EXECUTIVE SUMMARY OF THE ENVIRONMENTAL ASSESSMENT OF THE SECOND CENTRAL TRANSPORT CORRIDOR PROJECT IN TANZANIA

1. BACKGROUND

The Second Central Transport Corridor Repeater Project (CTCP2) has three components: (A) the Dar es Salaam Urban Transport component; (B) the Korogwe-Mkumbara-Same Trunk Road component; and (C) the Zanzibar airport component. It is a follow-on to the Central Transport Corridor Project under which components A and B have been prepared. Component C commenced under the Second Integrated Roads Project (IRP2), however, the contractor charged with the works failed to perform and his contract was cancelled. The IRP2 credit closed on December 31, 2006, and it was decided to finance this component under CTCP2.

(A) **Dar es Salaam urban transport component**: A concept study for the entire Dar Rapid Transit (DART) system was financed under CTCP and it included the detailed design of phase one of the system, including the preparation of bidding documents for 20.9 kilometers of separate bus-ways, 5 terminals, 29 stations, 6 feeder stations, two bus depots, as well as the improvement of the upcountry bus station at Ubungo which will be integrated with the DART system. The entire trunk system of 20.9 kilometers will be provided with tree shaded bicycle and pedestrian ways on both sides of the road. The average distance between bus stops will be 500 meters and system users will be encouraged to either walk or bicycle to the bus stops (privately operated bicycle parking facilities are planned at each bus stop). The system provides for integration with other public transport services such as *daladalas*[1], the Kivukoni ferry and the up-country buses at terminal stations. Articulated trunk buses with a capacity of 140 passengers will provide both normal (stopping at all stations) and express services (stopping only at connector stations). A system of feeder buses with a capacity of 50 passengers will transport passengers to the trunk system through feeder stations. Trunk buses will be accessed at level which will enhance system capacity and comfort. It is proposed to finance the infrastructure of phase one of DART under CTCP2.

(B) **Korogwe-Mkumbara-Same trunk road rehabilitation/upgrading component**: The Korogwe-Mkumbara-Same trunk road (172 kilometers) forms part of the North-East Corridor of the Tanzanian trunk road network that connects the main commercial centre of the country, Dar es Salaam, with the major tourist destinations in northern Tanzania. The road is also part of the main link between Dar es Salaam and Nairobi, the major trade center of Tanzania and Kenya respectively. The road currently is in fair to poor condition and its width is not commensurate with trunk road standards. TANROADS therefore plans to rehabilitate the road, provide it with a 50 mm AC (asphalt concrete) surface and to widen it to trunk road standards from the current six meters carriageway and one meter shoulders to 6.5 meters carriageway width and 1.5 meter shoulders. Furthermore, for safety reasons, it is necessary to eliminate some at-grade crossings with the Tanga railway, some sections prone to flooding need to be elevated and some bridge decks need

[1] Minibuses that currently provide public transport services in Dar es Salaam.

replacement/widening. The design has been submitted to a road safety audit and appropriate speed reducing measures within villages and town, including rumble strips, speed pumps and raised pedestrian crossings are part of the design. Design and bidding documents for this road section were prepared under CTCP, and it is proposed to finance these works under CTCP2.

(C) **Zanzibar Airport component**: the Zanzibar airport has experienced spectacular growth with more than two-fold increase of passenger traffic between 2001 and 2005, namely from 198,000 to 415,000, and aircraft movements grew from 16,800 to 27,800. The runway of the airport is 2462 meters long and 45 meters wide. Its surface is in poor condition and needs urgent rehabilitation/strengthening. Additionally, the runway is relatively short and does not provide an adequate security margin for large airplanes (such as Boeing 767). Furthermore, the airport security fence is not encompassing the entire airport and needs extension. Hence, the project finances the rehabilitation/strengthening of the runway, its extension by 560 meters to about 3 kilometres length and the completion of the security fence.

