

**MAINSTREAMING DISASTER RISK REDUCTION IN URBAN PLANNING PRACTICE
IN TANZANIA**

AURAN PHASE II

Project FINAL Report

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1.0 BACKGROUND INFORMATION

1.1 Introduction

African Urban Risk Analysis Network (AURAN) Phase II project, which was conducted in five African Countries of Tanzania, Kenya, South Africa, Ghana and Senegal is aimed at incorporating Disaster Risk Reduction issues in urban development strategies. In Tanzania, the focus of AURAN Phase II was the mainstreaming of disaster risk reduction in urban planning practice. The main implementer of AURAN Phase II project in Tanzania was a team of staff from Ardhi University, which used flooding and related interventions at the Bonde la Mpunga in Dar es Salaam as a case study. The key stakeholders involved in the research include the local community at Bonde la Mpunga, large estate private developers within the study area, the Kinondoni Municipal authority, Ministry of Lands, Housing and Human Settlements Development (MLHSD) and the Prime Minister's Office, which is responsible for disaster and Local Authorities in the country.

It is important to note that during the implementation of the research project another team was formed by the Prime Minister's Office to work on the technical and financial proposals for solving the flooding problems in the area. To maximize the use of resources, the research team and the team appointed by the PMO worked together in the analysis of the problem and formulation of solutions for solving the flooding problem. Therefore, the proposals put forward in this report are expected to be implemented as not just end up in the report as is usually the case in some research projects.

This report is organized into eleven parts. The first five parts covers the introduction, background to the research project, the problem that this research project is addressing, the objectives and the methodology used to carryout the research project. Part five through part ten dwell on the discussion of the findings, the technical proposal for addressing flooding hazard within the case study area, proposals for mainstreaming Disaster Risk Reduction (DRR) concepts in the urban planning practice, lessons learnt from the project and the way forward. The last part which is part eleven contains the financial report pertaining to the implementation of various activities of the research project.

1.2 Background to the research project

Phase I of the AURAN in Tanzania was conducted in Dar es Salaam City covering three case study settlements of Vingunguti, Chang'ombe Toroli and Msasani Bonde la Mpunga. On the basis of the results from AURAN Phase I, Msasani Bonde la Mpunga was selected as a good case for studying how disaster risks accumulation processes can be mainstreamed in urban planning practice under this phase (Phase II) of the project. The fact that Msasani Bonde la Mpunga has a planning scheme, which was prepared to guide development in this area provided a better ground to analyze if and how risk accumulation was mainstreamed in the planning process.

Msasani Bonde la Mpunga¹ is located in Kinondoni Municipality, about 6 km from the city centre of Dar es Salaam (Figure 1.1). The size of the study area is about 122 hectares. The study area includes the planned and unplanned parts of the settlement where both

¹ Bonde la Mpunga is a Kiswahili name which means a paddy field.

flooding occurs even though with varying magnitudes. The study area is bordered with the Indian Ocean in the north, Msasani and Maandazi road in the east and south eastern sides, Old Bagamoyo road in the western and south western side (Figure 1.2). The northern part of the area consists of a planned area of Msasani, while the unplanned settlement is located in the southern and the central parts of the site which is the lowest part in terms of topography. This part of the area used to be a marsh land is now under intensive development of apartment blocks.

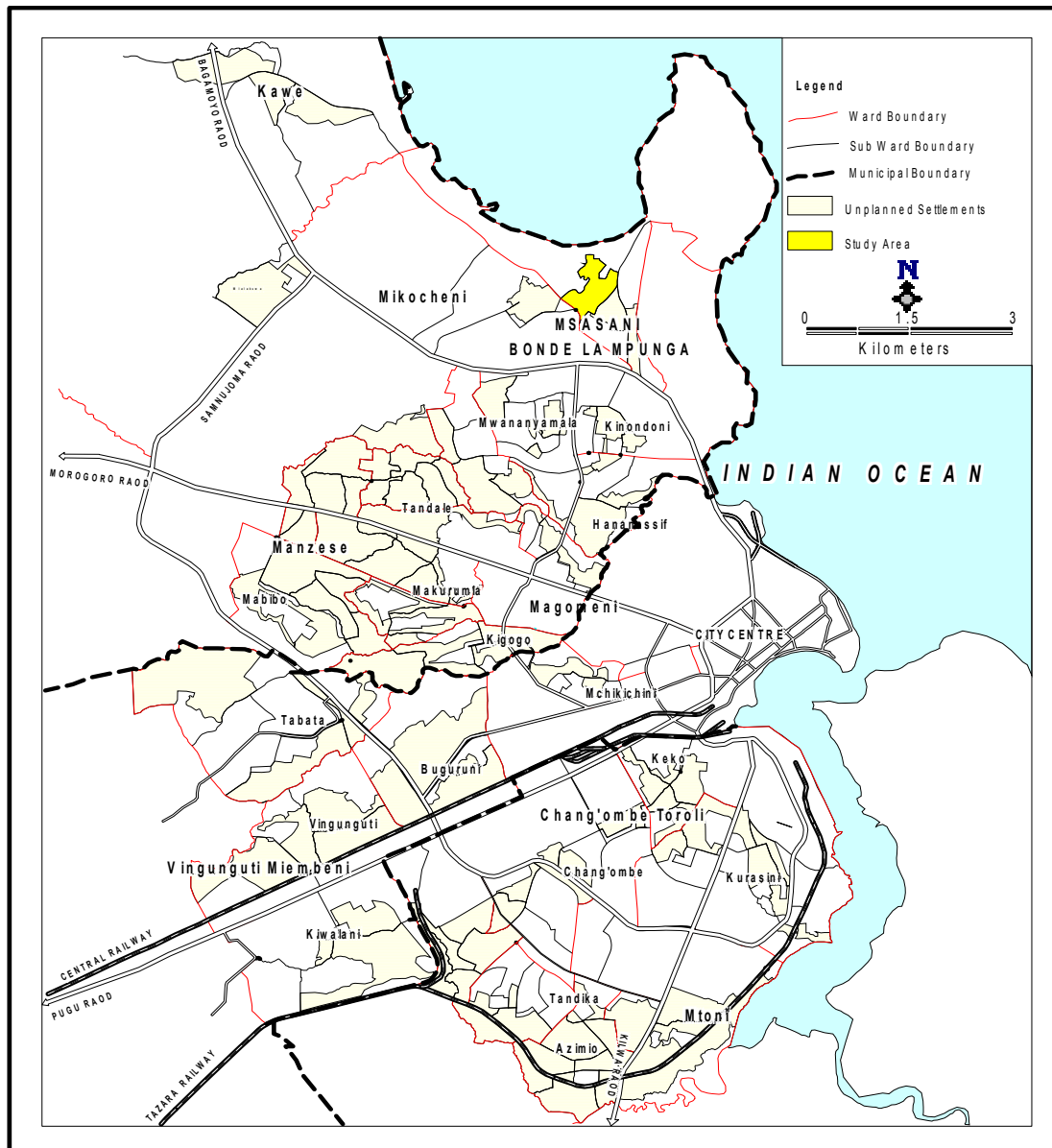


Figure 1.1: Location of Msasani Bonde la Mpunga in the context of Dar es Salaam City

Msasani Bonde la Mpunga being closer to the Indian Ocean is one of the drainage basins of Dar es Salaam City and an outlet of the Kijitonyama River that runs from the University of Dar es Salaam, across Sinza, Kijitonyama and Mikocheni settlements towards the Indian Ocean. Because of this key function of being a wetland and an outlet

to the Ocean, the 1979 Dar es Salaam Master plan earmarked this area as “hazard land” (wetland). Overall the area, as in many other unplanned settlements in Dar es Salaam, has inadequate infrastructure including roads, drainage network, water supply, liquid and solid waste services, which are also in a poor conditions.

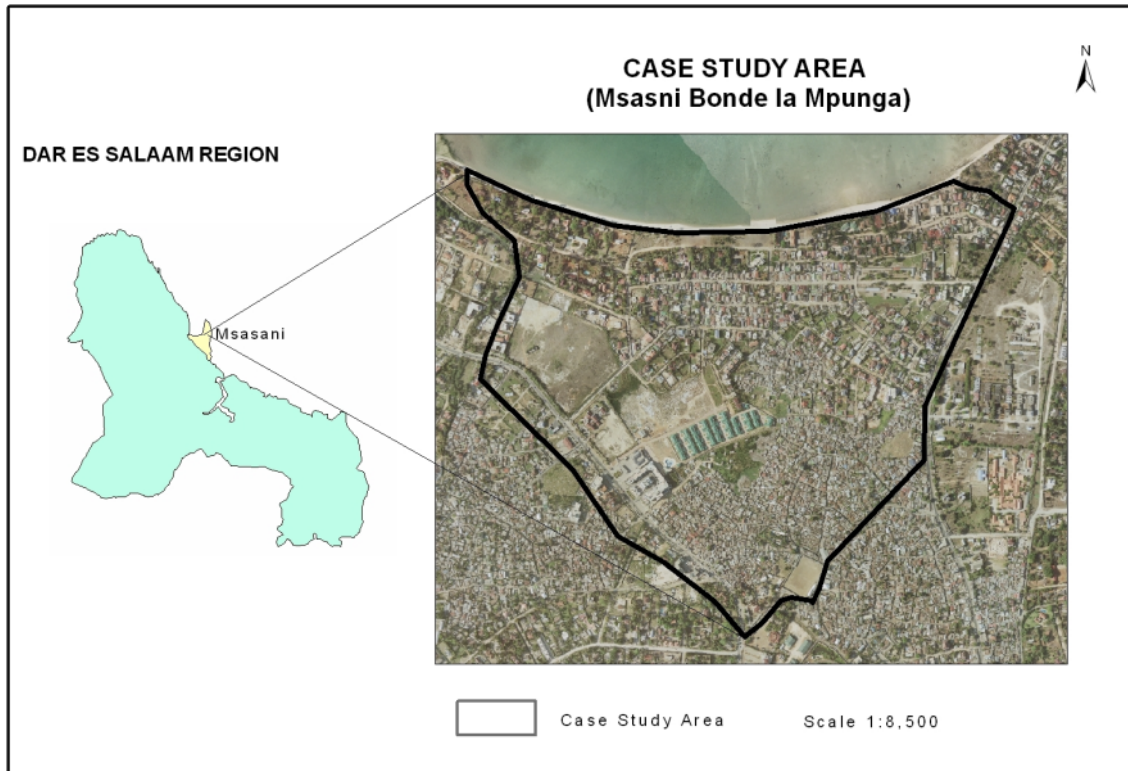


Figure 1.2: Satellite imagery of Msasani Bonde la Mpunga

1.3 Research problem

The case study area has a number of environmental and socio-economic problems and several attempts have been made to readdress the problems. One of the key problems facing the area is flooding. A number of attempts including urban upgrading schemes and provision of drainage channels have been proposed and implemented. In many of these attempts, the disaster risk reduction issues were inadequately taken into account at both local and central government levels. Using flooding as one of the disasters in the area, the research project has attempted to establish to what extent disaster risk reduction measures have been included in the plans for mitigating disaster problems in the area. The main focuses for the determination of the extent of the disaster risk reduction are analysis of the existing physical plans in the study area and the physical planning guidelines which are used by municipal planners in developing planning schemes in urban areas.

