

Cities without Slums

Actions for Interventions in Slum Areas in Mozambique
in the Context of Settlement Upgrading.

Final Report



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List of Acronyms

CDS-ZU	Centre for Sustainable Development Urban Area
ASSOPIMO	Fishers Association (Associação dos Pescadores)
AAIM	Association of Friends of the <i>Ilha de Moçambique</i>
NUSA	Environmental Awareness Agency
MICOA	Ministry for the Coordination of Environmental Affairs
DINAPOT	National Directorate for Territorial Planning
SDC	Swiss Development Cooperation
DANIDA	Danish International Development Agency
Macuti	Bantu term for a palm-leaf roof
IMPFA	Institute for Physical Planning and Environment
IRAP	Institute for Spatial Development
UAS-R	University of Applied Science at Rapperswil
KFH	Rectors conference of the Swiss Universities of Applied Science
NGO	Non Government Organization
UNESCO	United Nations Educational, Scientific and Cultural organization.
GACIM	Cabinet for the Conservation of the Island of Mozambique
DINAGECA	National Directorate of Geography and Cadastre
AUSAID	Austrian Development Agency
MDG	Millennium Development Goals
UNO	United Nations Organization
PADEMO	SDC assistance program for decentralization and municipalization.
GIS	Geographic Information System

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Within the UAS-R and DINAPOT a number of colleagues and professionals contributed with their knowledge and advice. This too was very important for the results obtained during the project and we would like to thank them explicitly.

Abstract

For 18 months a joint team of professionals and experts in the area of territorial planning from the Swiss University of Applied Science in Rapperswil (UAS-R) and from the National Directorate of Territorial Planning (DINAPOT) addressed issues of slum upgrading on the island *Ilha de Moçambique*. The island off the East coast of Africa has unique potential as a World Heritage Site. However, this opportunity is lost if the plight of the local population living in the informal settlement areas is not resolved.

The method applied to this situation was planning based on local participation and ownership of the decision making process. Stakeholders, including representatives of the local population, the city major and the planning authorities on the local, provincial and national level, were invited to participate in the series of workshops held in the town hall of the island municipality.

The workshop procedure was carefully scripted by the Swiss project component and was based on moderation technics that are taught at the UAS-R and frequently applied in Switzerland. For the Mozambican project component this was a new experience. The impact of this participation process can be estimated by the request of a training course at DINAPOT and specifically directed towards the new national training facility IMPFA. An appropriate training course was elaborated and held by Yolanda Leyer in Maputo in the autumn of 2010. IMPFA has requested a continuation and an extension of the training process.

The main priorities for the development of the informal settlement areas of the *Ilha de Moçambique*, known as Macuti Town after the palm leaves used for covering the roofes, were indicated during the workshops as:

- Sewage treatment and water management
- Land-use planning / Urban infrastructure
- Cadaster mapping / Land tenure

The City Council mandated the national planning authorities to seek solutions for these areas based on the findings of the workshops. This process corresponds to the recent legislation on planning and land-use that emphasize the aspects of decentralisation and participation. Terms of Reference (ToR) for the development in the referred areas were drafted and presented to MICOA (Ministry of Environmental Affairs) for inclusion in the national agenda.

Prof. Thomas Matta, the Swiss project coordinator for the UAS-R, visited Mozambique in October 2009. He was able to gain a first hand impression of the situation and jointly review the results of the workshops with the major of the city, Mr. A. Matata. He also met with the Swiss Ambassador Mr. T. Litcher.

The director of DINAPOT, architect Arlindo Dgedge, was invited to visit the UAS-R in August 2010. During a number of work-sessions and personal encounters with private and public sector planning authorities he was able to gain a good insight into the Swiss territorial planning sector.

A. Dgedge was invited to present the current situation of territorial planning in Mozambique to a selected group of representatives of IRAP, the planning institute within the UAS-R. At the university he also met the rector of the school, Dr. H. Mettler, and was able to discuss the potential for collaboration between the two training facilities.

During a visit to the Mozambican embassy in Geneva, possible collaboration and support was discussed. Dr. Miguel Tungaza explained the necessity of involving the respective diplomatic bodies. He also recommended the involvement of the Ministry of Foreign Affairs (MINEC). This would enable the embassy in Geneva to play its role as facilitator and catalyst for collaboration.

As a direct spin-off from the current research project a new initiative has been launched within the UAS-R. It is called KS-EZA (Koordinationsstelle für Entwicklungszusammenarbeit) and addresses the need to coordinate the various projects within the UAS-R that address development issues in the respective nations. A study of the sewage situation of the island and possible solutions was elaborated by J. Salzberg, a student of Prof. R. Widmer at the engineering department of the UAS-Rapperswil, in spring 2010.

DINAPOT / IMPFA could greatly benefit from the knowledge transfer from the UAS-R / IRAP in the area of territorial planning and also in related technical fields.

Most specifically in the areas of urban structure plans, land-use plans, technical infrastructure plans, transport systems and public infrastructure plans the Mozambican counterpart is most interested in receiving long or short term assistance in the form of courses provided to the technical staff and students of IMPFA. There is also an interest in continuing this process on the part of the UAS-R / IRAP, as is manifest in the support the Young Engineers venture and indicated in the current effort to institutionalise the collaboration process within the UAS-R. However, in the narrower sense of the continuation of the Slum Upgrading process, the Swiss project component is of the opinion, it has already made a significant contribution to the awareness and for the potential of addressing this issue in Mozambique.

Naturally, the Swiss project component would be very keen to continue its involvement in this process. One of the key components in this participative process is, however, the transfer of initiative to the local partner. The first steps in the right direction have been taken. It is now up to DINAPOT / IMPFA to formulize a request for further assistance and training.

1 Project Outline and Intent

1.1 The Project Setting

When Mozambique became independent in 1975 the country had about 12 million inhabitants, of this population between a million and a million and a half was urban.

Today Mozambique with its almost 21 million inhabitants is characterized by urban hubs and peripheral belts of suburban sprawl. In the favourable areas where sufficient land is available, these areas have developed into townships with a high degree of auto-sustainability. However, where further limiting factors intervene such as liability to flooding or limit of available space the situation has become precarious. With the acceptance of the Millennium Development Goals urban poverty in Mozambique, characterized by informal settlement, has been recognized as one of the main contributors to unsatisfactory human living conditions in the country and has become a national government priority.

Informal settlements are, according to the UNO, characterized by low-incomes, no basic urbanization, ambiguous or insecure land tenure rights, high population density, poor environmental conditions, poor or very poor building quality, absence of an urban culture and a high level of crime and delinquency.

Within the national planning framework a number of current such situations are being studied¹. The proposed project defines an action plan and includes local capacity building for a specific slum area based on its unique properties as part of a World Heritage Site.

The *Ilha de Moçambique* is an island off the East coast of Africa. It lies on the South 15th Parallel approximately 2'000 km north of the capital city Maputo. A bridge of 3.6 km length links the island to the mainland. The island is about 3 km long and between 200 m and 400 m wide; the area is approximately 1 km².

The island is divided into two regions. The northern half of the island consists of the city of stone and chalk, the southern half is the city of "Macuti". This Swahili name derives from the palm leaves used for covering the indigenous huts. The division between the two areas is a straight line following the walls of the municipal hospital.

Today approximately 14'000 people live on the island. A significant proportion of these are children and youths. A family household on the island consists of an average of 5.77 members.

There is consent regarding the lack of infrastructure particularly in the southern part of the city where the large majority of the population lives. Here approximately 12'000 people

¹ Melhoramento dos Assentamentos Informais

dwelt in 0.5 km²; this corresponds to approx. 41 m² per person. The inadequacy of the situation is visible in the lack of hygiene, light, fresh air and basic infrastructures such as clean water and proper sanitation; generally there is no proper distinction between the private and the public areas. These people largely live in straw houses and earn their livelihood within the same structures.

1.2 Project Idea

The slum environment in Mozambique is recognised as a major problem for the sustainable development of the country. As we have seen a number of informal settlements are currently under review. This research project is integrated into the national strategy for understanding and improving of poor living conditions based on the objectives defined in the Millennium Development Goals (MDG). The proposed project defines an action plan for participative planning and includes local capacity building for a specific slum area, building on its unique properties as part of a World Heritage Site.

Each slum situation reflects a unique set of parameters. Part of the solution is thus the recognition of the relevant parameters and the definition of a development strategy that addressed this uniqueness and turns elements that may at first sight seem detrimental into potential assets. The *Ilha de Moçambique*, including its slum areas of *Macuti Town*, has a highlighted uniqueness. However, strategies developed for unlocking the potential and engaging in planning based on local participation may be generalised and lessons learned applied to situations across the developing world.

Both the Mozambican and Swiss partners in this proposal are engaged in the acquisition of data from applied research in the field of territorial planning and in the training of territorial planners at the foundation level. The difference in context poses a particular challenge for both institutions and the opportunity to extend the knowledge basis for planning based on local workshops and interactions at the community level.

1.3 Goals and Expected Results

The main goals of the project are:

Initiation of a Participatory Planning Process

- Definition of a Participatory Planning Process by which stakeholders, with the emphasis on the local community, design City Development Strategies that correspond to their vision for their city, analyze its economic prospects, and identify priorities for action and investment. In addition enhance the awareness of development potential and behavioral constraints;
- Define methodologies of improving security of tenure for slums dwellers, upgrading slums and improving housing strategies, strategies for creating jobs, identify the availability of cadastre mapping and property data for individual properties and define alternative to slum formation.

Development of a training curriculum on monitoring of social and economic changes – slum upgrading techniques

- Based on the results of the objectives of the first paragraph, a teaching module will be elaborated with emphasis on the importance of the use of GIS² for data gathering, the research of economic opportunities within the slums and the elaboration of detailed maps and implementations plans.

1.4 Reference to Project Proposal

The project proposal included the full context and objectives of the research on slum upgrading. This provides valuable background information for the understanding of the project process that is described in this research report. The project proposal has therefore been included in the annex.

1.5 Description of the Partners

The University of Applied Science at Rapperswil (UAS-R)

The UAS-R is actively engaged in the transfer of technology and expertise through application-oriented research and development. The success of its institutes, study centres and job related research centres make the UAS-R a valued partner for commerce, industry and public authorities.

IRAP, Institute for Spatial Development

The Institute for Spatial Development IRAP offers a broad range of services in the areas of competence for different target groups. These include planning offices as well as planning departments at federal, county or local level. The services range from applied science and development to education and advanced training. Thereby it is oriented towards the principle of sustainable development. IRAP carries out applied science in the following fields: standardization and harmonization of planning and building law, town planning, urban design, regional economy, infrastructure costs, planning at the interface of tourism, spatial planning and landscape planning.

Study Program in Spatial Planning

- New Bachelor Program started 2005
- Only University in Switzerland which offers a bachelor degree in spatial planning
- Interdisciplinary projects and joint tuition with study courses Landscape Architecture and Civil Engineering
- Generalist education
- Highly problem and practice oriented (partnerships with local authorities)
- Master Course starting 2009: Public Planning (MSE Master of Science in Engineering)

² See 6.1 *Intended Results and Actual Results* for elaboration on shift of objectives.

The National Directorate for Territorial Planning (DINAPOT)

Under the Ministry for the Coordination of Environmental Affairs (MICOA) is mandated to:

1. Establish norms and regulations for land use planning,
2. Elaborate land use plans for regions, districts, cities and rural settlements,
3. Monitor the implementation of plans,
4. Prepare and disseminate the methodology for land use plans,
5. Support leaders in decision-making regarding localization of different economic and social projects,
6. Evaluate land use plans prepared by other entities,
7. Update data related to land management,
8. Support local government in upgrading of informal settlement (slums).

