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Managing Water for African Cities

**Accra City**

Implementation Plan

Environmental Component

**Appraisal Report**



# Norwegian Institute for Water Research

# REPORT

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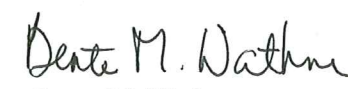
## Abstract

This is an appraisal of the environmental component of the Accra City Implementation Plan under the Habitat guided programme "Managing Water for African Cities". The objective of this appraisal was to ensure the conformity of the plan with the objectives of the Regional Project and Ghana's needs and to explore the availability of domestic resources (human, institutional, and financial) required for efficient project implementation. The appraisal provides input for the revision of the City Plan document using the LFA method. This is a community based sanitation and wastewater management project to demonstrate results on the ground in the selected urban communities. The City Plan interventions will be carried out under the Densu river basin integrated management plan. It is proposed that the City Plan should take a step-wise and action oriented approach driven by the demands of the demonstration communities. An immediate action will be to vitalise the environmental task team and formalise the appointment of the task leader who will be the main driving force in the City Plan implementation process.

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Managing Water for African Cities

**Accra City Implementation Plan**

**Environmental Component**

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## Preface

The Cape Town declaration adopted by African Ministers in 1997 recognises that increasing population and rapid urbanisation in Africa pose a serious threat of depletion, pollution and degradation of freshwater supplies, especially in the high-density areas. Since the cities are important driving forces in the political and socio-economic development, special emphasis is needed for the protection and management of local water resources and catchment areas, and equitable sharing of water between urban needs. The “Managing Water for African Cities” is implemented and promoted jointly by Habitat and UNEP within the framework of the United Nations Systems-wide Initiative for Africa and is responding directly to the Cape Town Declaration. The aim of the project is to promote integrated urban water resource management and building capacity in key local and regional institutions paying attention to the links between water, urban development and the environment in seven selected cities. These are Abidjan, Accra, Addis Ababa, Dakar, Johannesburg, Lusaka, and Nairobi. These cities have prepared individual City Implementation Plans addressing effective water demand management (WDM) and actions to mitigate the environmental impact of urbanisation on freshwater resources and aquatic systems. The environmental components of these plans are being reviewed with the aim to assist the cities in pursuing the implementation of the city plans. The City Implementation Plan for Accra has been reviewed by the undersigned in close collaboration with the concerned Ghanaian partner institutions assisted by Mr. Kalyan Ray, Co-ordinator and Dr. Graham Alabaster, Programme Manager of Habitat Nairobi. I would like to express my thanks to all people met for their kind support and valuable contributions during the review mission. The report solely reflects the views of the undersigned, which do not necessarily correspond to either those of the Government of Ghana or those of HABITAT or other institutions mentioned herein.

Accra, 20 February, 2000

*Torbjørn Damhaug*

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**Abbreviations**

AMA	Accra Metropolitan Assembly
ATMA	Accra-Tema Metropolitan Area
EPA	Environmental Protection Agency
GDA	Ga District Assembly
GWCL	Ghana Water Company Ltd.
LFA	Logical Framework Approach
MLGRD	Ministry of Local Government & Rural Development
MWH	Ministry of Works & Housing
PURC	Public Utility Regulation Commission
TMA	Tema Municipal Assembly
WRC	Water Resources Commission
WSRS	Water Sector Restructuring Secretariat

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## Summary

1. The Government of Ghana (Ministry of Works and Housing) and UNCHS/HABITAT have signed a Memorandum of Understanding under the auspices of the project “Managing Water for African Cities”. This report is an appraisal of the environmental component of the draft Accra City Implementation Plan as it appears in the Memorandum of Understanding.
2. The agreed key implementing institutions of the environmental component of the City Plan are (i) EPA dealing with environmental sanitation issues and assignment of the environmental task manager; (ii) MLGRD and the concerned DAs on urban/peri-urban development issues; and (iii) WRC on WRM, information and co-ordination with the overall Plan.
3. The review confirmed that the required local capacity for efficient implementation of the Plan is in place. It is essential that the organisation of the environmental component including the official appointment and ToR of the environmental task manager and the key team members will soon be firmed up by the national steering committee.
4. The appraisal report provides specific inputs to the revision of the planning document using the Logical Framework Approach (LFA). The tentative implementation horizon is four years in two stages and a tentative budget of US\$ 120,000 for the first two years. The focal project interventions are: (i) rapid situation assessment of the Dansu river basin; (ii) execution of community based demonstration project on environmental sanitation; (ii) public awareness enhancement with particular focus on the education system; (iii) performance monitoring and participation in the African Region Network co-operation. It is envisaged that the first demonstration projects will be able to include some 800 households, and provided good performance and visible achievements it should be possible to attract external funding to multiply the scope of the City Plan.
5. The mission’s findings and recommendations were presented and discussed in the wrap-up meeting with the identified task manager from EPA, the environmental sub-committee and the WDM sub-committee. The overheads from this meeting is attached as Appendix C. The recommendations and project design contribution given in this appraisal report must, however, be carefully examined and revised by the environmental sub-committee and merged into the planning document.



# 1. INTRODUCTION

This report is a summary of findings and recommendations from an appraisal mission to Accra, Ghana, from February 13 to 21, 2000. The appraisal was carried out by Torbjørn Damhaug, Technical Advisor from the Norwegian Institute for Water Research (NIVA) Oslo under the guidance of Kalyan Ray and Graham Alabaster of HABITAT Nairobi. The mission met with a number of representatives of relevant authorities, institutions, external support agencies and other stakeholders as shown in Appendix A. This appraisal report will serve as an input to the revision of the planning document and the forthcoming city consultations to be organised by HABITAT.

## 1.1 Managing Water for African Cities

This review is carried out under the auspices of the initiative “Managing Water for African Cities”. The initiative is implemented and promoted jointly by UNHCS-HABITAT, UNEP and the United Nations Foundation for International Partnerships within the framework of the United Nations Systems-wide Initiative for Africa, and responds directly to the Cape Town Declaration<sup>1</sup> (1997) adopted by African Ministers.

The aim of the Project is to promote integrated urban water resource management and building capacity in key local and regional institutions **paying attention to the links between water, urban development and the environment** in seven selected cities. These are Abidjan, Accra, Addis Ababa, Dakar, Johannesburg, Lusaka, and Nairobi. The objectives of the Project are to:

- promote integrated approaches to managing urban water resources,
- improve efficiency of water use in urban areas
- improve knowledge base of the impact of urbanisation on freshwater resources
- improve exchange of information and good practices on water resources management for urban areas

The Project includes the preparation of individual city implementation plans addressing the following inter-connected components:

1. Develop an effective water demand management (WDM) strategy for efficient water by the consumers and in African Cities
2. Mitigate the environmental impact of urbanisation on freshwater resources and aquatic systems by:
  - setting up early warning mechanisms for timely detection of “hot spots” where sustainability is likely to be threatened
  - assessment of long-term environmental impacts of large cities on the continent’s water resources

The city implementation plans as stated in the Project Implementation Strategy<sup>2</sup> and the associated Implementation Strategy for the Environmental Component<sup>3</sup> is claimed to be the first comprehensive

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<sup>1</sup> UNCHS (HABITAT) Partnership in the Water Sector for Cities in Africa. Report on the Cape Town Consultations 8-10 December 1997.

<sup>2</sup> UNCHS (HABITAT) and UNEP: Managing Water for African Cities: Volume 1: Project Implementation Strategy. Expert Group Meeting Cape Town, South Africa, 26-28 April 1999.

initiative to support local and national governments and their partners to effectively cope with the growing urban water crisis and related environmental impacts.