1.4 Research objectives

The overall objective is to mainstream the Disaster Risk Reduction (DRR) in urban physical planning practice using flooding disaster in Bonde la Mpunga as a case study.

The specific objectives are as follows:

- Determining of the major land uses that are affected by floods in the study area
- Documenting the main types of housing development in the area
- Mapping the magnitude of floods in the area
- Mapping the existing drainage channels in the area
- Establishing the key stakeholders in solving the flooding problems in the areas
- Studying and documenting the key interventions implemented in solving the flooding problem in the area
- Establishing the extent in which the views of the local communities have been taken into account by the municipal authorities while developing or implementing development interventions in the area.
- Establishing the extent in which DRR issues are incorporated in the existing planning guidelines
- Improving the existing planning guidelines by including the DRR issues.

2.0 METHODOLOGY

2.1 Main steps used

In carrying out this research project, a number of activities were implemented. Firstly, an inventory of the Bonde la Mpunga area was done with an overall objective of establishing the physical and socio economic status of the area. Tools adopted during this stage included documentary analysis, physical observations in the area, formal and informal discussions and meetings with key stakeholders, mapping and photograph taking.

Secondly, formal consultative meetings were held with leaders at various levels of the local government. These are the Kinondoni Municipal Council, the Msasani Ward Development Committee (WDC) and Bonde la Mpunga Sub-Ward Government (Plate 2.1). In addition, consultative meetings were also held with the Bonde la Mpunga Flood Control Committee and the local residents. The aim of these meetings was to introduce the project to the key stakeholders and to mobilize their participation in supporting the project.



Plate 2.1: Discussion with ward and sub-ward (*mtaa*) level local government officials at Msasani Ward offices

Thirdly, a stakeholders' consultative workshop was held early January 2009 with an aim of presenting and discussing preliminary findings and exploring initiatives taken by various stakeholders in addressing the flooding problem in Msasani Bonde la Mpunga area. Specifically, the workshop intended:

- i. To introduce initial ideas on the concepts of mainstreaming Disaster Risk Reduction (DRR) into the Urban Planning Practice/Agenda;

- ii. To document the extent of flooding problem and initiatives undertaken by stakeholders and related challenges in addressing/reducing the impacts of hazards especially floods in the Bonde la Mpunga area;
- iii. To engage stakeholders in establishing sustainable strategies for preventing, reducing and managing different types of hazards especially floods in urban areas; and,
- iv. To engage stakeholders in a participatory process of preparing a scheme/plan to address the problem of flooding in the Bonde la Mpunga area;

The workshop provided a forum to develop a common understanding on the magnitude of the problem and the underlying dynamics of land development in Bonde la Mpunga area (Plate 2.2). The Kinondoni municipal officials (Town Planners) were invited to present the planning interventions in the area and representatives of the Flood Control Committee were invited to present local initiatives that have been taken so far to solve the problem. The workshop drew participants from Kinondoni Municipal Council, Disaster Management Department (DMD) of the Prime Minister's Office, the Ministry of Lands, Housing and Human Settlements Development (MLHHSD), Msasani Bonde la Mpunga Floods Control Committee members, the sub-ward government, Msasani Ward Development Committee (WDC) and a team of researchers from Ardhi University (See the list of participants in **Annex 1**).



Photo 5.2: Participants in group discussion during the first stakeholders' consultative workshop held on 8th January 2009

Fourthly, brainstorming sessions with members of the technical committee established by the Prime Minister. This Committee was formed after the Prime Minister visited the Bonde la Mpunga area in March 2009 to assess the extent of flooding problem. The Prime Minister appointed a committee to advise the Government on measures to be taken to address the flooding problem in the area. The research team co-opted the

Prime Minister's Committee and the two groups held many brainstorming sessions geared towards finding a common solution for solving the problem.

Fifthly, the establishment of a task force to prepare an intervention scheme (Plate 2.3) for addressing the flooding problem in the area, comprising of the following key stakeholders:

- Six members of the Research team from Ardhi University; three being urban planners, two environmental engineers and a land surveyor cum GIS expert;
- Two sub-ward government members (sub-ward government chairperson and secretary);
- Two municipal council members; all of them being town planners;
- Two members of Bonde la Mpunga Flood Control Committee, (a chairperson and a secretary);
- Three members of Prime Minister's appointed team all of them being engineers.

The task force prepared the scheme with much input from the Prime Minister's appointed team, which conducted the engineering survey, prepared technical drawings and bills of quantities.



Plate 2.3: One of the taskforce working sessions to discuss proposals for solving the flooding problem

Lastly, holding of a stakeholders' consultative meeting after the taskforce had finalized the preparation of the proposals (Plate 2.4). The workshop served as a forum for key stakeholders to deliberate on the proposals for addressing the flooding problem in the Bonde la Mpunga area and to mainstream Disaster Risk Reduction (DRR) concepts in the urban planning practice. The workshop was held on 2nd October 2009 and it was attended by 20 participants from the central government, Dar es Salaam City Council,

municipal authorities, representatives of the affected community and Ardhi University (see the list of participants and their profiles in **Annex 2**).



Plate 2.4: A section of participants during a stakeholders' consultative workshop to discuss the proposals

3.0 RESEARCH FINDINGS

3.1 Physical Characteristics of the Study Area

Topographically, the larger part of Msasani Bonde la Mpunga lies between 0 and 3 metres above sea level. The central part is the lowest and is like a depression where water logging is experienced. Kijitonyama River bisects the area into two parts and the western part of this stream is the most flooded area when it rains. The old Bagamoyo road that runs from south-east towards northwest marks the southern border of this flooding zone with a contour level of 4 metres above sea level. The land bordering the Indian Ocean on the northern side of the trough is slightly elevated and has been developed into low-density residential housing.

3.2 Development trends in Bonde la Mpunga

3.2.1 The situation before 1990s

The development of the Bonde la Mpunga area can be traced way back in the 1970s when the area was mostly virgin with some few temporary huts that were built of mud and tree poles roofed by thatch or pieces of tins to provide shelter for paddy growers most of whom were residents of the nearby Namanga settlement. The Dar es Salaam City Master Plan of 1968 designated the area as “hazard land” and hence unbuildable because it was waterlogged throughout the year. In 1979, some few residents started to elect permanent structures. In the same year, the Dar es Salaam Master Plan was produced and again by recognizing the importance of the area as a drainage basin of the city, the plan designated the area as a “hazard land”.

3.2.2 The situation after 1990s

During mid 1980s, Tanzania adopted economic and various other liberalization policies and as such some of the decisions were made to suit the market forces. It was from this period that the area started to change very rapidly from a wetland to a residential-commercial housing area. Worth pointing out is that the responsible planning authorities were involved in these changes. For instance, in 1992, the Dar es Salaam City Council and the Ministry responsible for urban planning prepared and approved a local subdivision plan whose plots were allocated to both private (e.g. Petrol station, shopping malls, etc.) and public (e.g. Tanzania Electric Supply Company (TANESCO)) investors. In 1996, the then Dar es Salaam City Commission prepared the Bonde la Mpunga Development Plan, which proposed the area to be used for construction of waste stabilization ponds for treating wastewater from the surrounding areas including Mwananyamala, Sinza, Mwenge, Msasani and Mikocheni. However, the plan of using the area for construction of wastewater treatment facilities was not implemented. Later, in 2001, the Municipality prepared another subdivision plan in which two large investments namely shopping centre and hotel apartments were proposed. The development of the two large investments increased the risk of flooding in the area as they obstructed the main drainage channel which used to discharge storm water within the wetland before it was discharged into the ocean.

3.2.3 The current situation (i.e. 2009)

Currently, almost the whole area of the wetland has been developed into institutional and residential/commercial housing with the exception of some part in the south-east of the wetland which is being filled up with rubble and soil by one investor to raise the ground level in preparation of constructing buildings while another investor is erecting 24 residential apartments as depicted in Plate 3.1.



Plate 3.1: Fenced site in which 24 residential apartments are being constructed within the wetland

Housing development taking place in the area has largely led to the following:

- Re-routing of the storm water from its natural course to allow development of the area;
- Blocking of natural water courses, which has caused water to pond;
- Land reclamation through backfilling of the wetland, which has caused flooding of the surrounding areas;
- Construction of mounded pit latrines, which are emptied into flowing water during the rain season thus putting the residents at risk of contracting diseases; and,
- Ponding of water for a long time has destabilized foundations of many houses and consequently they have either collapsed or are at the verge of collapsing. Some houses are essentially not fit for human habitation because they are about to collapse.

- Inadequate waste management services due to congestion of houses and high groundwater table have been responsible for unaesthetic condition and outbreak of water related diseases notably, cholera, dysentery and malaria.