2. ENVIRONMENTAL ASSESSMENT (EA)

2.1 General

Environmental assessments (EA) were prepared for each of the three project components to identify, assess and mitigate the potential environmental and social impacts. Additionally, with funding from CTCP, the Government has prepared a Sectoral Environmental Assessment for the Transport Sector and has prepared, on the basis of this Sectoral Environmental Assessment, guidelines for EAs for the various sub-sectors of transport. These guidelines were applied in the production of the individual EAs for the three project components. Following are the various documents that have been produced for this project and the dates of their submission, approval and disclosure:

No.	Document	Submitted to IDA	Approved by IDA	Disclosed In-country	Disclosed at Infoshop
1	Resettlement Policy Framework	02/01/07	02/14/07	09/24/07	09/24/07
2	Dar es Salaam Bus Rapid Transit (DART) Environmental and Social Impact Assessment	02/14/07	07/15/07	07/30/07	07/30/07
3	DART Resettlement Action Plan (Phase 1a)	11/02/07	05/07/07	07/30/07	07/30/07
4	DART Resettlement Action Plan (Phase 1b)	08/28/07	11/28/07	12/05/07	12/05/07
5	Korogwe – Mkumbara – Same Environmental Impact Assessment	01/15/07	07/15/07	07/30/07	07/30/07
6	Zanzibar Airport Runway Rehabilitation Environmental Impact Assessment	02/15/07	07/15/07	07/30/07	07/30/07

2.2 Urban Transport Component

Environmental Impacts and Mitigation

Since the project is located in an urban area along established commercial corridors, impacts on native vegetation and fauna will not be significant. Only urban landscaping vegetation will be affected and this effect will be compensated when landscaping implemented as part of the project consolidates. Physical environment impacts are also expected to be of marginal importance. Necessary earth movement is limited and local topography implies limited risks of erosion and soil run-off. Commercial borrow pits for all construction materials are available at reasonable (although not always ideal) distances from construction sites and no new pits or quarries will need to be developed. Two flood plains will be intercepted by on already existing crossings and widening of existing avenues will be limited and is not likely to have significant impacts.

One of the main positive environmental impacts of the DART system is the emission reduction of greenhouse gases. A majority of the current public transport providers are daladala mini buses carrying less than 20 people at a time. The amount of emission by DART trunk buses carrying 140 passengers is estimated at 2100g/km (since they will be compliant to EURO II emission standards) while that of the feeder buses carrying 50 passengers is 1250g/km. The current mini buses emit 50% to 70% more gases to transport the equivalent amount of passengers compared to the future DART system. Hence, through this replacement pollution levels will be reduced by about 60% in the phase one corridor. Other positive impacts expected from the introduction of the DART system are reduced air pollution-related illnesses, reduced noise levels, enhancement of non-motorized transport, and a more beautiful city environment.

Social Impacts and Mitigation

This component's main benefits will include reduced travel time and increased comfort of users, improved general traffic flow, and improved urban landscape and quality of services at locations where project-induced redevelopment of public open spaces will occur.

On the negative side, people will be impacted by direct and indirect displacement. In total, phase one of DART will affect 293 properties, and of these 193 will be totally displaced. Project affected people (PAP) include 741 entities (families, businesses, others) and 87 businesses that operate as tenants or concessionaires within Ubungo terminal. An additional amount of businesses may lose clientele as a result of reduced access or lost parking, or will no longer be able to make informal use of the public right-of-way.

To address these issues, a Resettlement Policy Framework (RPF) has been prepared, was approved by the Bank and was disclosed in-country and at the Infoshop. On the basis of the RPF a Resettlement Action Plan (RAP) was prepared in two phases (phases 1a and 1b), was cleared by the Bank and disclosed in-country and at the Infoshop.