## **1.2 Appraisal approach**

The terms of reference for this external review of the environmental component of the Accra City Implementation Plan call for the following responsibilities of the Technical Adviser:

- assist in appraising the city implementation plan in the area of environmental assessment/pollution control to ensure broad conformity with the objectives of the Project: “Managing Water for African Cities” and compliance with Ghana’s priorities and needs
- initially assess the available institutional and human resources capacity required for efficient project implementation

The review of the environmental component of the Plan involved consultations with the environmental sub-committee and relevant actors and stakeholders in the Accra region and in the Densu basin. The appraisal mission noticed that the environmental component of the City Plan is still in a premature stage of preparation, hence this appraisal report has more the character of providing substance to the project document in close co-operation with the key players. The review provides input in terms of revising the activities of the project document and indicating possible communities for an environmental demonstration project as well as an implementation strategy and the expected outputs and preliminary cost estimates (Chapter 3).

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<sup>3</sup> Managing Water for African Cities: Project Implementation Strategy - Mitigating the Impact of Urbanisation on Freshwater Resources.

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## **2. REVIEW OF THE ENVIRONMENTAL COMPONENT**

### **2.1 Objectives and Commitment**

#### **2.1.1 The Plan is in agreement with the objectives of the Water for African Cities and Ghanaian priorities**

The tentative project description is in keeping with the overall Project objective of mitigating the environmental impacts of urbanisation on freshwater resources and aquatic ecosystems to improve the health of the communities. The concept of the City Implementation Plan corresponds well with the ultimate goal of the Government's policy to reduce the incidence of poverty and improve the well being of the Ghanaian people. Increasing access to safe water supply and sanitation services is a vital factor to improve the health of the population and prevent water pollution. The Accra City Implementation Plan is in agreement with the Government strategy to resolve the serious deficiencies of water and sanitation services in peri-urban areas and informal settlements as a priority issue.

#### **2.1.2 Ghanaian commitment is in place and co-ordinated actions are under way**

The success of the City Plan heavily depends on Ghana's commitment to and ownership of the final City Implementation Plan. The mission noticed that all key people met, ranging from the Minister of Works & Housing to the members of the environmental sub-committee, expressed their keen interest in seeing the Plan moving forward. The environmental sub-committee has been established and reinforcements proposed during the mission has been adopted. The organigram of the environmental component is further elaborated upon in Chapter 3. It is, however a project risk that the key team members will not be allocated enough time to attend to this task due to other commitments. The availability has to be confirmed as part of the final project agreement.

### **2.2 Assessment of Project Design**

#### **2.2.1 The WDM and environmental components should be described in separate sections**

The project document is well written and structured. However, the mission noted that major emphasis is placed on water demand management, and that environmentally related elements have been added to the document recently. It was therefore agreed to use the appraisal mission as an opportunity to upgrade the environmental component of the Plan in co-operation with the project team. The WDM and environmental components should be described in two separate sections in the document for better readability.

#### **2.2.2 Agreed to re-focus on community based demonstration projects in peri-urban areas**

The current environmental component suggests a basin wide action plan and a comprehensive information base to mitigate the environmental problems facing the Densu river basin. Given the limited resources of the City Plan, the environmental sub-committee explored the possibilities for alternative approaches directed towards tangible results in the field. It was agreed to concentrate the environmental interventions on community based sanitation and waste management in selected peri-urban areas. These demonstration initiatives will be linked to the integrated water resources management strategy evolving under the WARM programme. This basin wide action plan for the

protection and rehabilitation Densu river basin, as proposed by the WRC (assisted by DANIDA, will be an important strategic base for the environmental component of the Accra City Implementation Plan. The environmental interventions will also be linked to, and benefit from, the relevant parts of the Urban III and Urban IV projects under MLGRD.

### **2.2.3 Background on sanitation and waste management in peri-urban areas**

The objective of such community-based project is a two-fold one, including both human and environmental dimensions. The human oriented objective would be to contribute to community transformation in order to alleviate poverty in informal and peri-urban settlements, whereas the environmental one is to mitigating the environmental impact of urbanisation on freshwater and aquatic ecosystems. It is valuable to develop a conceptual base for demonstrating community-based wastewater management in peri-urban areas in the Accra region. This section gives some food for thoughts, but the final concept development should be part of the City Plan itself. In general, community based sanitation and waste management has to be based on affordable and appropriate technological options that can be managed by the communities themselves in the cases of insufficient service provision by the City authorities. Therefore these systems will differ from the traditional high cost sewerage solutions. For instance, there are opportunities for water community based WC sanitation systems with septic tanks, including local sewage treatment for safe effluent disposal which may include re-use for watering or recharge of aquifers. The sanitary systems will necessarily be diversified within peri-urban residential area, but in any case collection and disposal systems for sludge, emptying of latrines and collection of solid waste would have to be elements of a total solution.

The most difficult part of creating sustainable sanitation and waste management services in the communities are the institutional issues. It is important to ensure local participation and partnership in the planning and development of sanitation systems and integrated management of the wastewater in peri-urban settlements. In some cities the answer to this has been to set up so called area based organisations to manage and maintain basic infrastructures and other services with particular emphasis on vulnerable individuals. These organisations are responsible for technical and financial aspects of the operations. These are often supported by NGOs during the start-up stage with the aim to ensure long-term viability of the area-based organisations and help city authorities consolidate their capacity to support them. There are good examples from other countries that may support the discussion of various conceptual solutions. The overheads in Appendix C provide some more background information about project design issues.

### **2.2.4 Potential sites for the environmental demonstration projects identified**

Alternative sites for the environmental demonstration projects are under consideration. The mission discussed possible locations with the environmental sub-committee and field visits were carried out to look at some sites and share some ideas with the District Assemblies. Visits were paid to:

- Amasamah, the capital of Ga District in Accra Region. - Densu river basin. (145,000 inhabitants)
- Nsawam, the Capital of South Akwapim District Eastern region - Densu river basin. (245,000 inhabitants). This city was also suggested by MLGRD as a relevant pilot site area.
- Ashiama Township, Low income, high-density area in Tema. According to MLGRD, the eastern part of the township needs upgrading of sanitation and drainage systems.
- Michegani, Informal fish market and settlements on the shore of the Weija Dam
- Kumasi City, with severe water pollution impacts on the Subin River, a tributary to Owabi River. This site has to be dealt with in consultation with British Aid programmes in the region. (This city was not visited)

It is anticipated that an indicative size of the demonstration communities in the order of 200-400 households would be suitable for the demonstration projects. More information and photos from the sites are presented in Appendix B.

During the closing discussion it was agreed to confine the first environmental demonstration projects to the Dansu basin. Specific demonstration communities have to be identified within the mentioned urban areas by the project team.

### **2.2.5 Identify relevant projects for co-operation**

It is important that the City Plan interact with associated projects to achieve maximum mutual benefits and to avoid duplication of efforts or important elements falling between the cracks due to lack of co-ordination. The environmental demonstration projects is believed to have a great potential of complementing and interacting with other ongoing projects in Ghana, in particular the WARM, the Urban Sanitation Programmes Under the Ministry of Local Government, and environmental projects under EPA. It is worthwhile to find out if there are other relevant projects in the pilot areas.

### **2.2.6 Proposed input to revised project design**

The project design was revised and redesigned in co-operation with the environmental sub-committee using elements of the Logical Framework Approach (LFA) as a basis. This was finalised in the closing discussions with the environmental and WDM sub-committees towards the end of the mission. The LFA was selected since it is a recognised method among donors and other external support agencies. The overheads from the meeting are attached as Appendix C, and Chapter 3 provides input to the revised environmental component of the planning document.