3.3. Land uses

There are six (6) categories of land uses in the study area (Table 3.1). The first category is the planned residential, which is predominant and accounts for 52.5% of the total area is largely found on the northern part and a strip that runs along Bagamoyo Road on the south-western part of the area as Figure 3.1 shows. The recently constructed apartments that are located at the central area also constitute this category of land use. The second category is the unplanned residential use that stretches from the south northwards to the central area of the site. The larger part of this area has been proposed by Kinondoni Municipal Council to be declared by MLHSD as a redevelopment area. Portions of this area have been bought by new developers who after compensating land occupiers, pulled down old houses and erected apartment blocks.

The third category of land use is open spaces, which are areas that have been acquired by developers and houses belonging to the local residents have been cleared for construction of new apartment blocks. The fourth category is the institutional use, which basically constitutes an area occupied by the Tanzania Electric Supply Company (TANESCO) offices. TANESCO is the first government institution to construct houses in this area. The fifth category is commercial use predominantly occupied by shopping malls and hotels developed in mid 1990s. Residential apartments constitute the sixth land use category accounting for only 2% of the total area. It can be observed that various land uses are concentrated in a small area (122 Ha) with inadequate and dilapidated storm water drainage system and a small proportion of open space (6.6%) for infiltration of storm run-off. This situation aggravates the flooding problem in the area.

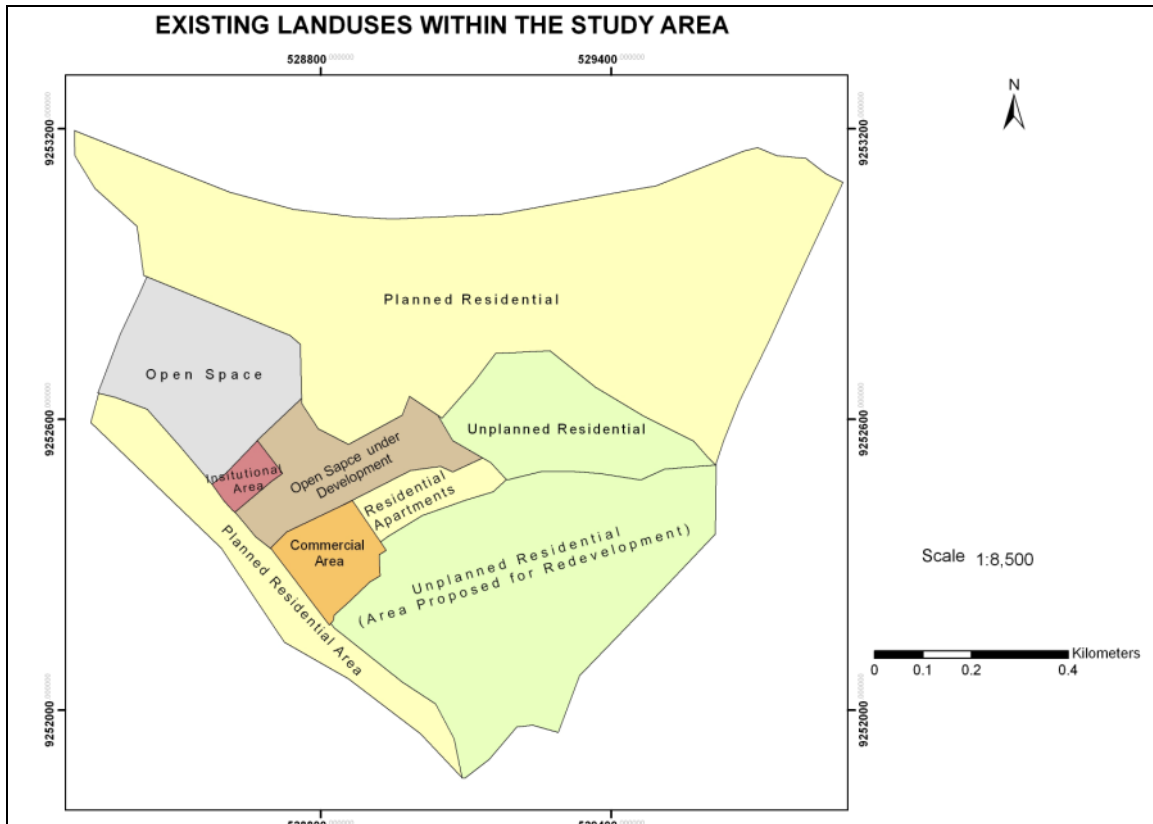


Figure 3.1: Existing Land uses

Source: Land use inventory surveys in Msasani (October 2008-February 2009).

Table 3.1: Land uses in Msasani Bonde la Mpunga

S/N	Land use	Area (ha)	Percent (%)
1.	Planned residential	64.0	52.4
2.	Unplanned residential	30.0	24.6
3.	Open spaces	8.0	6.6
4.	Commercial	3.5	3.0
5.	Open space under development	14.5	11.8
6.	Residential apartments	2.0	1.6
Total		122.0	100.0

Source: Map analysis and field inventory in Msasani Bonde la Mpunga, October 2008-February 2009

3.4 Flooding Zones and related disaster risks

On the basis of analysis of topographical maps covering Msasani Bonde la Mpunga area and physical inventories conducted from October 2008 to June 2009, two main flooding zones were identified. The highly flooded area occupies the central part of the settlement which lies between 2 and 4m above mean sea level. The area, which is moderately flooded, lies over 4m above the mean sea level. The severely flooded area covers an

area of 58 hectares (or 48 %) of the total area and the moderately flooded area covers 64 Hectares (equivalent to 52 %) of the total area as Figure 3.2 illustrates.

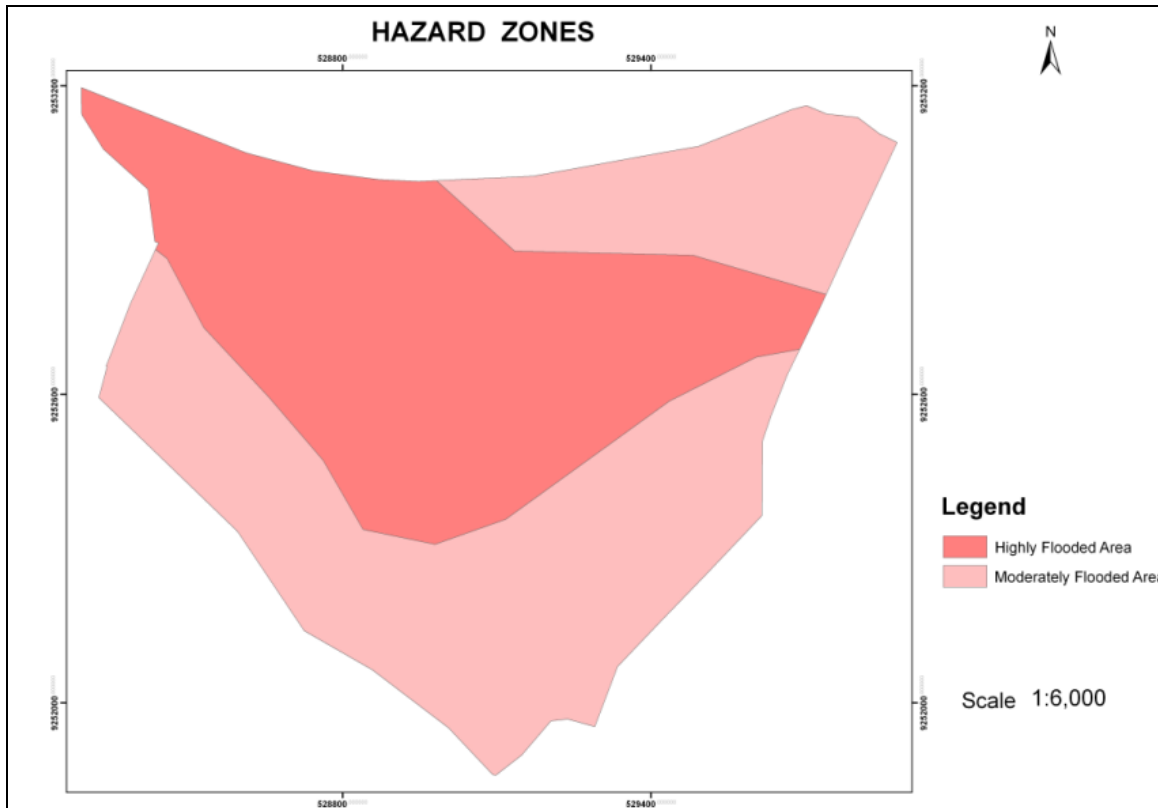


Figure 3.2: Flooding zones in the study area

Source: Topographic maps (1992) and Physical Inventory in Msasani (February 2009).

Table 3.2 clearly shows that a large proportion (68%) of houses in the study area is located in an area, which is highly prone to flooding.

Table 3.2: Number of houses in the flooding zones

Flooding Zone	Number of Houses	Percent (%)
Highly flooded	1248	68
Moderately flooded	588	32
Total	1,836	100

Following the development of the whole wetland into institutional, residential and commercial housing, the flooding problem has intensified and its impacts are now affecting a wider area within and without the wetland. Plate 3.2 shows the flooding situation when it rains.



Plate 3.2: Flooded houses in the Bonde la Mpunga area during the rain season

3.5 Flooding Intervention Measures

From 2006 when Phase I of this research project was conducted until to date, there have been new initiatives at government and settlement levels to address the flooding and associated environmental problems in the Bonde la Mpunga area. These interventions are discussed hereunder.

3.5.1 Government level interventions

At the Government level, the National Environment Management Council (NEMC) conducted an environmental assessment study of the area and established that Bonde la Mpunga is highly prone to flooding disaster risks. NEMC advised the municipality to initiate the process of declaring the area as “hazardous and to workout better ways of developing the area sustainably”. The Kinondoni Municipal Council on its part had initiated a redevelopment plan for the southern part of the area covering 184,600m². This is an informal housing area, which is habited largely by low income people. The redevelopment plan has been accompanied by a project proposal that intends to compensate and relocate 2,000 informal house owners and re-design the area with large (super low density plots) to be sold to investors. The proposed plan is geared towards utilizing the area for construction of commercial and high rise residential houses to provide decent housing for solving the housing problem. The redevelopment plan is intended for large capital developers since the plots being proposed which are 30 in total are “super low density” with an average of 8,000m² per plot. During the discussions with residents and their representatives, it was observed that residents of Bonde la Mpunga area most of whom are low-income earners were unlikely to benefit from the proposed project.