To achieve these objectives DINAPOT is required to find and teach its own technical staff. This has led to the current re-establishment of the Physical Planning and Environment Institute that was first opened in 1986. The basis for the renewed focus on applied science and implementation know-how is the recognition that practical professional skills are crucial for the successful implementation of government policies at the local level. The integration into the Ministry for the Coordination of Environmental Affairs (MICOA) has put the institution on a solid financial basis, the passing of the new land planning law in 2007 (19/2007) has resulted in a clear mandate to supply the technicians able to implement the legal provisions.

Institute for Physical Planning and Environment (IMPFA)

This Institute is a public training institution and is also under the Ministry for the Coordination of Environmental Affairs (MICOA). It aims at teaching professionals in the field of physical planning and environment that will be able to act as qualified professionals in the field of physical planning taking into account the need for environmental protection. It runs a long and medium term courses and also develops refreshment courses for districts, municipalities and provincial staff.

The long and short term courses concentrate on the following objectives and subjects:

- Train professionals that are able to establish the link between conceptual planning and implementation;
- Technical empowerment of the districts and municipalities in the elaboration of spatial and environmental plans;
- Public awareness to the decision makers and community on the importance of physical planning and environment;
- Environmental Impact Assessment with the objective to train technicians in environmental strategic planning and auditing;
- Spatial planning with focus in: elaboration and implementation of detailed plan, elaboration of structure plan and physical planning basics tools;
- Natural resources and management: Climate change adaption, uncontrolled fire, soil erosion, solid waste management and natural resources management;
- Environmental education with emphasis on environmental awareness.

2 Methodology

2.1 Analysis

Available data

The basis for the development of the *Ilha de Moçambique* was an analysis of the current situation, the development strategies that were elaborated in the past years and the slum upgrading strategy for the *Ilha de Moçambique*. For this analysis the research project was able to draw on information collected in the bachelor thesis³, a postgraduate study on building in developing countries⁴ and a business plan for a site development agency, based on the *Ilha*, developed in the context of an executive MBA program at the EPFL⁵.

The other source available included the centralized data-base of the DINAPOT and the information collected in interviews and interactions with the local stakeholders and population.

Change of Paradigm

Despite the impressive amount of effort that has been invested in the development of the Island⁶, the living conditions have only marginally improved.

A change of paradigm for the development of the Island was proposed in the bachelor thesis by Yolanda Leyel. This leap of faith is assumed to be a starting point for the sustainable development of island. It includes the realization that development of the *Macuti Town* is a key factor for improvement of the Island environment and is a prerequisite to unlocking the potential for tourism and prosperity, based on the unique heritage. To achieve this sustainable development a new approach building on interaction with the local stakeholders is required.

The factors that interact to define the complex island situation are presented in the mind-map build around the principal objective of “Slum Up-grading”. The main goals composing the outer shell are:

- Sustainable Improvement
- Operational Skills
- Knowledge Base

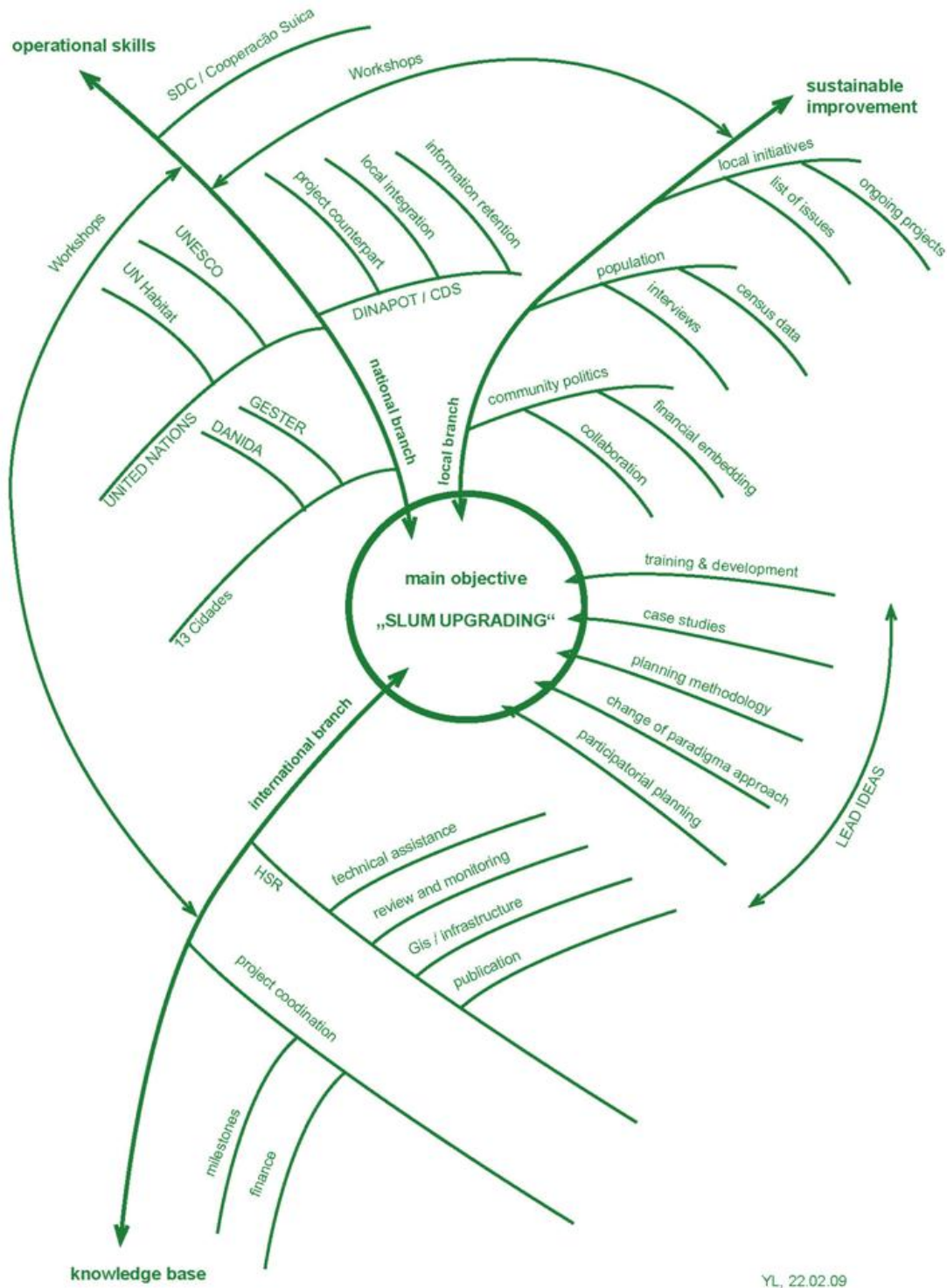
³ Bachelor Thesis, Yolanda Leyel, 2008

⁴ MAS, ETHZ, Andrew Leyel, 2004

⁵ Exec. MBA, MoT, Andrew Leyel, 2008

⁶ Donor Investment of approx. USD 7.0 million p.a.

Slum Up-Grading - Ilha de Moçambique (Mind map)



YL, 22.02.09

Figure 1: Mind Map

2.2 Bottom-up Approach

Despite widespread recognition of the necessity of decentralisation and the involvement of the local population in the decision making process, as is reflected in the recent legislation (Art. 22 of Law on Territorial Planning 19/2007) and discussed in chapter 4.2 *Legal Context*, the reality of planning in Mozambique is still to a large extent top-down and centralized.

This is to a large extent also reflected in, and caused by, the technical capacities concentrated on the national or partially on the provincial levels. Through the heavy involvement of NGO's in the national development process there are however also isolated islands of high technical competence at the local and district level – these are often parallel to, and not integrated into the local decision making.

On the one hand due to the lack of technical competence and resources within the local government, on the other hand due to the necessity of coordinating planning efforts and ensuring they comply with national priorities and objectives and fulfil legal requirements, the top-down oversight, promotion and funding of implementation is necessary and also not questioned, to the extent it is an integrated component of the whole planning process. The most promising approach would seem to be an integration of a top-down and bottom-up planning process.

The method applied during this research project is conscientiously bottom-up, the prime source of information and the prime level of debate is set at the local level. There is however also a necessity to foster this approach within the local and national government and its executive bodies. As we will see this transfer of methodology became, through explicit interest on the part of the concerned institutions, an emphasis of the research programme and one of its key areas of success.

2.3 Site Visits, Local Presence, Stakeholder Involvement

Decisive for a bottom-up approach is an on-site presence and the direct involvement of the directly affected and concerned. This aspect was addressed through a series of workshops at the local level and both formal and informal contacts with the local population. The participants for the workshops were defined in discussion with the local representatives, however based on a list compiled by the project team (see 5.3.2 *Stakeholder Identification*).

As is shown in the process diagram (see annex 1-Project Documentation) one of the objectives of the research program is for the local government (City Council) to mandate the central planning authorities (DINAPOT) to elaborate technical solutions for the problems identified by the stakeholders within the workshop process.

To what extent the workshops were able to implement this objective and where the research project was able to make suggestions for future improvements is discussed in chapter 7, *Recommendations & Lessons Learnt*.

2.4 Knowledge Transfer / Training course

The *Ilha de Moçambique* setting as a case study is seen as a means to highlight a process that is valuable for planning on all levels of government. The process of collaboration between the IRAP and the DINAPOT/IMPFA was also an opportunity to learn from each other (see 6.2 *Relevance of the Research Project for the Partners*).

The experience of joint moderation of a community based workshop was new for the Mozambican counterpart and was - on their request - formalized into a training curriculum in participative planning and moderation (see 5.4 *Training Curriculum*).

3 Summary of Results

Phase I: Data Collection and Analysis

Contacts between the IRAP and DINAPOT are re-established and deepened in a joint field trip to the *Ilha de Moçambique* informal settlement site. The context of the Bachelor thesis on slum upgrading for the *Ilha de Moçambique* is used as a basis for a fresh look at the evidently unsatisfactory situation. A data bank on slum upgrading projects is assembled. Contacts with possible project collaborators and stakeholders are established (UNESCO, DANIDA, SDC, City Council, NUSA, GACIM, Millennium Village and Association of the Friends of the Island). Maps and development schedules for the Ilha are sighted and where necessary adapted.

Phase II: Participative Planning Process / Workshops

A methodology for a participatory planning process is established and translated into a programme for the inception workshop with local stakeholders and government authorities on the Ilha (see 5.4 *Participative Planning Process / Workshops*). The two-day workshop is conducted by a joint IRAP - DINAPOT team. Results are documented and form the basis for the establishment of Terms of Reference (TORs) for feasibility studies in the target areas of public sanitation, land tenure and structure plan. An alignment of priorities and responsibilities is discussed and mandated for further refinement within the national planning framework.

The Swiss project coordinator for IRAP, Professor T. Matta, visits Mozambique in October 2009. The contacts with the Mozambican counterparts are formalized and areas of future collaboration are discussed. The Swiss ambassador, as the lead representative of the SDC in Mozambique, is informed of the ongoing research project and his support is secured.

The Mozambican project leader, architect A. Dgedge, DINAPOT/IMPFA, visits Switzerland and is able to gain first hand insights into Swiss spatial planning procedures and also understand the position of the UAS-Rapperswil as a training faculty, positioned between academic research and technical application. Concrete possibilities for joint projects in the fields of knowledge transfer and research are evaluated.

Phase III: Development of the Training Curriculum

Two high-level planning sessions are held in Maputo and a site visit to the Ilha is undertaken. The necessity of institutional collaboration for achieving the goals defined in the programme is confirmed and means of implementation discussed. Based on the results of the inception workshop, planning instruments are developed to address the identified issues. DINAPOT is to function as a liaison agency for locating possible planning and financing assistance and channelling it to the stakeholders. Specific training/decision workshops are prepared in a collaborative process between DINAPOT/IMPFA and UAS-R. An appropriate training curriculum is prepared by both planning institutions in a collaborative process and a week-long training session is held at the DINAPOT/IMPFA facilities in Maputo.