## **2.3 Economic and Financial Aspects**

### **2.3.1 Budget to be revised**

The mission learned that the current budget for the environmental component is totalling some US\$87,000 with contributions of US\$ 57,000 and US\$ 30,000 from Habitat and the Government of Ghana respectively. Since the approach and activities of the environmental component will be changed in the final document, it will be necessary to do revise the budget accordingly. A tentative budget is proposed in Chapter 3. The funding committed by both parties will need to be reconfirmed when approving the revised project document of the Memorandum of Agreement.

### **2.3.2 Need supplementary funding**

Since the City Implementation Plan of Accra is not part of a larger project or investment programme so far, it is also necessary to attract supplementary partners and funding sources for future expansion of the activities beyond the current demonstration stage.

## **2.4 Institutional Aspects**

### **2.4.1 Institutional framework**

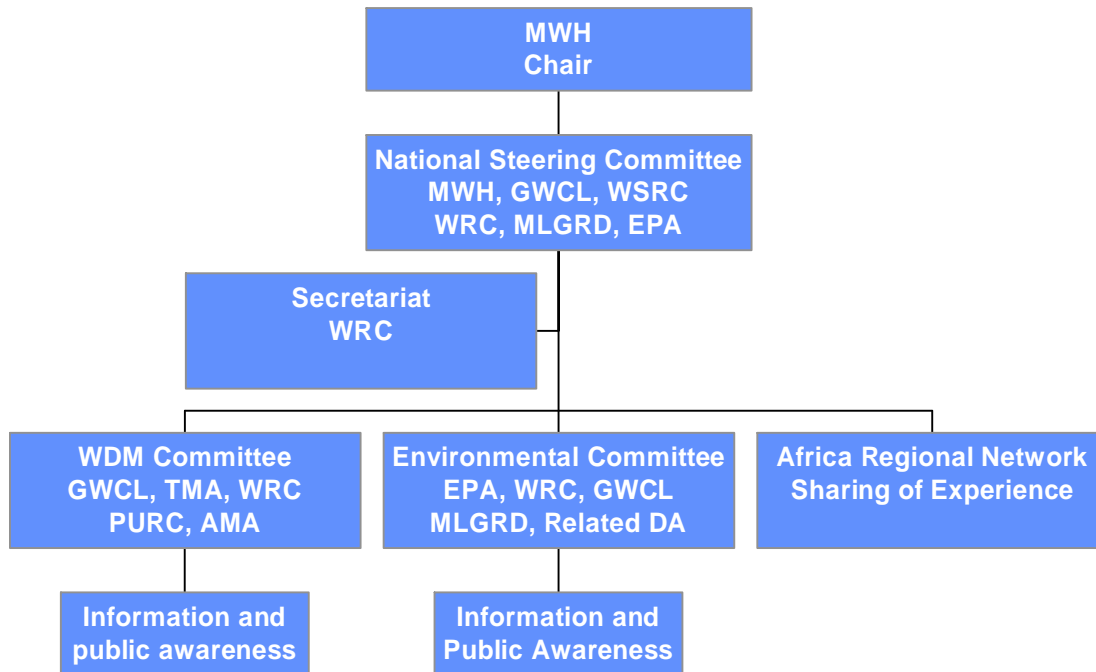
The national focal institution for the Accra City Implementation Plan is the Ministry of Works and Housing (MWH) who will be responsible for co-ordinating in-country activities and ensure participation of various stakeholders including participation in the project steering committees. The foregoing implementation plan has been developed in consultation with the relevant stakeholders in the sector. A Committee made up of representatives of the following stakeholders was set up to facilitate the process:

- The Ministry of Works and Housing,
- Ghana Water and Sewerage Corporation

- Water Sector Restructuring Secretariat
- Water Resources Commission

In consultation with the Environmental Sub-committee the mission suggests that EPA, and MLGRD should be members of the National Steering Committee as indicated in the overall institutional framework in Figure 1.

**Figure 1.** Accra City Implementation Plan – Institutional Framework



#### 2.4.2 Sufficient time must be allocated for project and sub-committee members

Members of the environmental sub-committee and project team were involved in the discussions and field trips during the mission, and provided valuable input and support. However, it is imperative that the respective institutions give their team members sufficient time to deal with the project also after its launching.

## **3. INPUT TO THE DESIGN OF THE ENVIRONMENTAL COMPONENT**

### **3.1 Background**

#### **3.1.1 Justification**

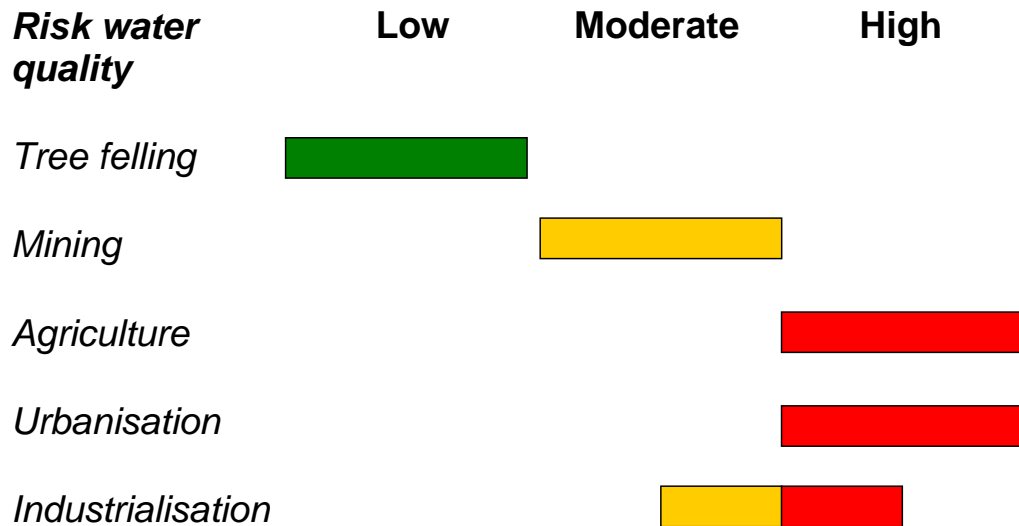
As stated in the Sanitation Component of the World Bank supported Urban Environmental Sanitation Project, about 40 percent of the population in Ghana's five major cities depend on using public latrines that are filthy, inconvenient and lack privacy, 15 percent use pan latrines; 40 percent use household water closets that usually overflow to street drains; and 5 percent use traditional or improved pit latrines. Also, few schools have proper sanitation facilities. In addition, there is an inadequate collection and safe disposal of solid waste from the urban communities. The environmental impacts on freshwater and aquatic ecosystems are caused by overflowing septic tanks, leachate from landfills and disposal of septage collected from households and public facilities, industrial effluents, oil spills from vehicle repair sites end up in drains and watercourses. Thus, storm water drainage systems have become open sewers leading untreated water to streams and lakes, which are sources of water supplies for cities and downstream communities. With rapid urbanisation, the already poor sanitation conditions will worsen if the authorities and communities do not take urgent and efficient actions to cope with the situation.

#### **3.1.2 Overall approaches**

The environmental sub-committee has identified the Densu river basin as the focal point for the environmental component of the City Plan. The Dansu catchment is highly altered due to mining, urban, industrial, agricultural, fishing, firewood exploitation, and forestry activities. This development has significantly affected the flow regime, stream morphology of the Dansu River, as well as water quality. In addition to these activities, poor domestic and human waste management practices in the urban centres and smaller communities in the basin have resulted in severe pollution, erosion, and eutrophication (algae blooming) of the waters of the Densu. All these effects have impacts on the beneficial use of the river itself and the downstream Veija Dam. A pilot action plan supported by DANCED is underway for the protection and rehabilitation of the Densu River through improved watershed management. The City Plan interventions will take cognisance of and participate in this evolving integrated management initiative by focusing on the mitigation of environmental impacts of urbanisation in the basin. It is envisaged that other projects will address the various sector interventions required under the action plan.