The plan also included the provision of basic physical infrastructures notably storm water drains because of the flooding nature of the area. It is, however, worth noting that although storm water drains are provided for in the plan, they are unlikely to solve the flooding problem because the project area covered is only part of the entire area that is affected by flooding and no proper and comprehensive study was carried out to establish the extent and magnitude of the problem before coming up with the proposal. Worth noting here is that after this research project of mainstreaming DRR in urban planning practice and the initiative of the Prime Minister to appoint a team to prepare proposals of addressing the problem of flooding in the Bonde la Mpunga, the municipal council shelved the plan it had developed to wait for the recommendations of the taskforce.

3.5.2 Community level intervention

The local community established a Committee of seven (7) people to spearhead the process of addressing the problem of flooding in the area. According to the information obtained from the ward and sub-ward leadership, the committee is constituted by both the local people and sub-ward leaders. The committee is chaired by a local person. There is also a secretary and treasurer to the committee and other four members one of whom is the sub-ward (*mtaa*) government chairperson. It is worth pointing out here that already some form of collaboration between the local people and their *mtaa* government had been established to address the problem of flooding in the area. This committee

was considered by the research team as one of the key stakeholders during the period of conducting the research project.

3.5.3 Problems associated to intervention measures

A number of problems were encountered during the implementation of interventions for solving the flooding problems. These included uncoordinated efforts, formation of the Flood Control Committee with no legal mandate, exclusion of the low income people from the planning process, lack of trust by the local communities towards the large scale investors, non consideration of DRR issues in planning and preparation of planning scheme interventions on piece meal basis. The details are provided below.

i) Uncoordinated efforts in addressing the flooding problem

There have been uncoordinated attempts and interventions to address environmental and flooding problems in the Bonde la Mpunga area. Every stakeholder especially the Kinondoni Municipal Council, the affected community and private sector have worked in isolation in trying to solve the problem. This situation has to a certain extent aggravated the problem and resulted into ineffective use of the resources in addressing the problem. To solve the flooding problem, for example, capital developers normally raise the ground level above the flood level by filling up with borrow materials such as soil and construction rubbles thus shifting and aggravating the flooding problem elsewhere. This situation has largely been contributed by the fact that there was no forum that could bring together key actors in the area to discuss, agree, plan and implement the decisions for controlling floods in the area in unison.

ii) Unregistered local community organization

The local community established the Flood Control Committee to spearhead the community's efforts in solving the flooding problem. The main responsibility of the committee was to mobilize efforts and resources for solving the flooding problem. While this committee was operating under the Mtaa Government, it was a non-statutory committee and its mandate could be questioned. Since it lacked the legal mandate, the committee was not very effective in its operations including soliciting funds from various sources. The Committee had attempted to seek the interventions of the Municipal and Region Authorities as well as the State House to solve the problem with a limited success. At one time, the municipal authority through its drainage inspector had allowed the community to demolish walls that were obstructing the smooth flow of storm water in the area. The wall demolition exercise was reported to cause havoc in the area. The community also mobilized funds by collecting T.Shs. 3,800 per family for construction of a storm water drainage system behind the Apartment Hotels. The drainage channel was however not properly constructed and therefore it could not effectively drain off floodwater as the community had expected. The drainage channel was eventually demolished by an investor who filled up the area for construction of apartment buildings for leasing. This again demonstrates that there were uncoordinated efforts, which could not effectively solve the flooding problem.

Several attempts by the research team to encourage the community leaders to mobilize the community members to establish a CBO with legal mandate did not bear fruits

basically due to sharp differences in political ideologies of the leaders themselves as well as community members. Community leaders have different political party affiliations, which are ideologically different and as such it was difficult to persuade them to initiate the establishment of a CBO.

iii) Mixed feelings towards the roles of large scale investors

There were mixed feelings among the community members towards the role of large-scale capital investors in the area. While there were those who perceived them as the main contributors to the flooding problem, others saw them as partners who they could work with in solving the flooding problem. One of the identified problems is that some investors were misled especially by the Municipal Authorities, which was not properly coordinating development activities in the area. The importance of coordinating physical development in the area by the municipal council was identified by the affected community as a critical issue. This is because there have been many physical plans in the area but none has been able to solve the problems of flooding.

iv) Exclusion of the poor in favor of the rich

Current debate on sustainable cities oscillates on how to make cities inclusive for the rich and the poor. What is taking place in Msasani Bonde la Mpunga typifies exclusive planning where the poor are pushed outside of the city economy to the periphery. While the focus of this project was on how to mainstream disaster risk reduction in urban planning practice, and in this case the flooding problem, exclusion of the poor is likely to create an unfertile ground for citizen participation. It will essentially lead to gentrification where the poor people are pushed to the periphery where basic services are lacking. The ultimate result is aggravation of urban poverty and creation of *“divided cities”*. It is important to note that this is a challenge that ought to be taken into consideration while focusing on redress in disaster risk reduction.

v) Addressing the flooding problem beyond Msasani Bonde la Mpunga area

There was a need to analyze the problem of flooding beyond the affected area to include the whole catchment area. This entails the need to establish the drainage system for the entire area that is directly linked with flood water in the Bonde la Mpunga area.

vi) Lack of Community Involvement in Planning

Consultation with affected people revealed that the local community was not involved by the municipal council in preparing the proposed redevelopment plan. Implementation of the proposed redevelopment plan was estimated to cost T.Shs. 1.5 billion (USD 1.154 million). The Kinondoni Municipal Council has requested the office of the Prime Minister to fund the project. Community members were also not aware that the Council has approached the Prime Minister's Office for financing the project. Notwithstanding that the community felt that it was important to fund this budget in the financial year 2009/10 to solve the problem of flooding. This indicates the residents are desperate with the flooding problem.

vii) The Need for finding short and medium term solutions

The need to find short and medium term solutions to reduce the impacts of flooding in the area while the long term solutions are being worked out was emphasized. Solutions recommended by community representatives and other key stakeholders placed the responsibilities to the Municipal Authority and the affected community in:

- Cleaning all drains that have been obstructed with debris.
- Uncovering covered drains to facilitate easy cleaning for allowing smooth flow of storm water.
- Demolishing structures that impede the smooth flow of storm water after negotiating with the owners

viii) Ignoring of DRR issues in Urban Planning Practice

Planning interventions shows that from the first scheme that introduced institutional and residential plots in this area to the newly redesigned “super-low density” scheme, the question of flooding and other disaster issues were not appropriately and adequately addressed in the planning and implementation stages of the plans. This could partly be because of the ignorance on DRR concepts on the part of physical planners.

A closer look at the development trends of the area also reveals that that DRR was not adequately considered in all development plans. All development plans ignored the fact that the area is a wetland and as such it is highly prone to flooding. Flooding risks associated with the development of the area were not properly and adequately addressed as natural water courses and wetland, which played the role of attenuation of floods were blocked and cleared, respectively. Piecemeal planning, which did not adequately consider the inherent hydrology as well as flooding characteristics of the area is also to blame for the flooding problem. In view of this, the need to mainstream DRR into the urban development undertakings and urban planning practice can not be overemphasized. Aspects to be considered in ensuring that DRR is mainstreamed in urban planning practices include;

- Provision of basic infrastructure prior to human settlement development especially in disaster prone areas. The traditional practice of providing physical infrastructure such as water supply and storm water drainage systems and waste management services after the area has already been developed is largely responsible for creating hazardous conditions.
- Advocacy of comprehensive planning, which strictly takes into considerations the concept of DRR as opposed to piecemeal planning with associated lack of considerations of DRR issues.
- Allocation of budget for DRR at municipal level and introduction of tight control measures to protect areas that are more vulnerable to disasters.

4.0 TECHNICAL PROPOSALS

4.1 Technical proposal of addressing flooding in Bonde la Mpunga

Essentially two main approaches are used to address the flooding problem in Msasani Bonde la Mpunga area. These are non-structural and structural approaches. The key consideration used in adopting a particular engineering option at a particular location was the avoidance of transferring the flooding or flooding impact to other areas.

4.2 Non-structural Measures

In addressing flooding problem in the area a number of non-structural methods may be used such as zoning, warning signs and notices and provision of flood forecasting information to the people living in the area. The Dar es Salaam Master Plan (1979) zoned the area as hazardous land. However, increased pressure in urbanization and lack of enforcement of the urban development regulations in the implementation of the city master plan resulted in the development of the area for institutional, commercial and residential uses in flood prone areas. Non-structural methods used in Msasani Bonde la Mpunga have not been able to control the flooding problem in the area. To effectively control flooding problem in the area, structural methods are proposed. Such measures involve engineering interventions like construction of drainage channels and improvement of existing ones.

4.3 Structural Measures

In this approach engineering interventions such as widening, deepening, straightening, cleaning and paving the channel bottom were considered for improving existing drainage channels and proposing new ones. Construction of reservoir was initially considered to be one of the measures in reducing flooding problem in the area but it was learnt that the area suitable for construction of the reservoir is already developed into commercial housing. Moreover, construction of a reservoir could have been economically feasible if it could also be used for income generating activities in addition to solving the flooding problem. Nevertheless, in case of unusually large storms a number of properties and services downstream of the retention reservoir may be at risk of being washed away in case of breaching of the reservoir. In view of the above, the feasible option to control flooding in the area is to construct new drainage channels and rehabilitating and increasing the size of the existing ones.

4.2.1 Improving existing drainage channels

Field survey at the study area revealed two different types of drainage channels; constructed drainage channels and natural streams. Some of the constructed drainage channels were open while others were closed conduit. It was also observed that poor solid waste management in the area has caused the existing drainage channels to be used for disposal sites for solid wastes. This has resulted into reducing the carrying capacity of the channels as well as blocking of flow of existing natural streams. Figure 4.1 depicts the location of existing drainage channels in the area.