Phase IV: Discussion of the Results and Presentation to Local Government

A project debriefing with a presentation of the TORs elaborated during the workshops is incorporated into the final workshop on the Ilha. The city council and the district government are able to discuss the results and then endorse the proposals.

Project Continuation

A number of follow-up possibilities have evolved. They are presented and discussed in the chapter 7, point 7.5 *Project Follow-up*. The process of participative planning and its manifestation in workshops held at the local level is an experience that was highly esteemed by the nation planning directorate DINAPOT/EMPFA and interest in programs to continue and deepen collaboration in this area was repeatedly expressed.

4 Project Specifics

4.1 The Participative Planning Process

Participation is one of the key features being discussed today in planning practice and theory. In the context of slums, participation is understood as a *“process in which people and specially disadvantaged people, influence resource allocation and the planning and implementation of policies and programs, and are involved at different levels and degrees of intensity in the identification, timing, planning, design, implementation, evaluation, and post – implementation stage of development projects”*.⁷ The importance of this process is that because of the complexity present in slums, the professionals (municipality or project initiators) need the community as their main source of information. In addition, getting their inputs and having them help decide the nature of a project will develop a sense of “ownership” that increases the project’s chances for success and sustainability over time. Furthermore, a successful upgrading program should aim beyond the infrastructure. It should aim at creating citizens by strengthening the community’s voice and self ability to transform its condition, these both said to be achieved by public participation.

The slum dwellers should be seen not only as an input to a planning process but also as genuine development partners and agents.

Purpose of Participatory Planning

The purpose of participatory planning is to create a platform for learning rather than plunging directly into problem solving. The process is expected to enhance

- Identification of the felt needs of the people
- Bringing forth consensus
- The empowerment of local disadvantaged groups
- Integration of local knowledge systems into project design
- Two-way learning process between the project and local people
- Political commitment and support
- Accountability in local governance

The planning process should produce two sets of results:

1. In the short term, the tools of participatory planning should generate a two-way learning process, which will shape project interventions to local needs, opportunities and constraints.

⁷ *Slum Upgrading and Participation*, chapter *Facets of Participation*

- In the long term, this learning process should lead to local empowerment and effective support at the institutional level.

These are considered preconditions for strengthening both institutional capacity for decentralized planning and local planning capacity.

Participation is also defined by the level of participation according to stages of project.

Framework of Participation and Stages of Projects

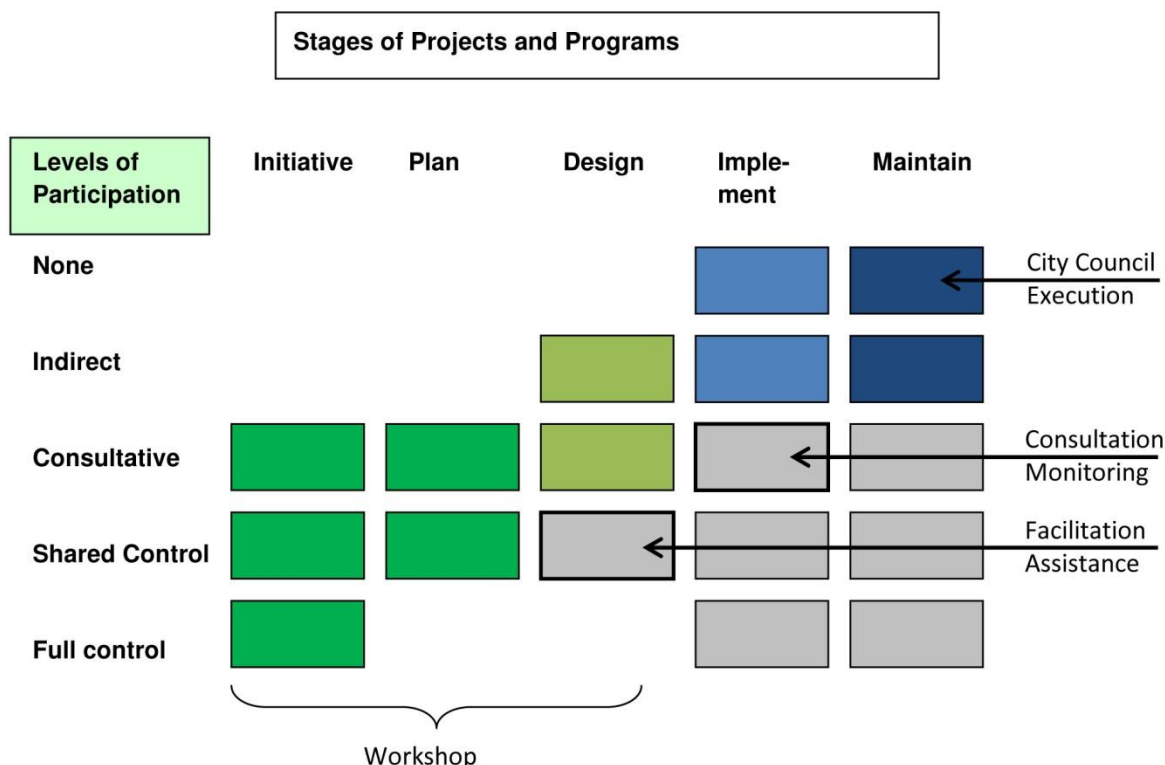


Figure 2: level of Participation⁸

For the *Ilha de Moçambique* a participative planning approach is particularly crucial because one of the main reasons why development projects are not successful is the lack of identification with the projects on the part of the local population.

4.2 Legal Context

After Independence Mozambique adopted a system of centralized administration, where everything was planned and decided at the center of political power. This approach was an answer to: meet the needs of the state, defend / safeguard and consolidate the national inde-

⁸ Source: Adapted from Goethert (1998)

pendency, achieve planned socio-economic measures and rationally use the scarce resources.

The necessity of donor initiatives directed at improving the competence and quality of service within the government body is widely recognized. Despite reluctance on the part of the centralized national government, decentralization is acknowledged as a necessary process.

A large first step has been taken in the relative autonomy granted to 33 municipalities in April 1998 in the establishment of local authorities (law 2/98). The *Ilha de Moçambique* is one of these Municipalities.

The Program for Assisting Decentralization and Municipal Autonomy (Programma de Apoio a Descentralização e Municipalização - PADEM) of the Swiss Agency for Development and Cooperation (SDC) is focused on five municipalities; including the *Ilha de Moçambique*.

Territorial Planning Law in Mozambique

In May 2007 the first national law of spatial planning (Lei 19/2007 de 18 de Julho) was approved by the Assembleia da Republica. This law makes the position and perception of the importance of spatial planning stronger and is universally valid. The law makes clear definitions of the planning instruments and competences each province, district, city and community has for sustainable land management.

The public participation of local communities, individuals and collective bodies in the process of territorial planning is guaranteed in the article 22.

The main objective of the Police of Territorial Planning (Resolução n° 18/2007, de 30 de Maio) approved by the Council of Ministers in urban aspects is to promote planning strategies of the urban areas which support productive activities, service, employment, preserve the environment, spatial integration of the residential function, cultural activities, live improvement of the discriminated areas without infrastructure and low quality of life.

Implementation of the Law in the Municipalities

The municipalities are obliged to elaborate structure plans, urbanization plans (general and partial) and detailed infrastructure plans. These plans are to be developed in consultation with and in accordance to the district, provincial and national level priorities and requirements. The participative planning process as defined in the article 22 is mandated to be taken into consideration while elaborating the plans.

Land-use Law and Land Tenure

In 1997 the Land Law was revised. However, the principle of ownership by the state was maintained. The new law foresees commercial land leases, land that is delimited by communities, land where communities live and have rights and reserves and protected areas where people also live. The Local communities especially the traditional authorities play a predominant roll in the management and allocation of land use rights. The constitution confirms people's right to land where they live. The individual is strengthened in his personal

rights, however also commercially restricted, as his ability to trade land is limited. In addition investment is hindered as the use of land as collateral is difficult.

According to the Land Law (Law 19/97 of 01/10/97) the right to use and benefit from land is described as follows:

- Local communities occupying land in accordance with customary practices acquire the right to use and benefit from land (n° 1, art. 09);
- Mozambicans, who in good faith have been using the land for at least ten years, acquire the right to use and benefit from land (n° 1, article 10).

One of the problems with land management is the lack of a land cadastre. With the lack of a cadastre plan and a land use plan it is difficult for the municipalities to give a land title to the residents. Considering that most of the residents in the informal settlement of the *Ilha de Moçambique* have been living in this area for more than ten years, it would seem that they have land-use rights.

4.3 Technical Challenges

Many of the technical challenges facing the island have long since been recognised as crucial problems and solutions have – on paper – already been elaborated. However, a combination of lack of funding and lack of commitment has, to date, impeded their implementation. One of the central assumptions of this research project is, participation in the elaboration of solutions will lead to ownership of the process and greatly enhance the chance of implementation (see Methodology, chapter 2). In addition, involvement of the national and provincial planning authorities in the process includes a commitment to successful implementation and tangible results. Two areas of particular importance that fall within the responsibility of the mentioned planning authorities – and thus the Mozambican project component – are the following areas of water and mapping.

4.3.1 Wastewater Treatment and Water Management

Wastewater treatment and water management pose a special challenge for the Island environment. This has a number of causes:

- The island is overcrowded. The current population of approx. 14'000 persons in the *Macuti Town* strains the natural resources, including water, available to them far beyond a level that could be considered sustainable – this is without access to an alternative source of wealth generation that would justify this degree of population concentration.
- The 31 wells on the island provide water that is not of sufficient quality for human consumption. The freshwater supply from the mainland is not sufficient to sustain basic hygiene.
- The traditional/colonial system of rainwater collection and subterranean cisterns never extended to the *Macuti Town*. It is today also dysfunctional for the *Stone Town*.
- Basic sanitation (cess-pit or septic tank with three compartments) is available to only a small proportion of the population. Communal facilities are in a poor state of maintenance.

nance and are often avoided. Instead the local population continues to use the beaches for their basic necessities.

- Even if the current effort to provide all houses with septic tank facilities is successful, the problem of overcrowding, the proximity of fresh water and sewage water and the need to pump out the septic tanks on a regular basis remain.
- Due to settlement in the former quarries on the island, located beneath the sea-level, flood water and rain water accumulation add to the list of problems facing the *Macuti Town*. Despite efforts undertaken within the twin city program with Bergen, Norway, to provide draining channels, the problems of hygiene and maintenance remain unresolved.

4.3.2 Land-use Mapping / Land Tenure

Under the twin city program with Bergen a geo-referenced map using the international GIS standard was provided for the island itself. This map does not include mark-stone positions nor does it extend to the much larger district areas on the mainland. These are serious limitations as a development of the *Ilha de Moçambique* municipality must also include the mainland areas in any comprehensive planning effort. In addition land tenure is not possible if it does not include the fixing of individual property divisions.

Nevertheless, the map is a valuable basis for documenting further elements such as infrastructure provisions, ideally including water, sewage and power lines and also for drafting land-use regulations. An extension of the map to include the mainland areas is an ongoing effort and will hopefully be integrated into the *13 cities program*.

The most serious constraint on the use of the GIS map is the lack of technical capacity on the island to utilize the potential provided by this technology. The true challenge is thus to define a system that uses the efficiency and flexibility of modern technology, but breaks the process down into steps that can be assembled and utilized on the local level. Transferring the technical capacity to the island can only be envisioned as a long-term objective. The technological leap is too great to attempt to integrate it into the municipal service, and private sector providers are not available in the proximity of the Island.

However, on the provincial level the CDS-program includes project components that are capable of maintaining and utilizing digital mapping. It is thus necessary to define an interface between the local level and the provincial level that provides an exchange of information, gathered and enacted on the local level but registered and maintained on the provincial level. Such a system can only work if it is transparent, comprehensible and verifiable on all levels.