Several studies have been carried out in the river basin giving a broad picture of the water quality risks facing this river<sup>4,5</sup>. The conclusions of the latter, shown in the Figure 2, provides an idea of the order of magnitude of the various risks, however needless to say, more detailed analysis will be required.

**Figure 2.** Illustration of threats to the water quality in Dansu river



This figure suggests that urbanisation is, together with agriculture, the most dominant threat to the water quality of the river. It is, however, necessary to verify the above picture and carefully analyse the characteristics and geographical distribution of the urban impacts of the river. It is important that the environmental component places emphasise on cities and settlements with significant water quality impacts and ensure that the project interventions are appropriate for pollution abatement. In response to this, the environmental component of the Plan will undertake a “rapid situation analysis” to justify and supports its priorities and actions.

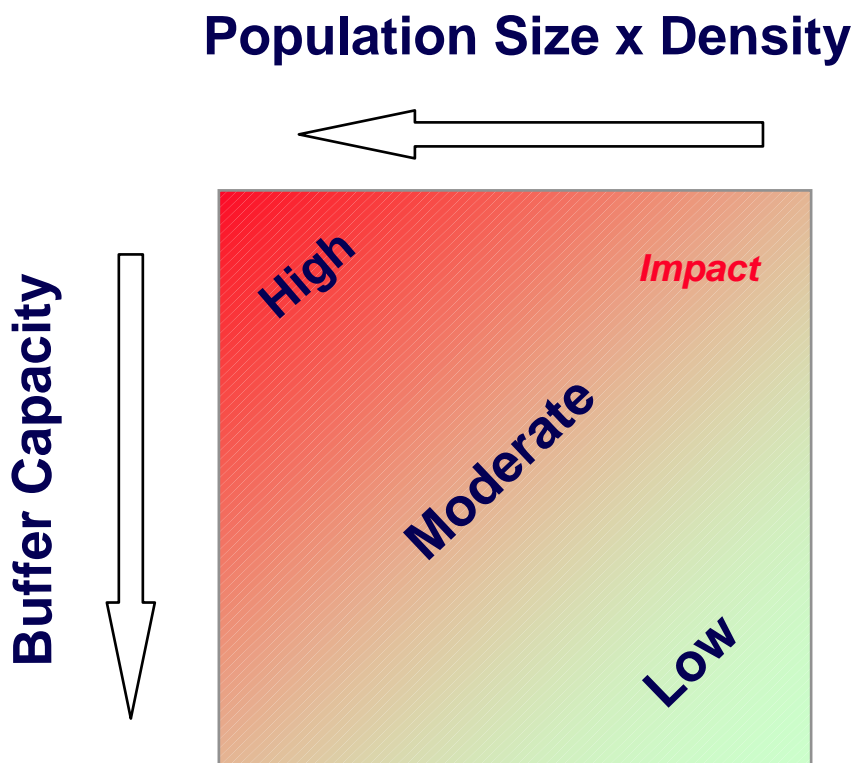
<sup>4</sup> Mrs. Peace Oscansey Colerangle GWCL: “Population pressure and environmental impact on the quality of our water bodies – A case study of the Densu River Nasin.”

<sup>5</sup> OTUI: Study of the ATMA Development & Investment Programme and of the Rehabilitation /Replacement of Kpong-Tema-Accra Water Pipeline. Draft pf Phase 2 Report, October 1996.



In screening of cities in terms of their water quality impacts, it is recommended to not only consider population sizes and densities, but the combined effect of this and the “buffer capacity” which incorporate all inhibiting factors in the buffer zone between a settlements and the water resource. This applies both for surface and groundwater resources (Figure 3). The “buffer capacity” is the joint effect of distance from sensitive water resources, topography, vegetation, run-off conditions, soil condition (infiltration and self-purification capacity). The sensitivity (or Class) of the receiving water is also an important factor in assessing the impacts of urbanisation on freshwater resources and identification of hot spots.

**Figure 3.** Screening of water pollution impacts of urban settlements



**Buffer Capacity** = f(distance from source, retention, self purification etc.)

## 3.2 Goal and Objectives

### 3.2.1 Goal

The development goal that the environmental component will contribute to in the long run is two-fold as follows:

- Contribute to poverty alleviation and improvement of the livelihood of underprivileged peri-urban populations and riverine settlements using a community-based approach
- Improve the environmental and ecological condition of the urban freshwater resources and aquatic ecosystems

The first part of the goal has to do with motivating and enhancing the awareness of the urban people to improve their own sanitary situation as they contribute to the second goal focusing on improved environmental conditions for the benefit of the larger society.

### **3.2.2 Objectives**

The objectives which the Plan is expected to achieve, if completed successfully are as the following:

1. Improve the sanitation and waste management in peri-urban communities in a demand driven and participatory way
2. Build capacity at community and city level and reinforce key regional and national institutions
3. Enhance public awareness with special emphasise on mobilising the educational systems
4. Establish effective national policies, programmes and investments,
5. Promote the exchange of information and best practices on urban water resource management

### **3.2.3 Target groups**

#### *Beneficiaries*

- the underprivileged segments of the population in the selected urban communities
- water users in the water resources affected by the Implementation Plan
- Riverine populations in Dansu basin
- GWCL's consumers served from the Weija Dam scheme

#### *Stakeholders*

- the beneficiaries
- GWCL
- concerned government agencies at national, regional and local levels
- District Assemblies
- Traditional authorities
- School Authorities, youth groups
- farmers, fishermen, industrial and commercial associations, water vendors
- NGOs and donors

## **3.3 Outputs**

The targeted results of the environmental component as a consequence of the activities can be summarised as follows:

- I. Carried out a rapid situation assessment of the Dansu river basin to establish the relative importance of urbanisation on the water quality of the river (justification of interventions), identification of hot spots and obtain information of the waste and wastewater discharges from candidate towns for the demonstration projects.
- II. Executed demonstration projects on demand driven sanitation and waste management in selected peri-urban communities based on an integrated approach to managing urban water resources focusing on the links between urban development and the environment.
- III. Public awareness programmes carried out with particular focus on the mobilisation of the education systems and strengthened perception of community driven approaches at city among authorities at regional and national levels. Urban sanitation and environmental issues are introduced to the schools' syllabus to enhance education and awareness. Public strategies

and investment programmes on community-based sanitation and waste management as a water pollution control measure established within EPA, WRC and MLGRD.

- IV. Monitoring, analysis and dissemination of achievements and active participation and substantial contributions by Ghana to the Africa regional network of exchange of experience. The experiences from the City Plan will contribute to the development of good practices for pollution control and wastewater management in existing communities as well for future extension and improvement of the sanitation service coverage, including storm-water drainage and solid waste disposal. This project component will also involve cross-fertilisation among urban areas in Ghana and among other cities involved in the project “Water for African Cities”.

### 3.4 Inputs

The inputs that have to be in place for the implementation of the Plan comprise personnel, equipment & logistics and project funding. This section includes indicative inputs and estimates that have to be further elaborated upon.