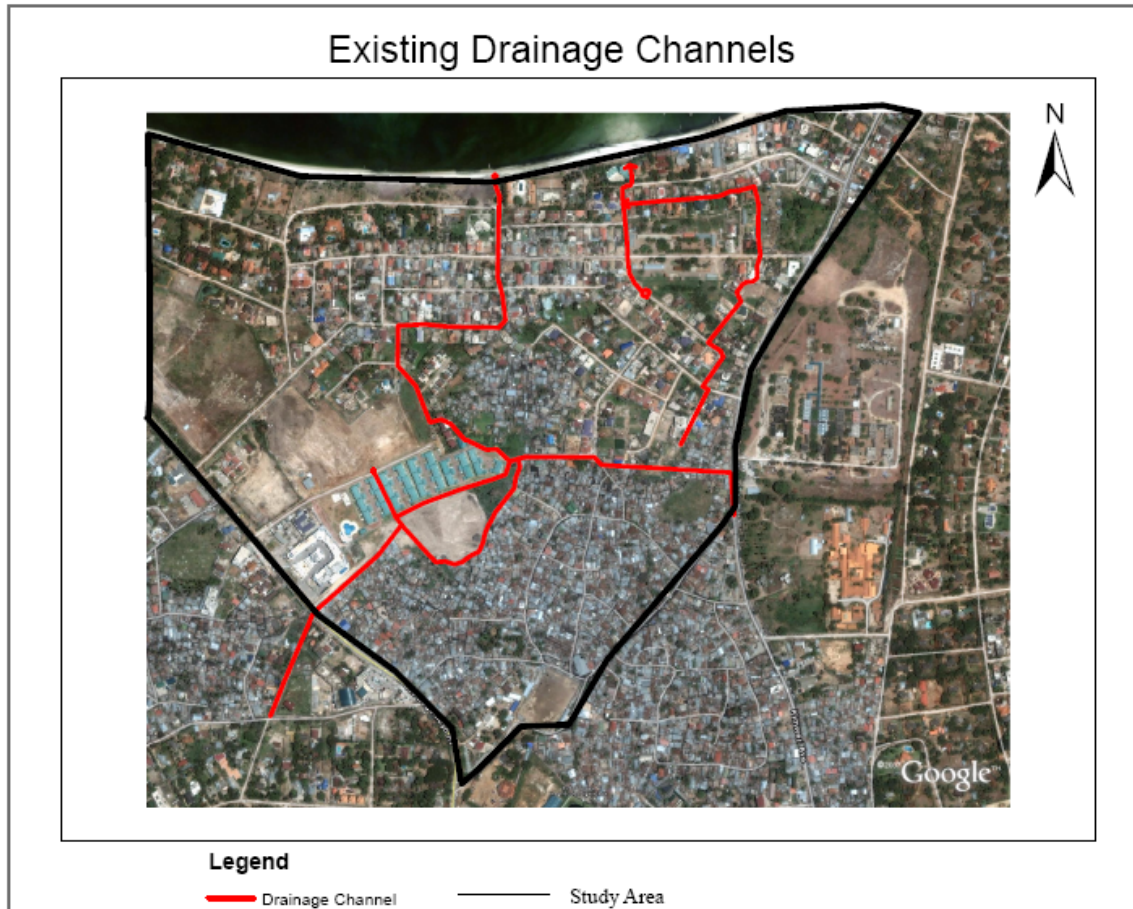


Figure 4.1: Existing Drainage Channels

In order to reduce the flooding problem, various initiatives were taken by the local community as mentioned previously. One of the initiatives was to construct storm water drainage channels to drain storm water from the areas that have been frequently flooding. This was coordinated by the Flood Control Committee. However, the constructed drainage channels were too small to drain the amount of storm water discharged because of low carrying capacity and could not cover the entire area. As a result such initiatives were not successful.

Proposal:

- (a) It is proposed that the existing drainage channel should be improved to carry the amount of water discharged in the area. In addition, new drainage channels should be constructed in the areas without channels.
- (b) Solid waste management in the area should be improved. The community should be educated on how and where to properly dispose solid wastes.
- (c) Drainage channels in the area should be regularly cleaned and maintained.

4.2.2 Proposed drainage channels

This section briefly discusses how the newly proposed drainage channels were laid out and designed. The criteria that were used in designing the channels are also described.

The first step was to determine the size and extent of the areas, which frequently flood. These areas were determined using historical data and local knowledge of the hydrology of the area. Affected people were consulted for the purpose of estimating the level of water during floods as well as the frequency of flooding. The second step was to take the measurement of ground levels in order to determine the slope and eventually the directions of flow. This task was done by taking into account the existing structures in the area to minimize demolition of structures. Based on the results of step one and two, the third step was to prepare ground profiles that depict elevations which were eventually used to identify the directions of storm waste flow. Measurements of ground levels and preparation of ground profiles were done by a team of engineers appointed by the office of the Prime Minister. Figure 4.2 shows the existing and proposed drainage channels.

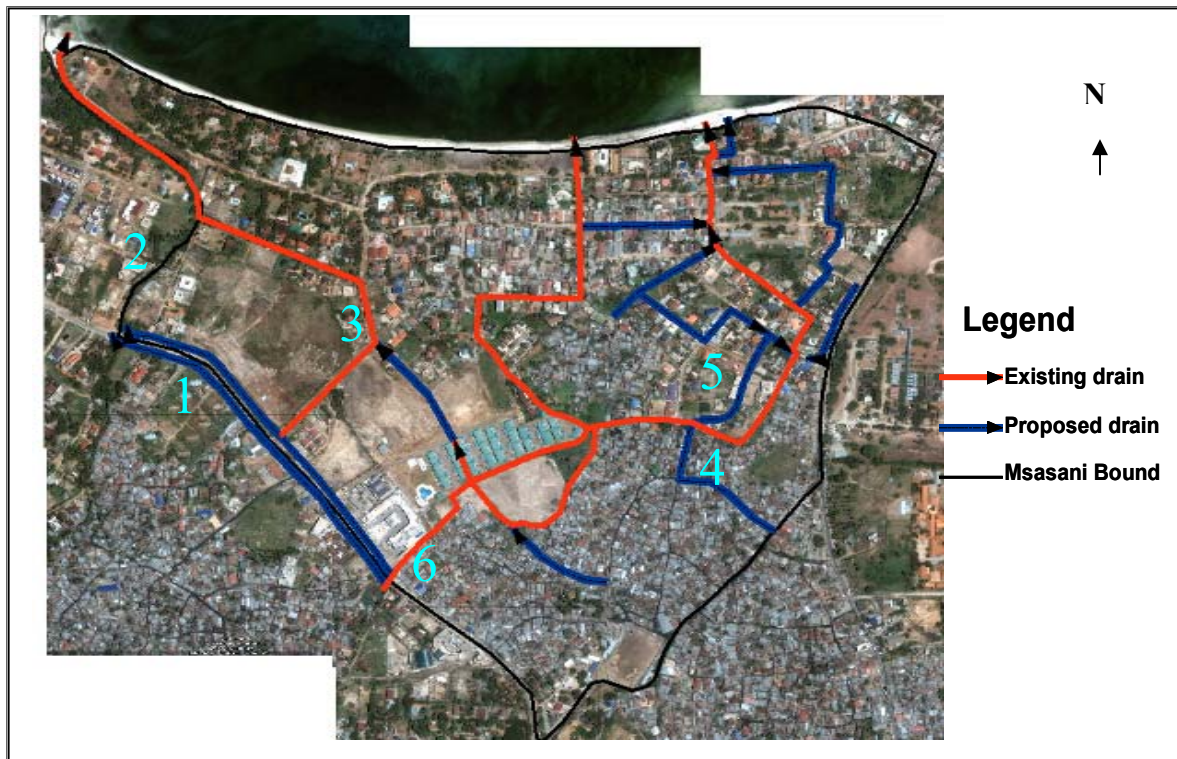


Figure 4.2: Existing and Proposed drainage channels at Msasani Bonde la Mpunga area

A number of engineering options are proposed to be used in improving existing drainage channels and constructing new ones as detailed in Table 4.1. The channels indicated on the map are labeled 1 to 6. The numbers on the map should be read together with the numbers in Table 4.1, which describe the drainage section, type of drainage channels, and proposed improvement measures.

Table 8.1: Proposal for drainage improvement

No.	Drainage Section	Proposed Remedial Activities	Drainage Type
1	From the Culvert Old Bagamoyo Road up to Feza River	To be constructed by TANROADS Manager Dar es Salaam under the upgrading of	Box Culvert

No.	Drainage Section	Proposed Remedial Activities	Drainage Type
		Old Bagamoyo road project	
2	Feza River (From Old Bagamoyo Road to the Ocean)	Construction of three screen chambers (two across Feza River and one across the culvert at Old Bagamoyo Road)	River Feza
3	From TANESCO road to Feza river	Construction/Rehabilitation	Open channel
4	From grave yard through Nevada road to Msasani Primary School drainage	Construction	Open channel/piped system
5	TASAF along Maandazi road up to the ocean outfall	Construction	Open channel
6	From the Culvert at Old Bagamoyo road to TANESCO road through Merhabu, Dar Villa compounds	Construction of open channels/closed	Open channels/closed

4.2.3 Unblocking the outlet to the sea

The other factor which, contributes to the flooding problem in the area that was identified during the field survey is that some of the landlords bordering the Ocean shoreline have blocked the outlets of storm water courses discharging into the Ocean by building houses on them. It is, therefore, recommended that the storm water outlets should be unblocked and the drainage channels be extended towards the Ocean.

5.0 PROPOSALS FOR MAINSTREAMING DRR IN URBAN PLANNING PRACTICE

As pointed out earlier on, urban planning practice in Tanzania has proceeded with little attention on incorporation of disaster issues. Guidelines for the preparation of General Planning Schemes and Detailed Schemes for New areas, Urban Renewal and Regularization hardly address issues pertinent to DRR. This shortcoming has to the larger extent contributed to the accumulation of risks and occurrence of disasters in urban areas. Proposals for incorporating DRR concepts in the existing guidelines for preparing urban planning schemes are presented in Tables 5.1 through 5.3.