4.4 Knowledge Transfer and Exchange

4.4.1 Moderation and Workshop Techniques

In Switzerland a refined system of political participation has evolved that includes, besides the community assemblies, workshops and town-hall encounters. While this system is often

perceived as cumbersome and slow, it is also recognised as necessary and crucial for securing the acceptance of planning measures and executive decisions.

Mozambique has a very different history. Obviously, the country also is much less developed and also does not have access to the same resources. Nevertheless, the necessity to assure acceptance for measures that affect the population is much the same – particularly if these measures are to be long lasting and sustainable.

At the UAS Rapperswil techniques of moderation are included in the curriculum of spatial planners as they are an integral part of the planning process. In Mozambique, there is to date no specific training that transmits these techniques.

The workshops held on the island were conscientiously designed to be built around the requirements of the local population and to encourage the participants to freely voice their concerns, preferences and desires. The specifics of the workshop procedure are included in the corresponding chapter *5.3 Participatory Planning / Field Work / Workshops*. As a project specific it is sufficient to emphasise that Yolanda Level was ideally positioned, as a Swiss citizen of Mozambican origin, with a degree in spatial planning from both countries, to bridge the gap between European individualism and African collectivism. This collectivism also traditionally includes reverence for positions of authority to a point where it becomes a hindrance for problem solving.

4.4.2 Exchange of Professional Experience

Having remarked on the merits of participation and decentralized decision making it is also necessary to emphasise, the African culture is to a large extent based on oral history and the ability to represent and to lead. This often means impressive characters fill positions of authority. It is a certain ease and self-assurance on the part of holders of such positions that allowed the project team to prevail with its own vision of participation.

Often the access to modern procedures and techniques is limited by the technical capacity they imply. It is not necessarily a lack of leadership if results are poor and problems paramount – often, in the African context, the position is impossible and the ability to survive in good spirits is extremely impressive. It is not a failure of the individual if he cannot solve problems he does not have the means to address.

The Swiss project component was able to benefit from the experience of existential directness derived from the *Ilha de Moçambique* situation. In Switzerland it is only by a large stretch of imagination that issues of planning can be perceived to be of existential importance to the affected. On the contrary, on the island the population was discussing its own very livelihood – the terms of its existence in an impoverished environment challenged by the elements, by the constraints of its own culture and by a modern technology it at best only partially understands.

5 Project Implementation

5.1 Project Phases and Time Frame

The research project was based on an 18 month time frame that was later extended to 24 months for logistical and personal reasons. The project was structured into 5 phases and the workload was distributed between the partners: IRAP at the UAS-R in Switzerland and DINAPOT / IMPFA in Maputo, Mozambique.

Project phase	Action/ description	Responsible	Place	Time frame / duration
Phase 1	Data collection and analysis	IRAP / Dinapot	Rapperswil / Maputo / Ilha	January to April 2009
Phase 2	Participatory planning methodology Field work / workshops	IRAP / DINAPOT/ IMPFA	Rapperswil / Maputo / Ilha	May 2009 to February 2010
Phase 3	Development of the training curriculum Execution of training in dedicated workshops	IRAP / DINAPOT/ IMPFA	IRAP / Dinapot	September to October 2010
Phase 4	Discussion of the results and presentation to the local government	IRAP / DINAPOT/ IMPFA	Rapperswil / Maputo / Ilha	September to October 2010
Phase 5	Securing results / writing scientific report	IRAP / DINAPOT/ IMPFA	IRAP / Dinapot	November to December 2010

5.2 Data Collection and Analysis

Part of the contribution the Swiss project component was able to make to the joint project elaboration was the provision of a computer workstation with access to the database the two components jointly acquired. During the project process this has been a tangible asset as it has secured the means of communication and has permitted both sides to jointly assemble work programs and reports.

The contents of the database is summarised in the list of references in the annex. In addition to the many reports and studies that were reviewed, many contacts to institutions and government bodies were established and an extended list of contacts was compiled.

As a reference paper the UNO Habitat study on the improvement of informal settlements in Mozambique was able to serve as a basis.

In a first visit to the Island in March 2009 contacts with the City Council, the provincial representative of the Environmental Protection Agency, the group "Friends of the Island", the Office of Heritage Preservation GACIM, the Centre for the Sustainable Urban Development, the Millennium Village Program and the 13 cities program were established.

The master plan for the Ilha - currently being completed and under revision - was made available to the project by the SDC, in a draft version. In addition the internal work paper for the future positioning of the "13 cities" program, financed by the SDC, AUAID and DANIDA was made available.

The GIS map of the Ilha that was already existent from DINAGECA (national geographic service) was transferred to the IRAP database and revised for full compatibility. Unfortunately the Bergen twin city program has ended and the capacity to access the digital mapping locally on the Island has been lost. However DINAPOT / IMPFA has access to the map and is able to use it as a basis for future planning. The extension of the map to include the mainland areas is a recurrent theme, both locally and nationally, and is dependent on financing from the "13 cities" program.

Analysis of the assembled data occurred to the extent that it formed the backdrop for the discussions between the project partners and also formed a point of entry for the workshops scheduled on the island and at DINAPOT / IMPFA in Maputo.

5.3 Participatory Planning / Field Work / Workshops

5.3.1 Defining the Participative Planning Process

The Participatory Planning process for the development of the *Ilha de Moçambique* was highlighted by the elaboration and implementation of two principal workshops. These workshops were based on the involvement of all stakeholders in the planning process with the objective of understanding local problems, embedded in the ongoing development efforts.

As was said before, different development programs are already engaged in the development of the *Ilha de Moçambique*. For the definition of the participatory planning process it was important to integrate these efforts into the process. This guarantees not only the sustainability of the process, but also the definition of common projects and joint effort for their implementation. In addition it avoids overlapping or contradicting development strategies.

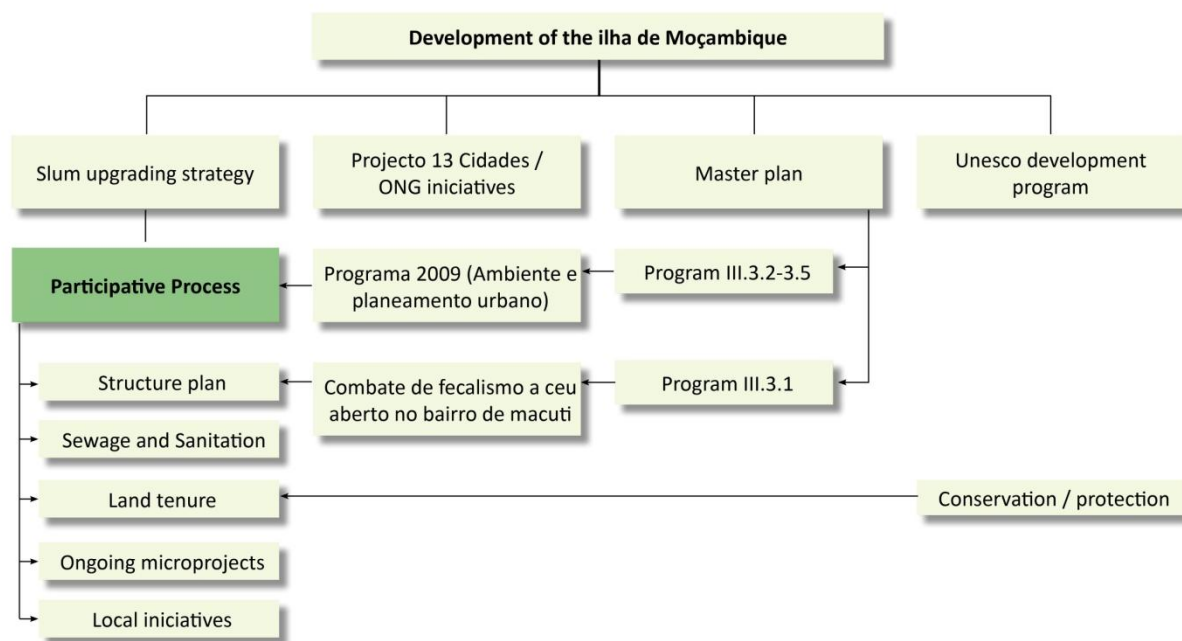


Figure 3: Framework Development of the Ilha de Moçambique

Participative Process Inception Workshop

The first workshop was designed to address the following aspects: Identification of problem issues (local perspective), brainstorming in groups and definition of work groups for continued study of issues / solutions. The definition of priorities is most crucial. At this stage it becomes clear which problems are most pressing and can realistically be resolved. The main objective of this first step is to assemble technical inputs to address the most pressing issues.

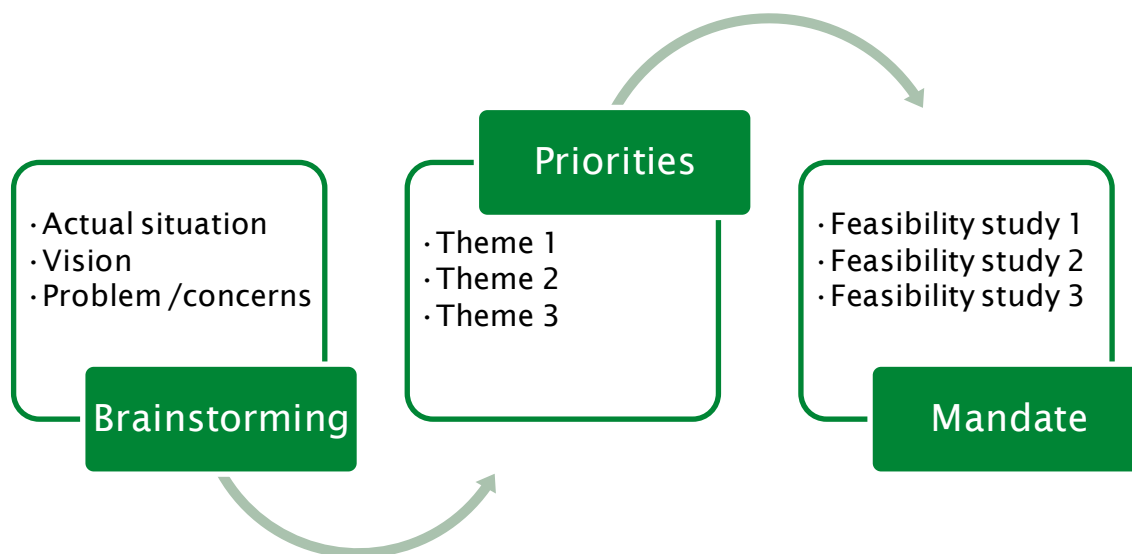


Figure 4: Participative Process- first workshop

Participative Process Presentation and Discussion of Preliminary Studies

The second workshop is characterized by the presentation of the feasibility studies elaborated by the technical staff in collaboration with work groups formed during the workshops. These studies have to be discussed, divergences must be resolved and the framework for their implementation elaborated. A mandate for further elaboration is one of the most important objectives; financial means for concrete project elaboration and implementation can be procured based on this step.