#### 3.4.1 Personnel and technical assistance

- Sufficient time allocated for the Task Manager and key project team members to perform
- Necessary technical assistance and guidance provided by Habitat

#### 3.4.2 Equipment and logistics

It is necessary to identify transport needs, PCs, office facilities etc to be provided by the Government of Ghana

**Table 1.** Environmental Impact Mitigation - Tentative Budget

<b>OUTPUT</b>	<b>Contribution from Ghanaian Sources</b>	<b>Contribution from UNCHS/UNEP</b>	<b>Contribution from associated projects</b>	<b>Total</b>
OUTPUT 1: Mobilisation and Rapid Situation Assessment of Dansu river basin	10,000	20,000		<b>30,000</b>
OUTPUT 2: Execution and evaluation of demonstr. Projects				
• Services	5,000	10,000		<b>15,000</b>
• Works and materials	15,000	50,000		<b>65,000</b>
OUTPUT 3: Enhancement of public awareness and strengthening of governmental capacity	5,000	15,000		<b>20,000</b>
OUTPUT 4: Performance monitoring and participation in the Africa Regional Network	5,000	10,000		<b>20,000</b>
<b>Total phase 1 (2000 – 2001)</b>	<b>40,000</b>	<b>110,000</b>		<b>150,000</b>
<b>Total phase 2 (2002 – 2003)</b>	<b>250,000</b>	<b>50,000</b>	<b>2,000,000*</b>	<b>2.300,000</b>

\*: This figure will depend on the success and achievements of the project, and how the extension of the project is being pursued towards the external support agencies.

Assuming for budgetary reasons that the typical cost of works and materials is in the order of US\$ 80 per household, the budget will allow some 800 households being included in the demonstration projects. The final planning document ought to include a breakdown of the budgetary requirements (structural and non-structural) and be connected to each element of activity. It is recommended to address these issues as part of the inception activities.

### **3.5 Associated Projects**

The proposed "Action Plan for Protection and Rehabilitation of the Densu River System - Integrated Water Resources Management" is a DANIDA supported pilot project under WRC that is envisaged to start in the middle of year 2000. This project will be an essential strategic framework for the environmental component of the City Plan. The connection to this project also provides an opportunity for funding of future interventions under the Plan.

The "URBAN III" under MLGRD is a basic infrastructure development in secondary cities. The "URBAN IV" represents a lot of experience concerning environmental sanitation development in poor urban areas. For instance, the Sukura suburb of Accra, which was visited by the appraisal mission, has undergone major changes over the last years, including construction of drainage systems, upgrading of the sanitary and waste collection services. The project team should learn from the experiences from such success stories of urban environmental sanitation development. The "URBAN V", which is expected to start this year, has introduced demand driven project approaches in urban towns.

### **3.6 Indicators**

The project indicators are specific measure to be used to describe and assess achievement of objectives or inputs. The environmental project team and the environmental sub-committee will develop the indicators during the completion of the planning document. These shall be specific and appropriate in terms of quantity (number of households improved, reduced pollution etc), quality, time frame, location and target group. The indicators should also be easily accessible information that can be achieved at reasonable cost.

### **3.7 Assumptions**

The assumptions (or external factors) are events or decisions which are essential to project success, but which are largely or completely beyond the control of the project team. Some key assumptions are:

- Government ownership, commitment, and adequate resource allocation for the effective implementation of the Plan
- District Assemblies' recognition and support to the demonstration project
- Local community and beneficiary ownership and efficient participation in the demonstration project
- Sufficient donor support in place

### **3.8 Project Activities**

This section describes the required activities to meet the objectives and outputs of the environmental component.

#### **3.8.1 Project Mobilisation**

The ToR for the newly appointed task manager from EPA is urgently needed, since this position will be the key driving force of the environmental component. His role and mandate in relation to the

executing team and the environmental sub-committee also has to be clarified and endorsed by the National Steering Committee. The environmental task manager should pursue the above issues.

### **3.8.2 Project Activities under Output I: Mobilisation and Rapid Situation Assessment of Dansu River basin**

- **Project mobilisation** The ToR for the newly appointed task manager from EPA is urgently needed, since this position will be the key driving force of the environmental component. His role and mandate in relation to the executing team and the environmental sub-committee also has to be clarified and endorsed by the National Steering Committee. The environmental task manager should pursue the above issues during mobilisation.
- **Rapid Situation Assessment**. The rapid assessment of the Dansu river basin situation will include a desk study and a verification visit to major impact areas. The components of the situation assessment will include factors of direct relevance for the City Plan, and some of them are as follows: (i) description and characteristics of the catchment; (ii) overview of the monitoring systems and data on hydrology and water quality (chemical, bacteriological, algae, physical); (iii) summary of river users and their requirements; (iv) description “impactors” and pollution sources; (v) comparison of user requirements with the water quality in the river system; (vi) the impact of the river condition on the Veija reservoir; (vii) assessment of the real and relative impacts of the various impactors; (ix) identify high priority cities and settlement for the demonstration project; (x) sensitise the interest of the District Assemblies and settlement populations to participate in the demonstration project.

This assessment should be planned and carried out in close collaboration with associated projects, especially the Densu Watershed Management Project.

### **3.8.3 Project Activities under Output II: Design and execution of community based demonstration projects**

- **Selection of pilot communities and baseline investigation**. As described in Chapter 2, the appraisal mission identified some potential areas for carrying out the demonstration project. During the course of the mission, it was agreed that initial emphasis be given on the “hot spots” in the Dansu basin. The ones in the Densu basin are (a) Amasamah, the capital of Ga District in Accra Region - Densu river basin; (b) Nsawam, the Capital of South Akwapim District Eastern region - Densu river basin. (This location was also suggested by MLGRD), (c) Michegani, Informal fish market and settlements on the shore of the Weija Dam where pollution and erosion problems were observed. Sites outside the Densu basin may be considered during subsequent stages of the project provided they are representative for demonstration of surface water pollution mitigation measures in urban areas. The priority communities for the demonstration project should be the ones having significant impacts on the water resources. The rapid situation assessment will provide the basis for selection of pilot cities and settlements. The project team shall make arrangements for co-operation with the DAs and communities concerned. The number of demonstration areas will be adjusted to match funds available. The project team should, with the assistance of consultants, carry out a baseline study at the selected sites to verify current sanitary and discharge condition of the community and the condition of the local waste recipients, and other critical factors and indicators. This task, which will benefit from the foregoing situation assessment, will serve as a benchmark for later project monitoring and review of achievements.
- **Participatory project design**. Each demonstration project will be designed in close consultation with each community and District Assembly concerned. The project should preferably be linked to an existing community management organisation, and if needed a new area-based organisation has

to be established for community involvement. In connection with sanitation facilities of schools, the PTAs should be considered as a key partner for co-operation. Where applicable, local NGOs should be invited to participate. The technical design should consider a range of proven technologies which address the needs of all segments of the pilot area population recognising resources constraints and paying due attention to willingness and capacity of users to pay for the improved services. This may lead to a mix of sanitation technologies at the various demonstration communities. Factor that will be decide the solution are housing densities, household income, subsidies, cultural factors and not at least the standard of sanitary, drainage and solid waste services provided by the city authorities and private operators. The appraisal mission learned that there are quite a few success stories, for instance under the Urban IV programme, that are worthwhile to visit and learn from.

- **Implementation of physical interventions.** The project team will arrange for professional assistance for procurement, labour contracts, supervision and co-ordination of the site activities according to common practice. The community will be involved in these works according to what has been agreed.
- **Performance monitoring and review.** The project interventions and their impacts will be monitored and reviewed It is recommended that performance monitoring and reviews shall be regular activities during the implementation of the environmental component of the City Plan. Monitoring entails checking and control of the Plan's achievements compared to the planned inputs, activities and outputs, using the developed indicators. It is necessary to establish a format for monitoring and reporting that will be used throughout the life of the Implementation Plan. The format should be such that inputs, activities and outputs are monitored with reference to the goals and objectives of the Plan and its sub-components. The factors essential for the sustainability of the Accra City Implementation Plan comprise (i) policy support measures and local ownership; (ii) institutional aspects; (iii) financial/economic conditions; (iv) technological factors; (v) socio-cultural factors; and (vi) environmental and ecological effects.