Table 5.1: Mainstreaming Disaster Risk Reduction (DRR) in General Planning Schemes

S/No.	Current guidelines	Deficiency in addressing DRR	Recommendations for mainstreaming DRR
1	<p>Consultations Consultation with the local authority by the Minister, passing of the resolution and declaration of the planning area</p>		
2	<p>Administration</p> <ul style="list-style-type: none"> • Establishment of a General Planning Scheme Steering Committee • Establishment of the technical committee constituting the Town planner and heads of departments • Establishment of the technical sub-committee with no more than 10 members and not less than 6 members. Departmental/sections members of staff and themes key stakeholders 	<p>Not clear whether a person with expertise in disaster issues is part of the team composition.</p>	<p>Membership to the committees should include experts (focal point officers) in disaster management</p>
3	<p>Initiation and mobilization</p> <ul style="list-style-type: none"> • Steering committee mobilizes and sensitizes stakeholders through consultative meetings to create/raise awareness, solicit commitment and elaborate on roles, mandate and ownership of each stakeholder • Stakeholders identify planning problems and define goals and objectives 	<p>Conventionally DRR has not been one of the agenda in many of the sensitization workshops related to scheme preparations</p>	<p>During sensitization fora DRR should constitute one of the key agenda items</p>
4	<p>Data collection and processing</p> <ul style="list-style-type: none"> • Review existing data and literature • Obtain and prepare base map • Make reconnaissance • Conduct socio-economic survey/interviews • Collect sector data & information inventory 	<p>Data pertaining to risk accumulation and disaster are usually not collected</p>	<p>Collect necessary data on risk accumulation and disasters</p>

S/No.	Current guidelines	Deficiency in addressing DRR	Recommendations for mainstreaming DRR
	<ul style="list-style-type: none"> • Conduct land use survey; physical surveys in updating base map and preparing land use map • Conduct traffic survey • Collect any other important data 		
5	<p>Data analysis and synthesis</p> <ul style="list-style-type: none"> • The collected and processed physical and socio-economic data and information shall be analyzed. On the basis of this both physical and non-physical problems shall be identified. 	Hazard and risk assessment are rarely integrated in the analysis of physical and non-physical data	Hazard and risk assessment should be integrated in the analysis of physical and non-physical data
6	<p>Plan conceptualization</p> <ul style="list-style-type: none"> • Identify potential development areas • Prepare projections • Future population estimates • Housing demand, social facilities, infrastructure provision, land requirements • Formulation of the alternative concepts 	<p>Conceptualization of the plan does not focus on the extent to which the concept mitigates disaster issues.</p> <p>In practice, alternative concepts formulated do not take into consideration disaster mitigation approaches</p>	<p>Conceptualization of the plan should also focus on the extent to which the concept mitigates disaster issues.</p> <p>Formulation of alternative concepts should take into consideration disaster mitigation approaches</p>
7	<p>Draft plan preparation</p> <ul style="list-style-type: none"> • Prepare a detailed alternative conceptual plan • Make project identification • Prepare a draft report 	Detailed conceptual plans and projects are in many cases land use biased with little or no attention to DRR issues	One of the criteria for the selection of the alternative concept for detailed plan preparation should take on board disaster mitigation measures. Identify projects that address DRR
8	<p>Plan adoption and acceptance</p> <p>The Planning authority shall deposit notice of the plan under preparation and convene a second stakeholders consultative meeting where the plan shall be presented and commented by stakeholders</p>	In practice many plans have been adopted with little regard to DRR	In adopting plans attention should be paid to the extent the plan incorporates DRR issues
9	<p>Refinement of the accepted plan</p> <p>The preparatory authority shall incorporate comments, opinions and recommendations of the stakeholders</p>		

S/No.	Current guidelines	Deficiency in addressing DRR	Recommendations for mainstreaming DRR
10	Plan approval Submission of the plan to the Minister for approval, Gazetting, publication and distribution of the plan	Incorporation of DRR concepts in the plans have rarely been considered as among the criteria for the approval of the plans	Prior to approval and gazetting of the plan, the Minister should be satisfied that the plan has adequately addressed DRR concepts.
11	Output of the process <ul style="list-style-type: none"> • Planning document • Text and graphics 	Conventional outputs from General planning schemes have largely focused on land use and zoning plans	In addition to conventional land use maps and plans the following maps should be included: <ul style="list-style-type: none"> ○ Hazard susceptibility maps ○ Mitigation plans (graphics)
12	Form and content of the output General: Text: Introduction; Demography; Economy and employment; Existing land use; Housing and residential development; Social and community facilities; Public utilities; Transport, transportation and communication; Summary of problems, goals, objectives and the urban concept; Planning proposals, policies and recommendations; Plan implementation, costing and development phasing; Maps, plans and figures:	A chapter that focuses on the discussion of disaster issues is missing	Introduce a chapter “hazard and risk assessment” as one of the contents of the plan.
13	Time frame		
14	Implementation	Projects addressing DRR have hardly been given due attention during plan implementation	During implementation phase projects addressing DRR should be given due attention
15	Monitoring and Evaluation		In monitoring the following DRR issues should be looked upon: <ul style="list-style-type: none"> • Whether DRR mitigation plans are implemented

S/No.	Current guidelines	Deficiency in addressing DRR	Recommendations for mainstreaming DRR
			<ul style="list-style-type: none"> • Whether DRR strategies are still relevant • Whether DRR strategies are creating the intended impacts
16	Review of the plan	In practice during the review of plans DRR has hardly been taken into consideration.	In reviewing General Planning Schemes, it is recommended that DRR are revisited as the case was in the preparation and implementation process.

Table 5.2: Mainstreaming DRR in Guidelines for Detailed Planning Schemes

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
1	<p>Preparation process:</p> <ul style="list-style-type: none"> ▪ The Technical Committee (TC) shall identify actors and stakeholders, their roles, mandates, capacity for implementation. ▪ TC shall prepare a planning program indicating population, uses and land use budget, standards and conceptual plan. ▪ The Preparatory Authority (PA/CMT) shall present the scheme to stakeholders and the Council for acceptance and endorsement. ▪ The Local Government Authority (LGA) shall submit the scheme to the Director of Town Planning 	<ul style="list-style-type: none"> ▪ The guideline does not specify DRR Focal Point Coordinators as key actors in the process ▪ The conceptual plan does not point to the need of having Vulnerability analysis as part of this stage in planning process. ▪ Usually, plans presented do not show vulnerability maps ▪ No guidance is given to approving authorities as to 	<ul style="list-style-type: none"> ▪ DRR Focal Point Coordinators should be members of the Steering and Technical Committees. ▪ Vulnerability analysis showing levels of vulnerability should be part of the conceptual analysis stage of plan making. ▪ Plans presented to the stakeholders should include DRR (Vulnerability Maps and Figures) ▪ The Director of Town Planning should not approve detailed planning schemes that do not provide adequate and explicit

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	through the RAS.	what should be the basic requirements for DRR in these schemes	analysis of DRR (Vulnerability) issues.
2	<p>Outputs: A report of existing situation and planning program; Location plan in appropriate scale, Conceptual plan, A plan/scheme in scale 1:2500, Infrastructure supplement plans in appropriate scale, Cluster plan in scale 1:1000/1:500, Illustrative 3D-model of a part or whole scheme in appropriate scale, where applicable a plot site plan in scale 1:200/1:100, Action plan and budget (implementation schedule/plan).</p>	Outputs fall short of provisions for project specific DRR mitigation measures	<ul style="list-style-type: none"> • Outputs should indicate vulnerability analysis maps/plans for potential risks and hazards and mitigation measures to disasters.
3	<p>Implementation:</p> <ul style="list-style-type: none"> • CMT shall mobilize resources for effecting cadastral survey and infrastructure provision. • TC shall get the survey plan approved by the Ministry and LGA shall dispose plots to prospective developers and facilitate processing of certificate of occupancy. • LGA shall facilitate issuing of building permits TC shall enforce and ensure adherence to development conditions. • TC shall ensure developers have obtained building permits or planning consents. • TC in collaboration with Ward/Mtaa Offices shall 	<ul style="list-style-type: none"> • Biased emphasis in project implementation (cadastral survey and infrastructure provision). • Definition and assignment of disaster prone areas is usually neglected • Current practice has witnessed building permits issued in disaster prone areas such as River Valleys and Marshy areas as the case was for Msasani Bonde La Mpunga. • No schemes are prepared for areas designated as hazard areas 	<ul style="list-style-type: none"> • Resource mobilisation by CMT should target at implementing DRR projects • Define and allocate (assign) disaster prone areas to relevant authority for management of DRR issues. • No building permit shall be provided in areas designated as potential hazard and disaster prone areas. • Areas designated as DRR areas shall have detailed schemes for their implementation

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	ensure that development conforms to development conditions.	<ul style="list-style-type: none"> • There are hardly development control teams in form of land rangers and development control officers 	<ul style="list-style-type: none"> • Engage Land Rangers equipped with DRR concepts in development control Teams
4	<p>Monitoring and Evaluation:</p> <ul style="list-style-type: none"> • TC shall prepare annual detailed plan implementation report indicating achievements of targets, constraints and recommendations. • TC shall submit the report to the local authority for forwarding to the Regional Secretariat and Director of Human Settlements Development. 	<ul style="list-style-type: none"> • Usually report on progress on implementation plans are not prepared • Reporting format is usually not provided 	<ul style="list-style-type: none"> • Annual implementation progress reports should provide detailed status in implementing DRR proposals as recommended in the detailed planning schemes. • Reporting format including DRR should address three key aspects of monitoring namely: <ul style="list-style-type: none"> ○ Implementation monitoring (whether the implementation is on schedule) ○ Impact monitoring (whether the plan is creating the intended impact especially on DRR); AND ○ Strategic monitoring (whether the goals and objectives are still relevant)