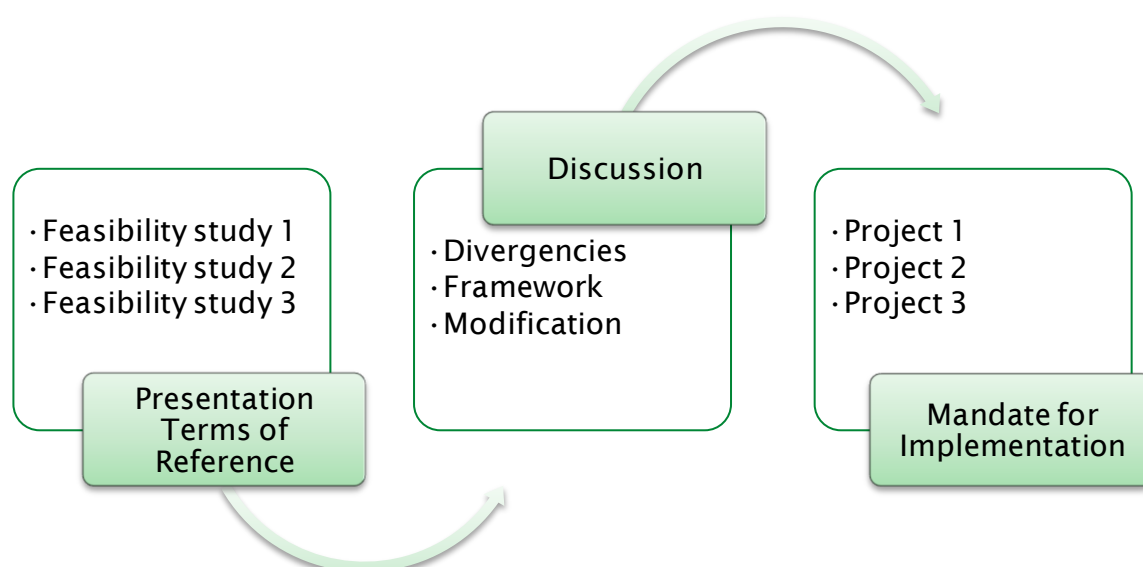


Figure 5: Participative process – second workshop

Institutional Contributors

It was clear from the outset that the participative planning process for the development of the *Ilha de Moçambique* called for collaboration with the planning authorities on all levels.

The technical input expected for the elaboration of the feasibility studies depended on the participation of the technical staff from these institutions from the beginning to the end of this process.

This team of technicians not only elaborated the Terms of Reference to be presented during the workshops, but also defined in collaboration with the project team, the main themes to be presented as an introduction to the workshops.

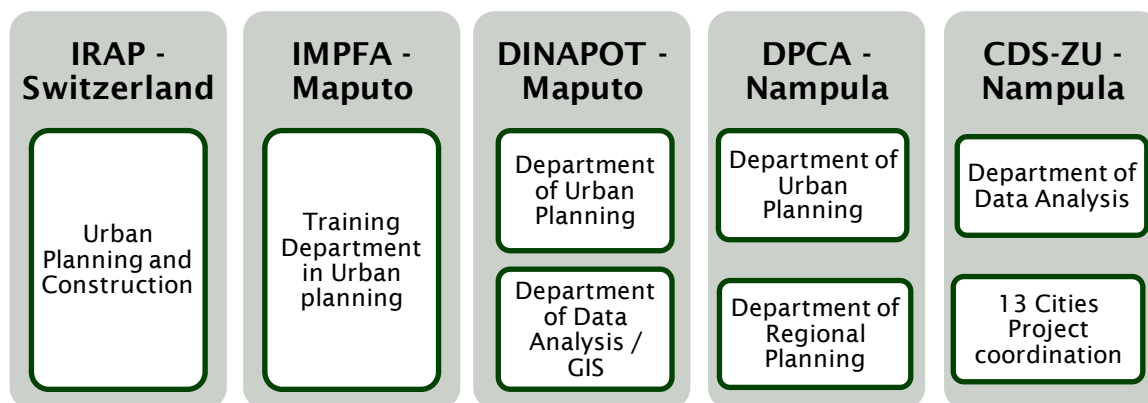


Figure 6: Planning Institutions

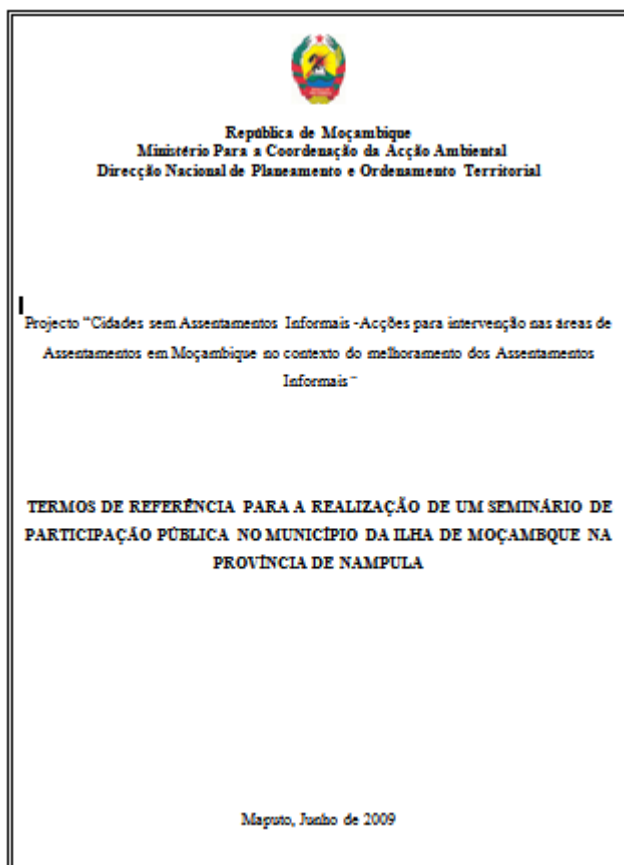
In a preparation meeting at the DINAPOT weekly staff conference, chaired by the national director, Arlindo Dgedge, the workshop program was presented and discussed. The contributions from both institutions are revised and the operation of the workshop is fine-tuned.



Figure 7: Workshop preparation at DINAPOT in Maputo

Workshop Manual

The basis for the first workshop held on the 28th and 29th of July 2009 in the city council hall on the island was a manual prepared by the Swiss project component and assembled by the joint project team in Maputo.



The manual in Portuguese (see annex) contained the following chapters and was distributed to all participants. It included an explanation of the participative planning process and rules of conduct for the workshop.

1. Context
2. Fundamentals
3. Objectives of the Workshop
4. Expected Results
5. Participants
6. Methodology
7. Program
8. Procedure
9. Check-List

The manual was based on the experience of town hall participative planning initiatives in Switzerland. During this process a Swiss community⁹ discussed its future in a “Future Conference” and formed workgroups for further elaboration of selected issues. The script for this process was procured by the Swiss program component and adapted to the Mozambican context. The manual was distributed to the City Council, institutional partners and the DINA-POT / IMPFA. A simplified version was distributed to all participants and was presented at the beginning of the workshops in a Power Point presentation.

⁹ Zukunftskonferenz Zollikon, 2008

Participative Process Brainstorming

The brainstorming is the most important stage; it is at the heart of the whole process. In this stage different stakeholders have the opportunity to sit together for the first time. The cultural background, education level, private interest and professional status don't have to be of prime importance. Important is the consensus of respecting each other's opinions, trust your own feeling without being influenced by others and most importantly understand that the success of the whole process is more important than the fulfillment of private interest.

This phase is also characterized by the exchange of information between the stakeholders. There are a lot of inputs to be made from all the different perspectives.

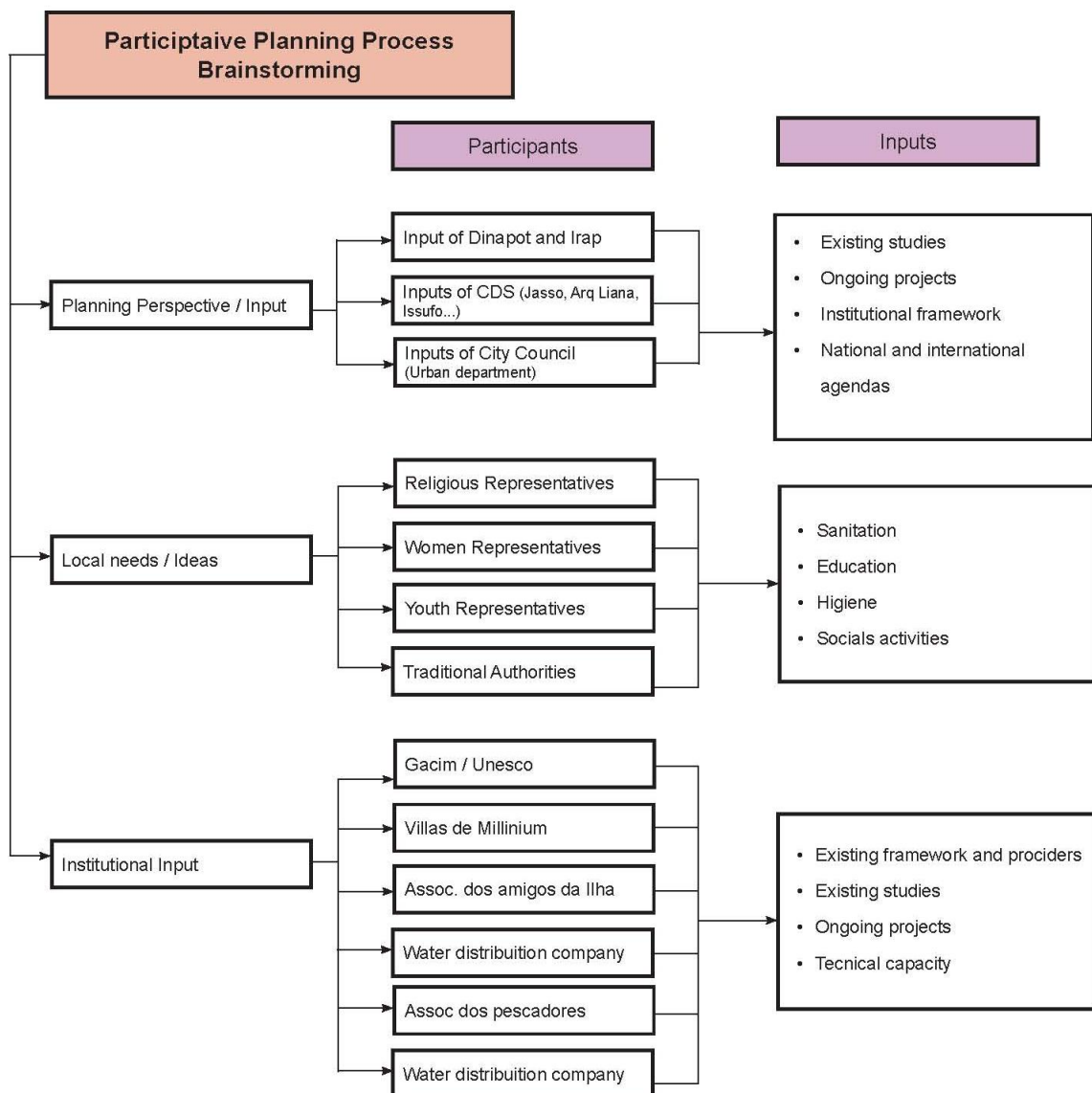


Figure 8: Participative Planning Process- Brainstorming

5.3.2 Stakeholders Identification

An important factor for the success of the participative planning process is obviously the identification of the various stakeholders that are directly affected or in positions of decision making for the development of the island. Special care was taken to secure the presence of representatives of the population that are often forgotten and not included in the debate about a possible future and current problems, although they are directly affected.

Despite the problems of communication, due to the local language, specific to the island and its close surroundings, and not shared with the provincial and national planners, representatives of the local boroughs, local associations, private sector and NGOs were invited. The selection was enacted by the city council in collaboration with a representative of the “13 cities program”, based on a list of participants according to their desired function provided by the project team. Although they are often not included in the formal structures, a strong presence of women was desired. This was to be an important asset for the procedure of the workshop.

For the initial workshop a list of sixty representatives (see annex) was assembled and an open forum setting in the town hall was selected. The town mayor, Mr. Matata, the provincial planning director, Mr. D. Artur, and the national director of planning, Mr. A. Dgedge, formed the chairmanship for the venue.