### **3.8.4 Project Activities under Output III: Enhancement of public awareness and strengthening of governmental capacity**

- **Planning of public awareness campaigns including involvement of schools.** This activity will include public awareness programmes carried out with particular focus on the mobilisation of the education systems, better understanding of community driven approaches among authorities at city, regional, and national levels. Urban sanitation and environmental issues will be introduced to the school syllabus to enhance education and awareness.
- **Governmental implementation capacity.** The Plan will contribute to enhanced recognition within EPA, WRC and MLGRD of community-based sanitation and waste management as a water pollution abatement measure and follow-up replication programmes will be proposed.

### **3.8.5 Project Activities under Output IV: Performance monitoring and participation in the Africa Regional Network**

- **Performance monitoring and evaluation of results.** Project performance will be monitored and reviewed regularly during the implementation. Monitoring entails checking and control of the Plan's achievements compared to the planned inputs, activities and outputs, using the developed indicators. It is necessary to establish a format for monitoring and reporting that will be used throughout the life of the Implementation Plan. The format should be such that inputs, activities and outputs are monitored with reference to the goals and objectives of the Plan and its sub-components. The factors essential for the sustainability of the Accra City Implementation Plan comprise (i) policy support measures and local ownership; (ii) institutional aspects; (iii) financial/economic conditions; (iv) technological factors; (v) socio-cultural factors; and (vi) environmental and ecological effects.

- **Participation in the Africa Regional Network.** An important project activity will be the active participation and substantial contributions by Ghana to the Africa regional network of good practice exchange.

### 3.9 Institutional Arrangement of the Environmental Component

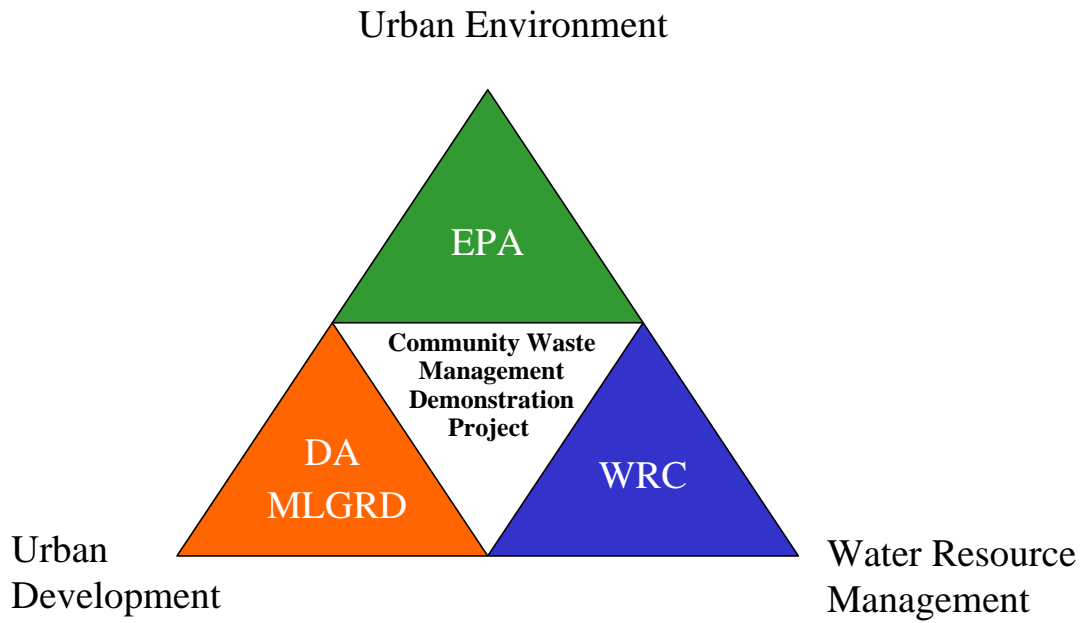
**The environmental sub-committee** consists of the following members:

Name	Position	Affiliation
Mr. J. A. Pwamang (Task Manager)	Deputy Director Wastewater Mgmt Specialist	EPA Greater Accra Region
Mr. K. Odame-Ababio	Water Resources Engineer	Water Resources Commission
Mrs. C. Dere	Tema Municipal Assembly (Development Planning)	TMA Municipal Assembly
(To be appointed)		AMA
Mrs. P. Ocansey- Colerangle	Ass. Director Water Quality Assurance (WQA)	GWCL Accra-Tema Metropolitan Area (ATMA)
Mr. N. M. Saani	Director Water Quality (WQA)	GWCL H/O

It is recommended to include a member from the MLGRD

**Project execution partners.** One of the unique attributes of the city plan initiative is the principle of promoting integrated urban water resource management and building local and national capacity paying attention to the links between water, urban development and the environment in the cities. It is therefore suggested that the institutional arrangement of the sanitation and waste management component should reflect this triangular approach to managing urban water resources. The main implementing agencies (Figure 4) will be the (i) EPA as project leader and responsible for the environmental and pollution control aspects of the demonstration project; (ii) WRC on water resources management issues and connection to the overall City Plan; and (iii) the MLGRD and concerned District Assemblies (DA) on urban development planning and management and public awareness campaigns. The WRC and GWCL will be the responsible for enhancing flow of information and best practices on urban water resources management within Ghana and towards the Africa Network.

**Figure 4.** Proposed Institutional Structure for the Environmental Component



EPA:	Environmental Protection Agency
WRC:	Water Resources Commission
DA:	District Assembly
MLGRD:	Ministry of Local Government and Rural Development





## 4. APPENDICES

### Appendix A. People Met

Name	Position	Affiliation
I.K. Adjei-Mensah	Minister	Ministry of Works & Housing
Mr. S. A. Darkwa	Hydrologist, Director of Water	Ministry of Works & Housing
Mr. P.C. Acquah	Executive Director	Environmental Protection Agency (EPA)
Mr. John A. Pwamang (Environmental Task Mngr)	Deputy Director Wastewater Mgmt Specialist	EPA Greater Accra Region
Mr. Godfried Ewool	Project Co-ordinator - Urban development programmes	MLGRD
Mr. Adjei	Managing Director	Ghana Water Company Ltd.
Mr. S. G. O. Lamptey (Overall Project Manager)	Deputy Managing Director (OPS)	Ghana Water Company Ltd. H/O
Mr. Yaw Addae-Mensah	Deputy City Manager	Ghana Water Company Ltd.
Mr. Ebenezer Martey	Ing. Area Director	Ghana Water Company Ltd. (ATMA)
Mrs. Peace Ocansey-Colerangle	Ass. Director Water Quality Assurance (WQA)	Ghana Water Company (ATMA)
Mr. N. M. Saani	Director Water Quality (WQA)	Ghana Water Company Ltd. H/O
Dr. Daniel Adom	Ag. Executive Secretary	Water Resources Commission
Mr. Kwame Odame-Ababio	Water Resources Engineer	Water Resources Commission
Mr. Desmond Manful	WRC- Staff	Water Resources Commission
Mr. K. Odama-Ababio		Water Resources Commission
Mrs. Cedonia Dere	Tema Municipal Assembly (Development Planning)	TMA Municipal Assembly
Mr. Ole Houmøller	Water Resources Advisor	Water Resources Commission (WRC)
Mr. Patric Amoateng-Mensah		Public Utility Regulation Commission (PURC)
Mr. Emanuel Nkrumah	Water Engineer	Water Sector Restructuring Secretariat
Mr. Daniel Amobab	Financial Analyst	Water Sector Restructuring Secretariat
Mr. Idrissu Mohammed	Assembly Member from Sukura Suburb of Accra	Accra Metropolitan Assembly
Mr. Willy Vordoagu	Area Manager	MLGRD Tema
Mrs. Modesta Bokuma	Deputy Co-ord. Officer	Nsawam District Assembly
Mr. Wayne Schäfer	M.Sc. (Eng) Director	Water Resources Planning & Conservation Cons. Eng.