Table 5.3: Mainstreaming DRR in Guidelines for Detailed Urban Renewal Schemes

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
1	<p>Preparation Process:</p> <ul style="list-style-type: none"> • The Technical Committee (TC) shall identify areas ripe for urban renewal by using (not limited to) the following criteria: <ul style="list-style-type: none"> ○ Location of the site in relation to the city/municipal/town centre, ○ Change in the key functions of the area from typical residential to commercial or institutional uses ○ Expiry of leases periods ○ Number of application for change of use, densification of buildings and intensity of activities in the area ○ Degree of obsolescence of buildings and infrastructure ○ Requirements of open spaces ○ Traffic congestion and increased environmental pollution. • TC shall prepare a Town Planning drawing (Locational Map) indicating boundaries of areas ripe for urban renewal. • LGA shall request the Minister to declare the area as ripe for Renewal and publish the notice in the Government Gazette. 	<p>The criteria for identification of areas ripe for urban renewal do not make reference to DRR components that are usually embedded in many areas ripe for urban renewal</p> <ul style="list-style-type: none"> • The town planning drawing do not necessarily show potential disaster areas • The Minister usually approves areas ripe for renewal with minimal or no consideration of DRR. 	<ul style="list-style-type: none"> • The criteria for declaring areas ripe for urban renewal should include Disaster specific issues such as flooding, air pollution, accidents, fire risks, susceptibility to diseases as a result of congestion, other hazards that may culminate into disasters. • The Town Planning drawing that will be presented to the Urban Planning Committee should show potential disaster risk areas and issues. • In declaring areas ripe for renewal and gazetting, the Minister shall ensure that potential risk and disaster components have been included in the town planning drawing.

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<ul style="list-style-type: none"> • LGA shall designate a Preparatory Authority for the renewal plan and identify key stakeholders and main actors (Utility Agencies such as Electricity, Water, Sewerage and Sanitation, Roads and drainage; representatives of the community (property owners and tenants); CBOs and NGOs, private entrepreneurs, local authority leaders, faith based organizations, influential people and political institutions operating in the renewal area. The Preparation process shall involve the following stages: <ul style="list-style-type: none"> ○ Initiating the process by creating awareness of intention to prepare an urban renewal scheme; ○ Convening a meeting of all stakeholders, including landholders, public and private institutions, Community Based Organizations and Non-Government Organizations in the area to be affected, to seek their comments and contributions ○ In the event of acceptance by the said meeting, the Planning Authority shall proceed to prepare an urban renewal scheme. Among the main activities to be included the following are crucial: <ul style="list-style-type: none"> ○ Site location studies thereby characterising the location of the site in relation to the overall town and other important features • Physical inventories/ studies of buildings. These should include the following: building 	<ul style="list-style-type: none"> • Focal Point Officers for DRR are not mentioned as key stakeholders. 	<ul style="list-style-type: none"> • Focal Point Officers for DRR should be part of key stakeholders in the whole process of preparing urban renewal schemes.

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<p>condition surveys; such as building types, building ownership, building heights, building uses and land use and land tenure. Other inventories shall include infrastructure services, transport and traffic, community facilities, recreational facilities, landscape qualities, townscape characteristics, socio-economic studies and summarising key issues emerging from the study</p> <ul style="list-style-type: none"> • TC shall identify priority areas for urban renewal. • Steering Committee shall establish a Sub-Committee to further examine identified priority areas and strategize for redevelopment approaches. • TC shall prepare action plans for Sub-Committee specific areas and compile Sub-Committee-specific action plans to prepare the urban renewal plan. • After preparation of the urban renewal scheme CMT shall forward it to the planning authority 	<ul style="list-style-type: none"> • DRR issues are not included in inventory studies for urban renewal schemes. • Usually and in planning practice, DRR are not included or implied in priority setting • DRR Focal Point Officers are not mentioned to constitute the Sub-Committee. 	<ul style="list-style-type: none"> • Inventory studies for urban renewal schemes should include hazards and risk assessment studies. • DRR components should be given due weight in prioritizing areas for urban renewal. • It is recommended that DRR Focal

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<p>for scrutiny, approval and adoption. The scheme shall then be forwarded to the Director in the Ministry (MLHHS) for scrutiny, approval and adoption.</p>	<ul style="list-style-type: none"> • Compiled plans are usually deficient of DRR components. • Approval of urban renewal plans does not take into account DRR issues 	<p>Point Officers are part of the TC and Sub-Committees.</p> <ul style="list-style-type: none"> • Compiled plans should address context specific DRR issues as identified during inventory studies. • Ensure that approval of all urban renewal schemes by CMT and the Ministry (MLHHS) is done subject to adequate incorporation of DRR components.
2	<p>Content , Form and Outputs:</p> <ul style="list-style-type: none"> • A report, maps, drawings and plans showing; declared renewal area boundary Map, site location characteristics in relation to the Central Business District (CBD) and other functional areas of the settlement. They should also show existing situation and proposals on; building conditions, building types including formal properties, land tenure and building ownership, building height, building uses and existing broad land uses of the area. • Maps and plans showing infrastructure services, text and statistical figures; existing water reticulation network and level of service, existing sewerage and sanitation systems and level of service, solid waste management system existing and proposed, road 	<ul style="list-style-type: none"> • The outputs of the process do not take on board context specific disaster elements such as flooding, pollution, diseases, fire, accidents, etc. 	<ul style="list-style-type: none"> • Context specific disaster mitigation measures should constitute one of the components of the outputs. A chapter on DRR mitigation should constitute part of the outputs of the urban renewal schemes. • Hazard susceptibility maps should be part of the outputs of the urban renewal proposals.

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<p>network, parking, street lights and their condition, existing and proposed storm water drainage system and its condition, electricity supply and level of service, telecommunication, internet systems and their level of services.</p> <ul style="list-style-type: none"> • Maps, drawings and plans on transport and traffic; prevailing Mode of transport, model split, disaggregated data on existing modes of transport, pedestrian traffic characteristics, public transport types, routes and level of service, non-motorized traffic characteristics. • Text maps drawings and plans showing location and level of service of community facilities • Text maps, plans, drawings showing landscape qualities. • Text, plans, drawings and maps showing townscape qualities; skyline, streetscapes including three dimensional perspectives of streets, voids and solids, street facades including cross section of streets, massing of buildings, block densities indicating land coverage and floor area ratios. • Text, drawings, plans and maps of conservation areas • Text, drawings, plans and maps analyzing socio-economic characteristics of the area. • Text drawings, plans and maps analyzing security and safety of the area. • Concept development; formulation of goals and objectives, projections on future requirements versus population. • Redevelopment proposals on issues identified 		

S/No	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	above		

Table 9.4: Mainstreaming DRR in Guidelines for Detailed In Schemes of Regularisation

SN	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
1	<p>The preparation process:</p> <ul style="list-style-type: none"> • The LGA shall endorse the idea of getting an area to be regularized and establish a Regularisation Committee (RC) comprising representative stakeholders to seek their views and development proposals in the planning area. • RC shall prepare an inventory of property ownership, existing services, land suitability, land use and land tenure, infrastructure such as road network, electricity, water supply etc. • TC shall prepare a conceptual/ general land use plan showing different land use zones including infrastructure way leaves/community services. • TC shall negotiate with land owners to acquire land for infrastructure way leaves and community facilities and agree on and demarcate property boundaries. • TC shall assess compensation bills/schedules for settling third party interests and identify area for 	<ul style="list-style-type: none"> • The guidelines do not specify members who should constitute the Regularisation Committee. • DRR issues are not included in inventory studies for regularization I schemes. • The conceptual plan/general land use plan does not point out to the need of having Vulnerability analysis as part of this stage in the planning process. • Negotiation with land owners does not indicate types of lands and regularization requirements. 	<ul style="list-style-type: none"> ▪ DRR Focal Point Coordinators should be members of the Regularisation Committee (RC). ▪ DRR components should be given due weight in prioritizing areas for urban renewal. ▪ It is recommended that conceptual plans for schemes of regularisation include vulnerability analysis maps and concepts. ▪ It is recommended that for categories of land such as swampy areas which

SN	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<p>resettlement of displacees.</p> <ul style="list-style-type: none"> • TC shall prepare a scheme of Regularisation and have it ratified by Urban Planning Committee (UPC). LGA shall submit it to the Minister for approval. • RC shall mobilize resources for cadastral surveying and infrastructure provision. 	<ul style="list-style-type: none"> • Criteria for identification of resettlement areas are not clearly spelt out in relation to requirements for DRR concepts • DRR aspects not mentioned as key components to be employed in approving regularization schemes by the UPC and the Minister • Focus on resource mobilization has been put onto surveying and infrastructure projects only 	<p>serve the purpose as environmental areas should be negotiated with the view to serve as special areas that ought to be conserved for maintaining the ecosystem of the whole city.</p> <ul style="list-style-type: none"> ▪ Resettlement areas should be identified carefully taking into account of Vulnerability analysis and DRR requirements. ▪ UPC and the Minister should approve regularisation schemes upon being satisfied that DRR issues have been addressed adequately. ▪ Resource mobilisation should target at implementing other projects more so DRR projects identified by the Regularisation scheme.
2	<p>Form and Content of outputs:</p> <ul style="list-style-type: none"> ▪ A report, maps, drawings and plans showing; declared regularisation area boundary Map, site location characteristics with respect to other functional areas of the town. They should also show; building location, boundaries of plots, land tenure and building ownership, building uses and existing broad land uses of the area, infrastructure services, 	<ul style="list-style-type: none"> • The outputs of the process do not take on board context specific disaster elements such as flooding, pollution, diseases, fire, accidents, etc. 	<ul style="list-style-type: none"> • Context specific disaster mitigation measures should constitute one of the components of the outputs. A chapter on DRR mitigation should constitute part of the outputs of the schemes of regularization. • Hazard susceptibility maps should be part of the outputs of the