Stakeholder	Level of influence	Institution / Responsabel	Responsability / Activity
Government / State	Central / National	MICOA - DINAPOT (IRAP)	Design Policies and draft laws on: Land Planning; Land Management, Development strategy
	Regional	CDS, DPCAA	Regional Urban Development strategy
	Local	Municipal Council (Ilha de Moçambique)	Detailed Planning and managment of the land
Civil Society	National	Unesco, Danida, SDC, Vilas de Millenium	Financing of studies, programs and project implementation
	Regional	Danida (CDS: CDS-ZU)	Financing of studies, programs and project implementation
	Local	AAIM, NUSA	Implementation and divulgation: connection link between the communities and the local authorities
Local Communities	Local	Traditional / religious authorities	Key elements for mobilisation of population
Beneficiaries / Population	Local	Local population	Benefiaries and Key elements for the sucess of an intervention
Private Sector	National / Local	Assopimo, Hotel and restaurants ownners	Turism activities, export of seafood

Figure 9: List of desired participants by function and representation

5.3.3 Workshop Procedure

The workshop proceeded according to the program distributed to the participants in the workshop manual (see annex). The joint research project team assumed the role of moderation.

The participants were received with a formal introduction by the town mayor, Mr. A. Matata, the provincial planning director, Mr. D. Artur, and the national planning director, Mr. A. Dgedge, in turn. The background of the workshop, its integration into the respective planning agendas and the aspirations for the coming work session were presented.



Figure 10: The national director DINAPOT opens the workshop.

The technical and methodical aspects of the workshop were presented by the Swiss component representative Mrs. Y. Leyer. She highlighted the aspects of participation and mutual respect that were to govern the joint experience. She also expressed the desire to achieve a tangible result that would form the basis for future collaboration.

The objectives for the workshop were explained as:

- Enhancing project enacting by increased feasibility, by ensuring stakeholder collaboration through demand responsiveness and opening clear channels for communication of objection.
- Make sure that the community understands the technician's inputs about the planning instruments that are required.
- Improved targeting, by knowing more about beneficiary communities and the needs of the various groups that compose them.
- Enhancing sustainability, by ensuring stakeholder ownership, making information available and developing local capacities, which will strengthen the odds for further development initiatives in the aftermath of the project.



Figure 11: The IRAP representative introduces the workshop program.

Specific problem settings were presented to the participants as possible points of reference. These also provided an introduction to the challenges the *Ilha de Moçambique* poses and the current efforts to address these problems on the national level.

The following themes were presented:

- A land-use plan, Architect S. Chadreque, DINAPOT
- Sanitation and sewage, Architect A. Leyer, IRAP
- Property title deeds, Geographer I. Vilanculo, DINAPOT



Figure 12: DINAPOT, S. Chadreque presents the national land-use planning procedure

Participants were allocated into teams of approximately eight members for problem location, problem analysis, setting of priorities and solution proposals. The composition of the teams was altered during the course of the workshop.



Figure 13: Teams at work discussing the islands pressing issues.

Issues presented at the outset are discussed in groups. There is an open forum and amendments to the list of priorities are welcome. The moderation team circulates among the groups giving specific input and receiving feedback and challenges that are then fed back into the participation process.

Following intensive discussion within the teams, a list of pressing issues was presented to the plenum for prioritization and further debate. This list also included suggestions for solutions and time-lines to be considered.

Following all the presentations a discussion was held in the plenum in which contradictions and objections were raised and differences of opinion were voiced. In general the atmosphere was relaxed, however some vivid descriptions of mismanagement and neglect were presented and issues of governance and responsibility were raised.



Figure 14: One of the groups presents its findings to the plenum.

After an intensive debate in the plenum the moderation team selected a number of themes that are recurrent and ordered them into categories. In order to focus the work in groups on a limited number of pressing issues, the members of the workshop were able to select issues they perceived as most urgent by setting red or green points under the respective heading.



Figure 15: The workshop participants express their priorities.

Moderation of the workshop was by a joint delegation of the two initiating institutions. The results of the debates and ballots taken during the workshop procedure were immediately recorded on laptop during the work sessions and presented to the participants at later stages of the procedure.



Figure 16: The moderation team collects the emerging data.

5.3.4 Intermediate Results

The workshop was perceived as innovative and highly effective; bringing a representative segment of the public into the process of debate, problem analysis and commitment to possible solutions.

In a preliminary brain-storming session a list of pressing issues and major concerns was compiled.

After team presentations and much debate a list of the five most urgent areas of concern was agreed on. These were:

- Water and Sewage
- Land-use
- Heritage protection
- Institutional capacity building
- Private sector investment

In some cases important input and suggestions for solutions were presented. Given the presence of the national director of DINAPOT / IMPFA and other representative of institutions concerned with territorial planning, it was agreed to concentrate on the issues these institutions were most able to contribute to.

The city council, represented by the Mayor Mr. Matata, was mandated to contact institutions and organizations able to enact solutions along the guidelines outlined during the workshop. As the mayor was newly elected and executive power was again transferred to the FRELIMO party, this was of particular importance to him and was reflected in his presence and participation throughout the two day workshop. It was agreed the results of the workshop were to be made available to all participants and to the general public.

The national ministry of environmental affairs MICOA, represented by the DINAPOT in collaboration with UAS-R / IRAP, was mandated by the City Council to elaborate Terms of Reference (TORs) for:

- Elaboration of a municipal cadastre map.
- Urban infrastructure and land-use plan.
- Viability study for the water distribution and sewage treatment on the island.
- Conservation of the island heritage.

5.3.5 Joint Enactment of Workshop Finding

The Mozambican partner produced a summary of the workshop procedure and findings in Portuguese. This report was presented to the minister of environmental affairs, Mrs. A. Abreu in August 2009.

DINAPOT has decided to integrate the participative planning approach, as it was promoted by the IRAP component, into its national agenda and has approached the ministry of environmental affairs (MICOA) to request training from the Swiss institution.

The Department of Civil Engineering at the UAS defined a study project to address the problem of sanitation and sewage on the island, within the context of a bachelor program.

The programme “13 cities”, co-financed by the SDC, DANIDA and Austrian AID, has signalled it is willing to include the KFH / UAS research and development results for the *Ilha de Moçambique* in its broader development and financing programme. As a result the implementation of the results of the feasibility studies are being included in the research programme.

The TORs for the

- Urban infrastructure and land-use plan,
- Municipal cadastre map,

were elaborated during summer / autumn 2009 by DINAPOT / IMPFA in Maputo (see annex). These documents include consideration of the political context, the technical and financial requirements, time-line, environmental impact and required human resources.

A study of the sewage situation of the island and possible solutions was elaborated by J. Salzberg, a student of Prof. R. Widmer at the engineering department of the UAS-Rapperswil, in spring 2010. The methodology of factor evaluation used in this report was to prove useful and appropriate for discussions of various approaches within the final workshop.

5.3.6 Project Coordinator – Visit to Mozambique

The Swiss project coordinator for IRAP, Professor T. Matta, visited Mozambique from the 6th to the 18th of October 2009.

Besides the obvious contacts with the project counterparts from DINAPOT in Maputo he was also able to present the ongoing research project to the Swiss ambassador and head of the SDC-Mozambique, Mr. T. Litcher. In addition a meeting with Mr. M. de Tollenaere and Mr. Nobre Canhanga, representatives of the “13 cities program”, was arranged. This was an opportunity to present the findings of the first workshop and to sound out possible methods of collaboration.

On the *Ilha de Moçambique* Prof. T. Matta was able to meet the Mayor of the City Council, Mr. A. Matata, and exchange points of view and jointly review the results of the workshop.



Figure 17: Meeting with the Mayor, Mr. A. Matata.

5.3.7 Exchange of Professional Experience – Visit to Switzerland

The former national director of DINAPOT / IMPFA, Architect Arlindo Dgedge, was invited by the Swiss partner to visit the UAS-Rapperswil from the 13th to the 22nd of August 2010 (see program in annex). As A. Dgedge is currently the director of the newly founded national training school for territorial planning (IMPFA) in Maputo, a position he assumed during the year 2010, this experience was of particular interest and importance to him.

During a number of work-sessions and personal encounters with private and public sector planning authorities he was able to gain a good insight into the Swiss territorial planning sector and also into the way its foundations are revealed and transmitted and fostered under the Bologna System within the UAS-R.

A. Dgedge was invited to present the current situation of territorial planning in Mozambique to a selected group of representatives of IRAP, the planning institute within the UAS-R. At the university he also met the director of the school, Dr. H. Mettler, and was able to discuss the potential for collaboration between the two training facilities.

Selected projects from full range of courses given at the USA-R were presented. This included projects in areas of energy conservation, environmental risk management and water treatment, areas that certainly hold potential for collaboration within the extended realm of MI-COA, the ministry of environmental protection the national territorial planning institute (DINAPOT) is allocated to.

The Mozambican embassy in Geneva was visited and potential for funding of collaboration in the area of training and knowledge transfer were discussed. This potential is elaborated under the point *7.4 Project Potential and Future Collaboration*.

Finally the results of the visit were presented to the ministry (MICOA) in a report compiled by A. Dgedge (not included as it is written in Portuguese, but available on request).



Figure 18: Director A. Dgedge visits the UAS-Rapperswil.

5.3.8 Presentation and Discussion of Preliminary Studies / TORs

Preliminary Results

The TORs prepared by DINAPOT / IMPFA and a preliminary study on sanitation prepared by IRAP were presented for refinement and endorsement in a workshop held on the island on the 5th of October 2010.

There were approximately 55 persons present representing, to a large extent, the same institutions and stakeholders as in the inception workshop. The workshop program was again presented in a manual that scripted the procedure (see annex).

The TORs for the Urban Infrastructure and Land-use Plan and the cadastre plan were presented by D. Arthur, provincial director of DPCA (environmental affairs). He emphasized the planning context and experiences gained in other sites with similar challenges. The steps for defining and implementing an Urban Infrastructure and Land-use Plan were explained and their integration into the TOR demonstrated.

One of the main aspects of such a planning procedure is the collaboration between the national / provincial planning level and the local implementation level. There were many questions as to these provisions and the dependence on available funding was emphasized. However, it was also evident the endorsement of such a program on the local level was a prerequisite for successful implementation. The local stakeholders were prepared to support and indeed request such a plan, on the condition that they were involved not only at the beginning and end of the planning process, but were also able to directly participate in the elaboration and were consulted on all issues of relevance.

The cadastre map can, on the one hand, be built using the available GIS map. On the other hand, however, the GIS map only includes the Island area and must be extended to the mainland district area if it is to be a meaningful basis. Also, the problem of access to the map

must be resolved as a sophisticated use of digital maps is not an option on the local level. A possible solution is a clear definition of the interface between the different levels of government. This approach, however, only works if the transfer of information is in both directions and on a continuous basis, or at least in a predefined regular rhythm.

Another point made was, security of land tenure can only be guaranteed, if it is based on a land-use plan and cadastre map.

The sanitation and sewage treatment preliminary study prepared in Switzerland was presented by Yolanda Leyer, IRAP. The study presents six possible solutions for the freshwater and sanitation problem of the island. These are:

- Individual freshwater and sewage connection (European standard)
- Decentralized freshwater and sanitation hubs
- Partial direct linkage combined with decentralized sanitation hubs
- Freshwater sale and dry sanitation
- Individual freshwater with decentralized sanitation hubs
- Centralized sewage treatment with incremental sanitation linkage

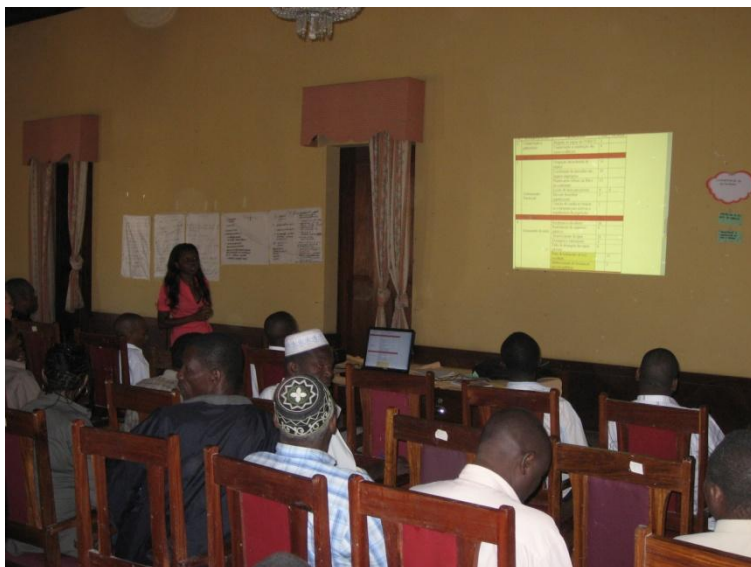


Figure 19: Presentation of the workshop procedure.

