed out that important research questions lie in the field of **eco-intensive farming**, in order to achieve intensive agricultural and horticultural productions. This would imply the application of consistency and sufficiency strategies, the analysis of irrigation schemes, tree cropping systems and the use of biodiversity indicators, which should be taken to evaluate contradictory development tendencies (e.g. sustainability and market interactions, market driven encroachments within the forests). Moreover, **bio-economic developments** bear important questions, with scenario development and efficiency strategies. Finally, the group underlined the importance of **institutional issues**, as the achievement of aims of the Agenda21 requires strong interconnection between different levels of actors (e.g. farm, village, province, country) and administration as well as cross-institutional linkages.

## Workshop group II: Urban sustainability

The second workshop group on “urban sustainability” decided to at first collect most important research deficits and needs in general, then discuss about research priorities and finally, elaborate potential future joint research projects in detail.

The following important **research fields** concerning urban sustainability were identified as priority issues for future research in urban environments in Myanmar:

- (1) Air and water pollution, noise, industrial waste
- (2) Energy supply: electricity supply and use, woodfuel compensation
- (3) Supply and deficits of the urban transportation infrastructure
- (4) Health aspects: diseases, public health supply
- (5) Urban heritage (downtown inventory, definition, acknowledgement of urban heritage and identity)
- (6) Urban and peri-urban agriculture
- (7) Emergency management: georisks, health fires (risk mapping, zoning, planning instruments, safety systems, coping strategies)
- (8) Geographic Information System (GIS) for urban management in Yangon.

Against this background the workshop group considered two research projects which should be followed further:

- Geographic Information System (GIS) on urban fringe dynamics in megacity Yangon
- Urban Heritage in Yangon as comprehensive issue for sustainability.

Concerning the research project of a "**Geographic Information System (GIS) on urban fringe dynamics in megacity Yangon**" it was obvious that such an elaborated tool for identification of urban processes and for a comprehensive planning is absolutely essential. Particularly in the transformation situation, seeing the Myanmar capital Yangon to be on the crossroads between 'exchangeable urban internationalization' or 'individual urban quality development', a future-oriented planning and monitoring tool offers valuable advantages. The GIS should be established with basic tools for an inventory on 4 levels:

- (1) topography base map
- (2) land use changes and social environments
- (3) infrastructure developments, energy and water supply
- (4) health and emergency issues.

The second project idea was directed to the topic of "**Urban Heritage in Yangon as comprehensive issue for sustainability**". The leading idea behind this topic is the fact that urban development processes in Yangon take place at a substantial pace, mainly due to the economic transformation situation since the introduction of market economy. This fuels irreversible inner-urban structural changes in the extraordinarily coherent downtown and neighbourhood areas, thereby threatening a huge potential of old buildings of different construction eras as well as unique living quarters with long-standing residential and economic identities. A potential research project should focus on different sites of importance (such as for instance: a) old markets like the Theingyi Zay, b) vibrant residential quarters with stable and coherent neighbourhoods or c) diverse living quarters in connection with famous pagodas and monasteries), investigating the elements, structures and processes of socio-economic coherence and reputation, cultural environments and potentials for good quality of life.

## Further steps

The different groups decided on a particular organization structure of potential cooperation partners which among themselves should organize mutual exchange on an individual basis.

Furthermore, the next steps were agreed upon as follows:

- (1) Communication and exchange: A constant E-mail exchange, based on proper infrastructure in all participating Departments, should be established, including a mailing list with responsible list managers in Myanmar and Germany. A joint webpage could be set up, allowing external information and internal exchange – the provision of adequate computer equipment would be a prerequisite.

- (2) Publication: The workshop proceedings of this first German-Myanmar Workshop should be published, allowing improved insights in particular research efforts and the exchange of respective expertise in research capabilities.
- (3) A second German-Myanmar Workshop should be envisaged, in which one or two of the above mentioned topics should be further investigated.
- (4) The different discussion groups should further elaborate and develop their research priorities of joint projects – including the identification of possible financial support as well as the next steps of application.

At the close of the meeting, the participants expressed their high acknowledgement to the local organizers, the Department of Geography of Yangon University, and to the Gottlieb Daimler and Karl Benz Foundation, Germany, for their generous financial support.