## Appendix B. Photos from potential demonstration communities

Alternative sites for the environmental demonstration projects are under consideration. The mission discussed possible locations with the environmental sub-committee and field visits were carried out to look at some sites and share some ideas with the District Assemblies. Visits were paid to the below societies.

**Amasamah**, the capital of Ga District in Accra Region - Densu river basin. Photo: Garbage collection container



**Figure 6.** Open sewer in the drainage system in Nsawam, the Capital of South Akwapim District Eastern region -. This city was also suggested by MLGRD as a relevant pilot site area



**Figure 7.** Densu River at Nsawam, the Capital of South Akwapim District Eastern region



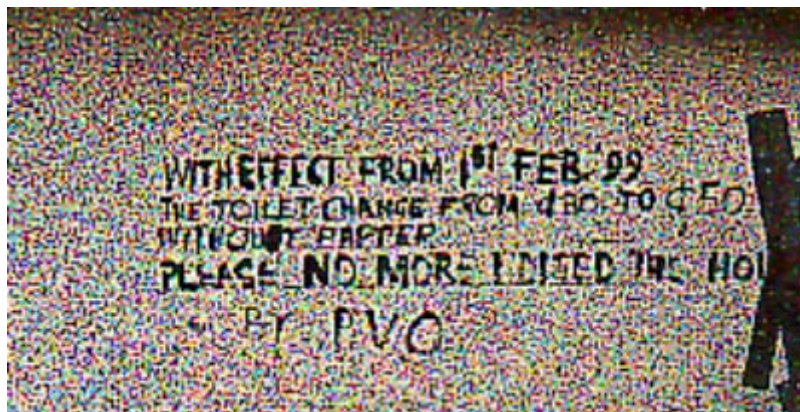
**Figure 8.** Eutrophication in Weija Dam



**Figure 9.** Michegani Informal fish market and settlements on the shore of the Weija Dam



**Figure 10.** Ashiama Township, Low income, high-density settlement in Tema. According to MLGRD, the eastern part of the township urgently needs upgrading of sanitation and drainage systems. Photo: Message on public toilet



**Sukura suburb of Accra (a place to learn lessons)**

Urban infrastructure including drainage and sanitation for Sukura suburb of Accra is being developed under the URBAN IV programme of the MLGRD. The URBAN IV, which was reviewed by the World Bank last week, represents sources of valuable experience concerning environmental sanitation development in poor urban areas. Sukura has experienced major achievements over the last years, including construction of drainage systems, upgrading of the sanitary and waste collection services. Another interesting place to learn from in greater Accra is Teshie. The project team should learn from the lessons learned in this and similar projects under the urban environmental sanitation development programme. The appraisal mission met with the Assemble Member of Sukura to the Accra Metropolitan Assembly who informed about their achievements within water and sanitation based on the principle of sharing 50/50 between the project and the households. Earlier, the Assembly member said, he was ashamed of telling people that he came form Sukura, whereas now people are proud of their community. Values of properties are increasing and so is the trade and private sector services in the area. The sanitation solution is a mix of WC septic tanks and the KVIP latrine depending on people's income and aspirations.

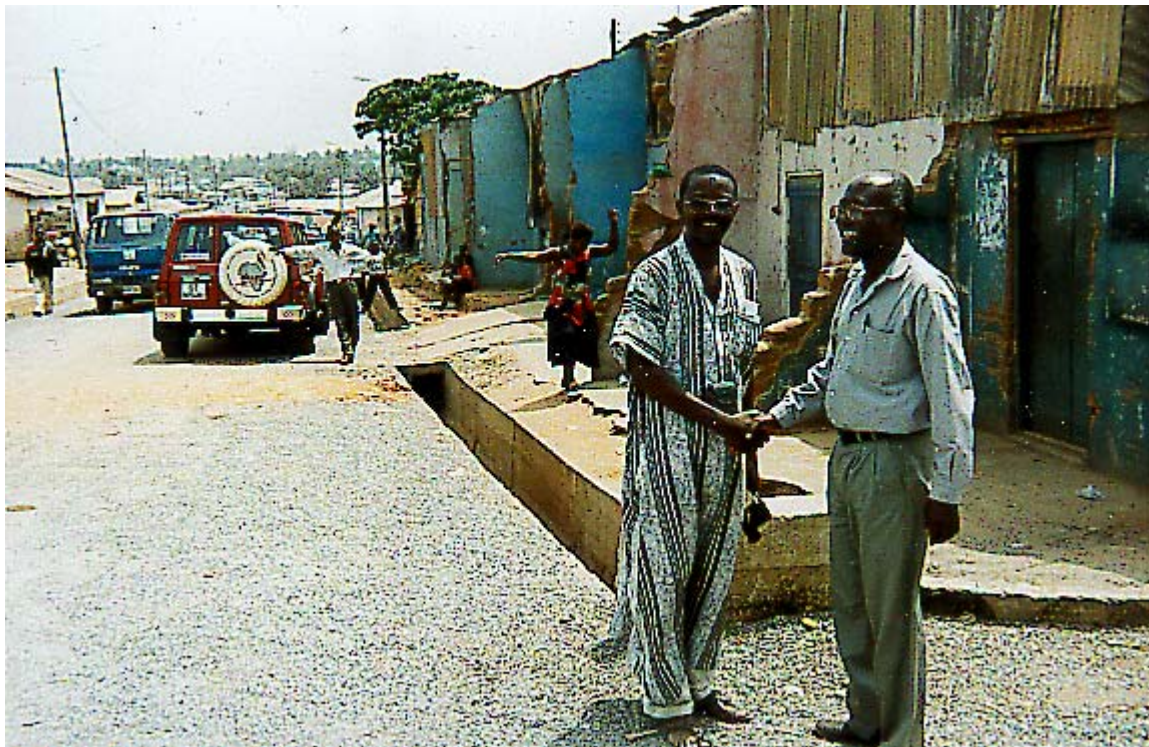
**Figure 11.** Sukura Township Accra – new public toilet



**Figure 12.** New VIP latrines in Sukura Township, Accra



**Figure 13.** New streets and drainage systems in Sukura Township, Accra





## Appendix C. Overheads from the Wrap-up Meeting

### The Spiral of Service Provision and Environmental Consequences

- A family's first priority is water supply at reasonable access and cost
- Then comes private and convenient sanitary facilities
- After that removal of wastewater and waste from the household and subsequent removal from the neighbourhood
- Which leads to an increasing need for protection of the environment from the degrading effects of waterborne waste

### Findings 1

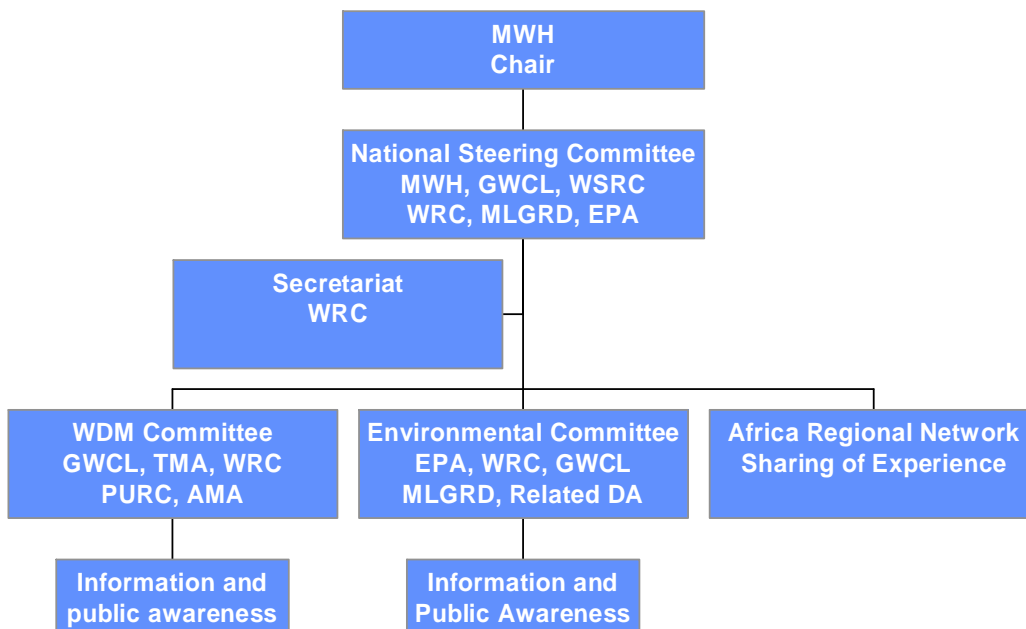
- Ghanaian commitment appears to be in place and concerted actions have started
- Environmental sub-committee established
- Insufficient allocation of human resources may pose a threat to the Plan
- The draft plan places major attention on the WDM component
- Agreed to focus on community based and demand driven demonstration projects in peri-urban areas