While the study was somewhat hypothetical, the methodology used for evaluating the possible solutions was interesting. By calibrating the criteria and their weight to the actual situation and the priorities defined by the stakeholders, some indicators could be gained for the acceptability and feasibility of the proposed solutions.

While there is certainly a strong cost sensibility, the disadvantages of the current decentralized sewage solution are evident. The current situation is often the avoidance of any sanitation solution and the usage of the beaches. The local population is prepared to invest its manpower and – it would seem – to adjust its behaviour, if a solution were possible that

does not just dislocate or postpone the problem, but also provides positive identification and pride.

There was no definitive decision on the system to be adapted. However, the intolerability of the current situation is generally accepted and a frustration with the evident inability to solve the situation is tangible. The final consensus was that further study is necessary and a solution with positive connotations – socially and cultural – is urgently needed.

Discussion of the Results and Presentation to the Local Government

The results from the workshops must be considered a milestone in the more general process of elaborating a strategy for improving the informal settlements and securing a sustainable future based on the potential of the Island and the resources of the population. While this report will be presented to DINAPOT / IMPFA, there is no need to present the process to the local government, as they were participants and contributors to the process. The result is felt by the inclusion of the development of a land-use plan for the Island in the national planning agenda, the dedication the *13 cities* program is committing to improving the situation and the awareness of participative planning as a method and potential.

5.4 Training Curriculum

Objectives of the Curriculum

Based on the results and the success of the inception workshop, and for a better integration of the participative planning approach into the national agenda, a week-long training course in methods of moderation was promoted by IMPFA in collaboration with IRAP.

This training course became a change of focus from the more technically oriented training course defined in the project proposal (see *6.1 Intended Results and Actual Results*). The planning institution recognised the moderation process is crucial for the implementation of the results of the workshops. They therefore requested training in these methods.

In autumn 2010 a training curriculum in methods of moderation was elaborated and implemented with the following objectives:

- Understand the different types of a participative planning process
- Understand the role of public participation in planning
- Familiarization with the various tools and approaches used in participatory planning
- Be able to design a participatory process
- Knowledge of the objectives of a moderation
- Knowledge of phase of a moderation
- Understand the meaning of visualization
- Know how to use the methods of moderation in difficult situations
- Know how to manage a group of stakeholders
- Know how to find solutions and make joint decisions

Very important was also the understanding that the results expected from a workshop depend on the capacity of the moderator to organize a planning process, corresponding with

the workshop objectives. The moderator has to establish the contact between the participants and make sure that they understand the objectives of the whole process.



Figure 20: Participants of the Training course

Curriculum Structure

The course was divided in two parts, alternating during each day of training. The first component consisted of theory; the second component was made up of practical exercises and experience in moderation.

The theory block was presented in Power Point and a script was issued to the participants (see annex: *Texto de Apoio*). The basis for the theory was, on the one hand, drawn from the curriculum of the UAS-Rapperswil. On the other hand, Yolanda Level researched the theme independently and was able to extend the theory to include methods and structures found in literature¹⁰ and to some extent similar to the situation presented in Mozambique.

Based on the exercises the participants had the opportunities to prepare and execute a workshop. The first “workshop” was organized as a “World Café”, four groups of five or six participants rotated around tables dedicated to certain aspects of the general theme: “How to implement a cafeteria on the premises of DINAPOT”.

The second “workshop” used the “Real Time Strategic Change” method, four groups of seven participants played different role. This method aims at merging the conditions given in a top-down situation with bottom-up challenges and momentum. The exercise setting selected was the reutilization of a former army reserve within the city (Maputo) limits. This is a current project within the national planning directorate.

The third exercise used the “Future Search Conference”¹¹ format. This is an ideal process for the elaboration of common objectives in a complex situation with heterogenic participants. Again a role play was introduced. The setting selected for the exercise was the development of the *Ilha de Moçambique*. This implied that the training workshop was in fact a revision of

¹⁰ *Slum Upgrading and Participation*; Frischer Wind, *Processes of Moderation*

¹¹ Method by Marvin Weisbord and Sandra Janoff: bring the whole and open system in a room.

the workshop process utilized for the Island planning. By this method the applied techniques were critically evaluated and suggestions for future improvements were secured.



Figure 21: Discussion of Moderation Techniques

Training Module

The training module was structured and documented with graphics and schemas in a manner that made it easily adaptable to similar situations of participative planning throughout Mozambique. It is thus a template IMPFA can use in its training agenda, as it has indicated it intends to do.

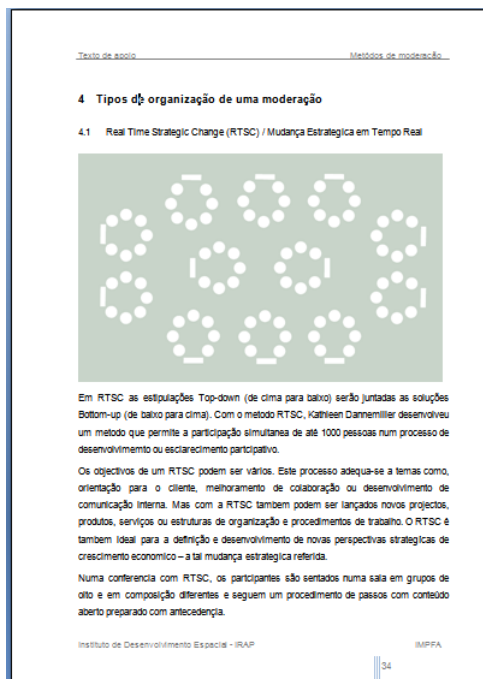


Figure 22: Excerpt from the Training Manual

6 Assessment

6.1 Intended Results and Actual Results

The process of the research project has led to a shift in emphasis concerning the objectives / goals as outlined in the project proposal. Generally this can be understood as a shift away from the transmission of hard technological skills towards more soft inter-personal participation and management skills.

There are a number of reasons for this shift:

- The GIS mapping technology is available at the national level; the main obstacle is the lack of local capacity to implement this technology. Providing this ability is beyond the scope of the research project.
- The provision of land-use and cadastre maps is a long-term objective. The research project was able to raise awareness of the necessity for such maps and also to secure that the national planning authority DINAPOT received a mandate from the local city council for their elaboration. Although the technological ability is obviously available within the UAS-Rapperswil, implementation must be through the Mozambican government apparatus, in collaboration with institutional assistant programs such as the *13 cities program*.
- Concerning water and waste management the Swiss project component was able to provide a preliminary study compiled by the civil engineering department of the UAS-Rapperswil. This was in response to a priority voiced during the inception workshop. Elaboration of a full proposal is a very complex issue. One component will be addressed by the international Young Engineers Convention for which the UAS-Rapperswil successfully applied for participation. Again, it was beyond the scope of the research project to provide a complete solution. However, the project was successfully able to raise awareness and secure commitment for further elaboration.

The research team is convinced this flexibility within the project was necessary to achieve optimal results, given the dynamic of the situation encountered within the pilot project and the necessity to react to needs and opportunities that appeared during the project process.

6.2 Relevance of the Research Project for the Partners

6.2.1 Relevance for the UAS-Rapperswil

For the UAS-R the research collaboration offered the opportunity to expand today's research activities into the context of developing countries and establish a working relation with the only institution in Mozambique that, like the UAS-R in Switzerland, forms physical planners at the foundation level. This corresponds to a necessity to expand the realm of teaching and applied research beyond the current national focus.

Application oriented research in collaboration with partners in developing- and transition countries offer a good possibility to position ourselves in the international research community and to improve the international network. At the same time applied research and development supplies the basis for aligning our teaching to the requirements asked of our graduates in a continuously more international context.

On this basis the research project successfully highlighted the commitment of the UAS-Rapperswil to projects in the developing world. A video presenting the Island project is included in the Engineer Tram in Zürich. As a contribution to cross-sector collaboration the engineering department of the UAS-Rapperswil elaborated a study on the water management of the island and presented possible solutions to the sanitation challenge. The problem of water on the Island was also presented in the first 2011 edition of the UAS-R journal. The UAS-R was able to compete in the Young Engineers Convention 2011 based on a project derived from the Island situation.

6.2.2 Relevance for DINAPOT / IMPFA

For the Mozambican counterpart (DINAPOT / IMPFA) the research offers the opportunity to follow up the proposal of intervention and its recommendation elaborated in 2006. Most importantly it is going to make a valuable input to the optimizing of the Physical Planning and Environmental Training Centre curriculum and provide teaching material on the subject of sustainability of informal settlements. A working relationship with the UAS-R is an opportunity to benefit from the transfer of knowledge and to learn from the experiences of Switzerland in decentralized planning and local participation.

DINAPOT was able to extend its reach through its involvement in the research project and present itself as the national body responsible for territorial planning, including the municipality of the *Ilha de Moçambique*. It was able to present its national agenda and received a mandate from the local government to pursue the land-use mapping it is, by law, responsible for. This mandate was presented in the conference of ministers and is indented to secure the allocation of appropriate funding.

The director of DINAPOT / IMPFA was able to contact the Mozambican embassy in Switzerland during his visit in summer 2010. The ambassador Dr. Miguel Tungaza emphasized the national interest in the transfer of knowledge and referred to a fund available to assist this process (see *7.4 Project Opportunities and Future Collaboration*).

The training module on participative planning and moderation was explicitly requested by DINAPOT / IMPFA and manifested their esteem and recognition of potential of this method. The participants were able to recognize the challenges they faced when trying to define a planning process, but now felt they had received a new tool-box to deal with them.

The training module was the first short course the new training facility IMPFA was able to offer the DINAPOT as the implementation body. As such it was also a personal success for the new director arch. Arlindo Dgedge.

6.3 Evidence of Indirect Results / Impact

Both the UAS and DINAPOT have expressed interest in maintaining the relationship and are convinced there are sufficient synergies to justify further collaboration regarding the training and research faculties.

The experience of participative planning, as exercised during the workshop sessions, was new and enlightening for the DINAPOT / IMPFA personnel. The population was able to participate in the workshops and contributed essentially to the findings and results. Understanding that the most important information is already present on site and doesn't need to be looked for in the studies and decrees compiled by different levels of government was crucial for a fresh look at the informal settlement situation.

The workshops also had personal impact on the participants, here are some citations:

The Mayor of the Ilha de Moçambique, Alfredo Matata:

«This is my first year in this office. I am happy to have had the opportunity of such a direct encounter with the concerned members of the public and with the planning authorities on the provincial and national level. It is my responsibility to respond to the concerns voiced in the many contributions and still present on the walls of this room. I see it as my duty to make sure the proper interventions are made to ensure that the problems are addressed promptly.»

National Planning Director, Arlindo Dgedge:

«Mozambique is now implementing a bottom-up and decentralized approach to planning. The national government can only address the problems if they are voiced on the local level and the corresponding assistance is requested. This workshop has been an opportunity to hear first-hand about the difficulties you are facing. It is now up to the City Council to formulate the request for financial means and planning capacities necessary to address these problems. We will do all we can to assist.»