SN	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<p>community facilities; socio-economic characteristics of the area, security and safety of the area.</p> <ul style="list-style-type: none"> ▪ Concept development; formulation of goals and objectives, projections on future requirements versus population, conceptual proposals on infrastructure, conceptual proposals on proposals on land uses. ▪ Regularisation proposals on; future land uses security and safety measures; security and safety measures. Plan Implementation; phased implementation, Monitoring process and outputs, monitoring indicators, evaluation of the scheme and scheme implementation, feedback, amendment of scheme and review of the scheme. 		<p>regularization proposals.</p>
3	<p>Implementation:</p> <ul style="list-style-type: none"> ▪ LGA shall annually report to the Ministry in qualitative and quantitative terms, on Regularisation Schemes undertaken in their areas of jurisdiction. ▪ On land use requirement for public use such as roads, access paths, waste management etc. the respective LGA shall be required to facilitate negotiations so as secure the same. ▪ LGA shall prescribe permissible land uses, size for various public land requirements including access roads, footpath, open spaces etc. Designation of these areas shall be done in a manner that minimizes demolition of private properties. ▪ Communities with regularization schemes shall be 	<ul style="list-style-type: none"> ▪ Emphasis has been put on matters related to land uses. ▪ Emphasis on prescriptions for permissibility on land use matters 	<ul style="list-style-type: none"> ▪ The report should articulate implementation of DRR issues in a given specific context ▪ Permissibility on DRR specific requirements should be part of the implementation report

SN	Current guidelines (selected sections)	Deficiency in addressing DRR	Recommendation for mainstreaming DRR
	<p>required to submit to their LGA reports on activities undertaken, the impacts and challenges encountered. Reports should include proceedings of the various meetings held.</p> <ul style="list-style-type: none"> ▪ Preparation and execution of regularization schemes shall aim at minimizing resettlements. In any case, high consideration shall be given to resettle those displaced within the regularization area. 	<ul style="list-style-type: none"> ▪ Reports from communities do not prescribe guidelines of what should be reported. ▪ Resettlement has been given due weight 	<ul style="list-style-type: none"> ▪ Communities should report in addition to land use and infrastructure implementation, how they have managed to implement DRR projects identified in their respective areas. ▪ It is recommended that in addressing DRR, resettlement of displacees should be carefully planned to minimise Disaster risks.

6.0 LESSONS FROM THE PROJECT AND THE WAY FORWARD

6.1 Lessons from the Project

The implementation of this project has drawn a number of lessons that are worth sharing with the local community, government and non-government entities, research community and all other relevant stakeholders;

- There has been what may be called piecemeal planning in the study area in both the planned and unplanned areas, which has been dictated by the market forces especially large capital private investors who have been buying land from the poor residents and then request for the formal recognition from the appropriate land development machinery.
- The ecological and hydrological functions of wetlands were not appreciated and mainstreamed in the urban planning practice;
- Physical planning practice does not take into consideration DRR concepts (e.g. planning scheme of Bonde la Mpunga developed by the municipal council and existing Town Planning Guidelines).
- Physical planners are not equipped with necessary skills for mainstreaming DRR in the planning practice;
- The community is socially, economically and politically heterogeneous. Consideration of the differences in these aspects was very crucial in proposing solutions for solving the flooding problem;
- Consciousness and sensitivity to DRR issues are lacking in some individuals as revealed by their actions of blocking drainage channels for the purpose of building houses thus aggravating the flooding problem;
- There were some initiatives of the community to address flooding problems such as construction of channels and attempts to seek assistance from the Government. However, such initiatives were not adequately supported by the higher authorities;
- Trust building among key partners in addressing local problems is very crucial in attracting community support. The residents did not fully trust the municipal council probably because it did not involve them in the physical planning of the area. Consequently, community support to plans prepared by the Council was generally low. Notable areas in which the local community was not involved include preparation of plans and issuing of building permits to capital investors (without consulting the local leadership);
- The establishment of a technical working group during the implementation of this project has created a forum in addressing DRR issues and concepts at the project level and planning practice;
- The participatory approach used in this project has optimized the local and other key stakeholders' knowledge and resources to come up with a common and in depth understanding of the problem and consequently comprehensive solutions to solve the flooding problem were able to be formulated.

6.2 The way forward

- Having identified gaps pertaining to DRR issues in the urban planning guidelines, there is therefore a need to institutionalize the improved guidelines that take into account DRR concepts;
- There is a need of reviewing of urban planning curricula and related disciplines to accommodate DRR issues;

- There is a need for building the capacity of the local community (Especially management and financial capacity) for sustaining the project of alleviating the flooding problem should the proposed project be implemented as envisaged.

7.0 FINANCIAL REPORT

Table 7.1: Expenditure of the first tranche of funds received (up to February 2009)

S/N	Category of expenditure	Amount in Tshs/USD
1.	Amount received	USD 33,158.55
2.	Less Institutional fee	USD 2,652.68
3.	Amount available for DMTC	USD 30,505.87 or T.Shs. 35,413,169.32
3.1	Personnel	T.Shs. 19,484,496.00
3.2	Transport	T.Shs. 2,016,884.00
3.3	Materials and communication	T.Shs. 1,430,840.00
3.4	Refreshment	T.Shs. 3,300.00
3.5	Costs for preparing the first stakeholders' consultative workshop	T.Shs. 2,810,000
4.	Total Expenditure	T.Shs. 25,745,520.00
5.	OUTSTANDIND BALANCE	T.Shs. 9,667,649.32

Table 7.2: Expenditure of the second tranche of funds received (up to September 2009)

S/N	Category of expenditure	Amount in Tshs/USD
1.	Amount received	USD 24,790.56
2.	Less Institutional fee	USD 1,983.24
3.	Amount available for DMTC	USD 22,807.32 or T.Shs. 30,013,520.80
4.	Amount carried forward	T.Shs. 9,667,649.32
5.	Total amount	T.Shs. 39,681,170.12
5.1	Personnel	T.Shs. 24,390,000.00
5.2	Task force meetings (transport & refreshments)	T.Shs. 6,979,040.12
5.3	Materials and maps	T.Shs. 5,637,130.00
5.4	Costs for preparing the second stakeholders' consultative workshop	T.Shs. 2,675,000.00
6.	Total Expenditure	T.Shs. 39,681,170.12
	Balance	0.00

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ANNEXES

Annex 1: List of participants of the first workshop on Mainstreaming Disaster Risk Reduction (DRR) in the Urban Planning Practice held on 8th January 2009.

S/N	Name	Affiliation
1.	Mr. H. Haydar	Cashier, Floods committee
2.	Mr. Benedict Malele	Ardhi University
3.	Prof. Gabriel Kassenga	Ardhi University
4.	Mr. Lupamdisha	Health officer, Kinondoni municipal council
5.	Ms. Lucy Kimoi	Town Planner, Kinondoni municipal council
6.	Mr. Guido Uhinga	Ardhi University
7.	Mr. Ferouz Mzonge	Secretary of the Ruling Party (CCM), Bonde la Mpunga branch
8.	Dr. John Lupala	Ardhi University
9.	Ms. Mary Komba	Kinondoni municipal council
10.	Mr. Ayoub Turra	Secretary, Floods committee
11.	Ms. Sada Isaac	Principal Town Planner, Kinondoni municipal council
12.	Ms. Sophia Chando	Official, Disaster Management Department, Prime Minister's office
13.	Major B. Shaban (Mr.)	Director, Disaster Management Department, Prime Minister's office
14.	Mr. Said Ibrahim	Resident, Msasani Bonde la Mpunga
15.	Reverend P. Mbepera	Chairperson, Floods committee
16.	Ms. Rose Temu	Sub-ward government Secretary, Msasani Bonde la Mpunga
17.	Mr. Dionis Rugai	Ardhi University
18.	Mr. Arnold K.	Ministry of Lands, Housing and Human Settlements Development
19.	Mr. Seif Soud Seif	Sub-ward Chairperson, Msasani Bonde la Mpunga
20.	Ms. Nuru Teddy Kinawiro	Town Planner, Kinondoni municipal council
21.	Mr. Kitambuu Bakaki	Member, Msasani Bonde la Mpunga Sub-ward government
22.	Mr. Jestard Simkoko	Environmentalist, Msasani Bonde la Mpunga
23.	Mr. Ally Kapilima	Environmentalist, Msasani Bonde la Mpunga
24.	Mr. Frank Kusila	Environmentalist, Msasani Bonde la Mpunga
25.	Mr. Maulid Makata	Resident, Msasani Bonde la Mpunga
26.	Mr. Halifa Abdallah	Resident, Msasani Bonde la Mpunga

Annex 2: List of participants of the 2nd workshop on Mainstreaming Disaster Risk Reduction (DRR) in the Urban Planning Practice held on 2nd October 2009.

S/N	Name	Affiliation
1.	Dr. Marco Bura	Ardhi University
2.	Mr. Benedict Malele	Ardhi University
3.	Prof. Gabriel Kassenga	Ardhi University
4.	Mr. Ayub Mbegha	Ardhi University
5.	Dr. Joseph Mayunga	Ardhi University
6.	Mr. Guido Uhinga	Ardhi University
7.	Mr. G. Mkindi	Disaster Management Department, Prime Minister's office
8.	Dr. John Lupala	Ardhi University
9.	Ms. Mary Komba	Kinondoni municipal council
10.	Mr. Ayoub Turra	Secretary, Floods committee
11.	Mr. Faustinius Moshia	Member, Prime Minister appointed team
12.	Mr. D.A. Sigallah	Member, Prime Minister appointed team
13.	Ms. A.J. Kagaruki	Kinondoni municipal council
14.	Engineer George Makanyadigo	Member, Prime Minister appointed team
15.	Reverend P. Mbepera	Chairperson, Floods committee
16.	Ms. E.I. Mgomba	Dar es Salaam city council
17.	Mr. Dionis Rugai	Ardhi University
18.	Mr. Arnold K.	Ministry of Lands, Housing and Human Settlements Development
19.	Mr. Seif Soud Seif	Sub-ward Chairperson, Msasani Bonde la Mpunga
20.	Dr. Stephen Mbuligwe	Ardhi University
21.	Mr. Blasi A. Seleki	Ministry of Lands, Housing and Human Settlements Development