## Findings 2

### Some Possible Project Sites

- **Amasamah**, the capital of Ga District in Accra Region.- Densu river basin.
- **Nsawam**, the Capital of South Akwapim District Eastern region - Densu river basin. Also suggested by MLGRD)
- **Ashiama Township**, Low income, high density area in Tema. According to MLGRD, the Eastern part of the township needs upgrading of sanitation and drainage systems
- **Michegani**, Informal fish market and settlements on the shore of the Weija Dam. Pollution and erosion problems.
- **Kumasi City**, with several severe water pollution impacts on the Subin River, a tributary to Owabi river. To be dealt with in consultation with British Aid programmes in the region.
- More alternatives to be identified by the project team.

## Accra City Implementation Plan - Institutional Framework



## Technological Options

### *"Internal" Development by residents*

#### Water supply

- Piped water supply from city
- Water vendor
- Own well/borehole

#### Sanitation

- Latrine systems
- In-house WC
- Septic tank and soakaway
- Local sewerage
- Local wastewater treatment
- Reuse or infiltration of treated wastewater
- Connecting to municipal sewerage

#### Solid Waste

- Collection and sorting
- Composting
- Disposal of residual waste

#### Stormwater Drainage

### *"External" Development by municipality*

#### Water supply

- Piped water supply to area
- Water vendor

#### Sanitation

- Latrine waste collection and disposal
- Local wastewater treatment
- Trunk sewers
- Wastewater treatment and discharge

#### Solid Waste

- Collection systems
- Sorting and recycling systems
- Appropriate landfills with leachate control

#### Stormwater Drainage

## Financial Aspects

- The services must be affordable
- Households must be prepared to pay their share of the costs and/or contribute with labour etc.
- Small amount of external funding needed in the early stages
- Value of properties increases with service facilities

## Sociological Issues

- The community-based sanitation and waste management concept must be recognized by beneficiaries and city authorities
- The success depend on the community members' commitment to and ownership of the project interventions
- The District Assembly is an important partner
- NGOs are often valuable supporters
- Make use of existing community structures, if needed set up Area-based Organisations to
- Introduce the urban sanitation and environment management to the school syllabus to enhance education and awareness

## Goals and Objectives

### **Goals**

- Improve the livelihood and alleviate poverty peri-urban settlements in a sustainable way
- Mitigate the environmental impact of urbanisation on freshwater and aquatic ecosystems

### **Objectives**

- Improve the sanitation and waste management in peri-urban communities in a demand driven and participatory way
- Build capacity at community and city level and reinforce key regional and national institutions
- Enhance public awareness with special emphasise on mobilising the educational systems
- Establish effective national policies, programmes and investments,
- Promote the exchange of information and best practices on urban water resource management across Africa

## Outputs

- Executed and evaluated demonstration projects on demand driven sanitation and waste management in selected peri-urban communities based on an integrated approach to managing urban water resources focusing on the links between urban development and the environment.
- Strengthened institutional understanding of community driven approaches at city, regional and national level
- Public awareness programmes carried out with particular focus on the mobilisation of the education systems
- Strategies and investment programmes on community-based sanitation and waste management established by the key partner agencies and authorities
- Active participation and substantial contributions by Ghana to the Africa regional network of good practice exchange

## Inputs

### ***Personnel***

- Time allocated for the Task Manager and project team members to perform
- Technical assistance and guidance by Habitat

### ***Equipment, logistics***

- Transport, PCs, Offices provided by Government of Ghana

### ***Funding***

- Funding support from Habitat: US\$ 80,000
- Funding and Staff from Government of Ghana: US\$ 40,000
- Funding and interventions provided by existing and future associated projects

# Assumptions

- Government ownership, commitment, and adequate resource allocation for the effective implementation of the Plan
- District Assemblies' recognition and support to the demonstration project
- Local community and beneficiary ownership and efficient participation in the demonstration project
- Sufficient donor support in place

## Beneficiaries & Stakeholders

### **Beneficiaries**

- the underprivileged segments of the population in the pilot urban communities
- the underprivileged segments of population in the future affected urban communities
- water users in the affected rivers

### **Stakeholders**

- the beneficiaries
- concerned government agencies at national, regional and local levels
- District Assemblies
- Traditional authorities
- School Authorities, youth groups
- farmers, fishermen, industrial and commercial associations, water vendors
- NGOs and donors

## Associated Projects

- Action Plan for Protection and Rehabilitation of the Densu River System - Integrated Water Resources Management  
*DANIDA supported pilot project under WRC*  
*A strategic framework for the environmental component*
- URBAN III under MLGRD  
*Basic infrastructure development in secondary cities)*
- URBAN IV  
*Useful success stories from peri-urban water and sanitation development*
- URBAN V  
*Demand driven approaches in urban towns; start in year 2000*

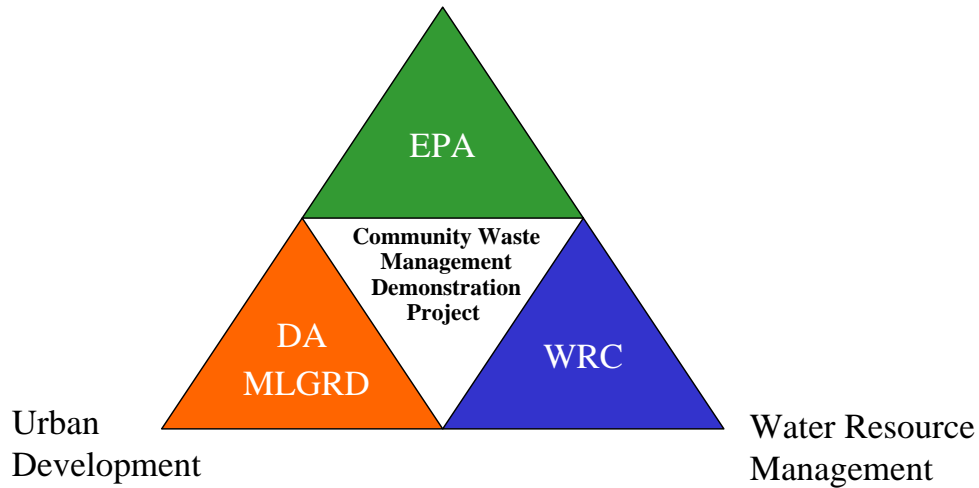
# Sustainability Factors

- Policy support measures and local ownership
- Institutional aspects
- Economy and financial conditions
- Technological factors
- Socio-cultural factors
- Environmental and ecological effects



# Environmental Component - Implementing Institutions

Urban Environment



EPA:	Environmental Protection Agency
WRC:	Water Resources Commission
DA:	District Assembly
MLGRD:	Ministry of Local Government and Rural Development