6.4 Assessment of Risk and Assumptions

The political context for the project has changed as the FRELIMO party has regained control of the Ilha municipality. This has led to improvements and enhanced possibilities, as the obstructive tensions between local and provincial / national government no longer exist and the mayor of the Ilha is now committed to proving his capacity for initiating change.

The political system in Mozambique may be considered stable. While the FRELIMO party has maintained central power since independence, the decentralized *autarcticas* or municipal autonomies have proven that power sharing is possible, albeit still rather inconvenient. The current dependency of the national economy and political establishment on foreign aid can of course not be the long term objective; however it also guarantees stability and an environment that is progressing towards a civil society and the rule of law.

6.5 Sustainability of the Project

The upgrading of the slum areas in Mozambique is a national priority that corresponds to the development objectives as defined in the Millennium Development Goals (MDG) adopted in the year 2000 (see *1.2 Project Idea*).

The decentralisation of decision making and the adaption of a participative planning process built around a bottom-up approach (see *4.1 The Participative Planning Process*) correspond to recent legislation (see *4.2 Legal Context*).

Based on these two premises the research project, as here presented, is well aligned to the national development agenda in Mozambique. In addition the location of the major constraints for the development of the island in the areas of water management, land-use and land-tenure correspond to development priorities both the Swiss Development Cooperation (SDC) and the UAS-R are well positioned to address.

The experience and knowledge gained during this research project is valuable to the UAS-R (see *6.2.1 Relevance for the UAS-R*) and, above all, to DINAPOT / IMPFA (see *6.2.2 Relevance for DINAPOT / IMPFA*) in Mozambique. The core areas of research, i.e. participation and decentralisation, are not limited to the island environment and results may be transferred to similar situations across the region.

The opportunities for a continuation of the project and further collaboration between the two training facilities are manifold (see *7.5 Project Follow-up*). The project team is convinced the context for such a process is favourable.

7 Recommendations and Lessons Learnt

7.1 Technical Constraints

The technical capacity of DINAPOT / IMPFA cannot be compared to the facilities and technical knowledge available within the UAS-Rapperswil. As described in *4.3 Technical Challenges* it is possible to overcome the technological barriers by defining the interfaces between the different levels of government, considering their access to technology and ability to use the potential for efficient management and institutional continuity.

There is however a fundamental level of technology that must be sustained for a national administration to function. This includes the ability to communicate electronically and to accumulate and maintain data. DINAPOT / IMPFA possesses this capacity, nevertheless it is frequently challenged by the lack of funds for basic necessities such as paper and printer cartridges, computer programs and sufficient access to the hardware itself.

On the local level the technical constraints are much more severe. Basic computer skills are only available to the extent they are provided by NGOs or donor backed development programs. This may, for the moment, be the only possible solution. However, it has the serious disadvantage that it is dependent on the continuation of the respective program. As we have seen with the Twin City Program of Bergen, Norway, once the program is terminated a large portion of the information becomes obsolete as it can no longer be accessed.

In the long run there is no alternative to the capacity building within the city council itself. This is also necessary as the city council must be in a position to understand and enact solutions the definition of which it has itself participated in. The participative planning process is thus necessarily also a training process and a knowledge exchange program. Unfortunately it is not possible to teach the necessary techniques in the brief period that was available within the research project. A more extensive training program with participation of the local, provincial and national technical service providers would be a valuable next step.

Regarding the land-use plan and cadastre maps DINAPOT is mandated to provide these services to the local communities. Implementing this process is a challenge that to date over-stretches the human and financial capacities of the national territorial planning authorities. Defining a step by step process that leads to reliable land-use regulations and security of land tenure is one of the areas DINAPOT should take the lead for. If the proper support of the population can be assured, it should be possible to out-source a large portion of the work to the local level, while maintaining management, oversight and technological integration as responsibilities of the national authorities. Again, this would also include an extended training in basic computer and mapping skills on the local level. This crucial component must be fully considered when the decision to implement is taken by the national ministry (MICOA).

7.2 Cultural Constraints

While general assumption of Swiss correctness and precision and African ease and laxness are, of course, gross simplifications, there is a difference in attitude and culture that extends into the realm of professional collaboration and productivity. From a Swiss perspective it is assumed deadlines and work content are sacrosanct and any deviation must be communicated as soon as it becomes foreseeable. The African perspective is different. It is generally assumed the constraints that define the work process are more persistent than the work itself. In addition the many “minor” obstacles such as lack of basic commodities, e.g. paper, printer cartridges or access to the internet, are so prevailing that any delay or inability to perform is presumed to be understood and forgiven.

It is difficult for the Swiss project component to understand the context a research task signifies for the individual contributor on the Mozambican part. The per-diems make up a significant portion of the individuals income. The infrastructure is significant, not only for the project itself, but also for the opportunity it offers to pursue “private” interests. A dislocation is to only a business trip but also an opportunity to visit relatives or to trade commodities.

These considerations impose a certain “flexibility” on the part of the Swiss project component and also put a strain on the relationship with the Mozambican counterpart, which is at least conscious of the expectations and its inability to perform to full satisfaction. As a Mozambican with Swiss training Yolanda Level is ideally positioned to bridge these differences of perception. She is also able to leverage the results by playing on the underlying motivations and requirements that move the project forward.

Although still fascinated by, and conscious of its productive potential, the African society is tired of being lectured to and benchmark by representatives of the Western / European culture. It is important to include these sensibilities in the considerations of a joint project. The success of the *Ilha de Moçambique* workshops in addressing the population and securing their trust and collaboration was at least partly based on the identification they were able to feel for one of their own who was bringing potential back to them. This sentiment is true not only for the local population, but also for the planning authorities on all levels that was able to operate in an atmosphere of trust and confidence, given the empathy it felt for the specific situation.

7.3 Overcoming Barriers and Collaboration

The experience of “bottom-up” and “planning based on participation” has been well received and inspiring to the Mozambican counterpart. While it is encouraging to notice the willingness of those in positions of authority to engage in debate and to listen to those they represent, there is also scepticism regarding the ability to carry through on commitments and objectives defined.

The objective of the KFH / UAS programme should be to serve as a catalyst for implementation programmes based on the planning and research results.

The Swiss IRAP / UAS component has been able to gain experience in an international context and to test its planning methods in a challenging environment. With the inclusion of the civil engineering faculty in the planning process an interdisciplinary component has been introduced that could well be expanded on (to include e.g. social sciences, economics etc.).

The Swiss project component is of the opinion it has provided extensive groundwork and has sowed the seeds for future collaboration. It is now up to the Mozambican counterpart to pick up the threads and to continue to weave the fabric of a future collaboration. Some of the potential is explored in the next chapter. It is, however, also important to note, there is transfer potential in the sense that experience and capacities gained within the current project can be transferred to other projects currently being explored within the UAS-Rapperswil but not necessarily linked to Mozambique.

7.4 Project Opportunities and Future Collaboration

The national urban planning training is now separate from the urban planning institution (as from the beginning of 2010). The former director of DINAPOT, Arlindo Dgedge is the new director of the training institution (IMPFA-Instituto Medio de Planeamento Fisico e Ambiente). As a consequence the separation of R&D and programme implementation is now more transparent.

During the visit made to the Mozambican embassy in Geneva, possible collaboration and support was discussed. Dr. Miguel Tungaza, representing the Mozambican embassy, explained the necessity of involving the respective diplomatic bodies. He also recommended the involvement of the Ministry of Foreign Affairs (MINEC). This would enable the embassy in Geneva to play its role as facilitator and catalyst for collaboration.

The Ambassador specified that the contact between the UAS-R and IMPFA could easily be formalised through the Swiss Embassy in Maputo as it is based on an already existing contract. He also referred to the privileged relationship that exists between Mozambique and Switzerland and that was reinforced by the visit of the president Mr. A. Guebuza in 2009 during which the president emphasised, among others, the necessity of increased technical collaboration and knowledge transfer.

7.4.1 Project Opportunities within the UAS-R / IRAP

As a direct spin-off from the current research project a new initiative has been launched within the UAS-R. It is called KS-EZA (Koordinationsstelle für Entwicklungszusammenarbeit or Coordination office for Development Collaboration) and addresses the need to coordinate the various projects within the UAS-R that address development issues in the respective nations. Yolanda Leyer is mandated to develop the institutional framework for this venture and to assure the potential gain that can be achieved from coordination and sharing of resources is optimized.

One of the fundamental elements of this program is the definition of partner institutes within the UAS-R and also in key development nations. Mozambique, i.e. DINAPOT / IMPFA, is in a most favorable position to be included in this program.

One of the main aspects of the Island development – the water and sewage treatment – was used as a background for the development of a project proposal for the World Engineers Convention to be presented in September 2011 in Geneva. The proposal was accepted by the board and work on the assembly of the project team is under way. Yolanda Level is project leader and will be responsible for achieving the objectives presented in the project proposal.

The project offers the opportunity to include additional technical capacity to address the challenges presented during the workshops on the island. The inclusion of technical know-how already present in Mozambique is possible by the inclusion of young engineers from Mozambique in the project team.

7.4.2 Project Opportunities within DINAPOT / IMPFA

DINAPOT / IMPFA could greatly benefit from the knowledge transfer from the UAS-R / IRAP in the area of territorial planning and also in related technical fields.

Most specifically in the areas of urban structure plans, land-use plans, technical infrastructure plans, transport systems and public infrastructure plans the Mozambican counterpart is most interested in receiving long or short term assistance in the form of courses provided to the technical staff and students of IMPFA.

In addition the institution would be prepared to receive exchange students, particularly in the area of renewable energy resources.

Obviously, the institute would also be interested in sending its own students or technical staff to Switzerland for an exchange term or additional training. It acknowledges the great advantage it would gain if its teachers were able to complement their experience with the technical and didactical skills provided at the UAS-Rapperswil.

DINAPOT / IMPFA recognise the necessity to involve the MINEC (Ministério dos Negócios Estrangeiros e Cooperação) and the Swiss Embassy, resp. SDC, in Maputo and the Mozambican Embassy in Geneva to secure the necessary assistance.

IMPFA is in the process of creating its own research department within the faculty. During his visit to Switzerland A. Dgedge was intrigued to learn about the position of the IRAP within the UAS-R and was keen to reflect on possible institutional structures.

7.5 Project follow-up

As we have seen there is a keen interest on the part of the Mozambican project component at DINAPOT / IMPFA to see a continuation of the knowledge transfer process with the UAS-Rapperswil. There is also an interest in continuing this process on the part of the UAS-R / IRAP, as is manifest in the support the Young Engineers venture and indicated in the current

effort to institutionalise the collaboration process within the UAS-R. However, in the narrower sense of the continuation of the Slum Upgrading process, the Swiss project component is of the opinion, it has already made a significant contribution to the awareness and for the potential of addressing this issue in Mozambique.

Naturally, the Swiss project component would be very keen to continue its involvement in this process. One of the key components in this participative process is, however, the transfer of initiative to the local partner. The first steps in the right direction have been taken. It is now up to DINAPOT / IMPFA to formulize a request for further assistance and training. The local City Council of the *Ilha de Moçambique* has mandated the national planning authorities to seek solutions specifically in the areas of water and sewage management, land-use planning and cadastre mapping. The Mozambican project component was able to gain insight into the potential the UAS-R can bring to the process.

The UAS-R / IRAP will maintain the contacts with DINAPOT / IMPFA and will inform of future opportunities for joint application for funding or project components that may jointly be addressed. A first opportunity may already be forthcoming in the form of the Young Engineers study of the water system of the Island and its examination of a possible solution.

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List of Annexes

I. Project Proposal

II. Project Documentation

III. Workshop documentation

IV. Training Curriculum

V. Publications

Video (pending)

HSR Magazine (pending)

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