To finance the cost of resettlement, the Government of Tanzania (GoT) has budgeted TSh. 10 billion (US$ 8.5 million) in this year's budget. The phase 1a RAP which was disclosed on July 30, 2007, is currently being implemented. The phase 1b RAP has been disclosed on December 5, 2007 and its implementation will commence in early 2008. All resettlement action must be completed before construction is scheduled to commence in July 2008.

There will be impacts on employment at the time of the change over from the traditional to the new public transport system (estimated to be in July 2010). Overall, the new DART system is estimated to create about the same amount of jobs as will be lost in the traditional system (about 3000). Still, since the required skill levels are generally higher in the new system compared to the traditional "daladala" system many people involved in the traditional system might be negatively affected. The owners of the daladala are represented by DACOBA (Dar es Salaam Commuter Bus Operator's Association) and DACOBA has been involved in the preparation of the project from the beginning. DACOBA is currently positioning itself to bid for the DART bus operator's contract jointly with foreign partners. It is also proposed that daladala owners who are rerouted to other – less attractive – routes at the beginning of the operations of DART will be given preferential access to shares that are expected to be issued by the bus operator company. Daladala drivers will be provided with training to upgrade their skills (as part of the project) so that they could become eligible to get jobs as drivers of the DART buses.

2.3 Trunk Road Component

Environmental Impacts and Mitigation

Soil erosion and sedimentation of road pavement between Chekelei village (CH. 109+800) and Hedaru (CH. 119+100) are the main environmental issues of this component. This will be mitigated through soil conservation methods incorporated in the engineering design. Another identified environmental issue is the accumulation of solid wastes in construction camp sites. Likewise uncontrolled discharge of liquid wastes could result in pollution of surface and ground water, especially to surface water sources around the workers campsite. Improper setting of pit latrines may result in contamination of both ground and surface water sources. Other issues include dust/air pollution, noise and vibration from operation of vehicles/equipments/machinery along the road and borrow pits, destruction of river bank vegetation due to the movement of heavy machinery and trucks. The later could lead to increased river bank erosion, sedimentation of river beds, destruction of adjacent land and properties. Most of the negative impacts identified are of low significance and will be mitigated through measures as part of the works contract.

Social Impacts and Mitigation

This component will have both positive and negative impacts. The potential positive impacts are: (i) increased income generation during construction due to selling food and other local products to construction work force by members of the local community residing along the road, especially women and youth; (ii) temporary employment to the

local community members during road construction works; (iii) reduced vehicle maintenance and operation costs due to improved road condition; and (iv) increased tourism activities due to improved road condition with faster and more comfortable journeys.

The important issues of concern to this project are road safety and HIV/AIDS transmission. Potential HIV/AIDS infections are going to be minimized by promoting sensitization campaigns by the contractor through NGOs (as part of the works contract). It is proposed to locate workers' campsites remote from village settlement to minimize interactions with local communities. In addition, the contractors are advised to give priority to local communities during employment of unskilled labor to minimize the number of newcomers in the project area.

During consultations the local communities expressed concerned about the problem of increased road accidents due to speeding vehicles. The construction of speed reducing measures including raised pedestrian crossing in towns and speed humps at the end and beginning of villages has been made part of the bidding documents. The disruption of livestock routes and community access to their business activities is another issue which has been raised by the communities. Access roads and concrete slabs across drainage channels have been included in the design for the community to access their business and social activities. As well, the elimination of a number of railway crossings by construction of overpasses is being done to improve safety.

2.4 Zanzibar Airport Component

Environmental Impacts and Mitigation

The construction of the airport runway will require a substantial amount of excavated construction materials like sand, gravels and aggregates for earth fill, sub grade, gravel surfacing and drainage structures. In the process of excavating these materials, the contractor will affect the landscape of the sites where these materials area taken from. Land clearance to obtain construction materials particularly in the borrow pit will involve uprooting trees and crops within the borrow pit area as well as displacing of topsoil. The construction of the runway will also entail considerable vegetation loss, including shrub and grasses along the runway. Waste production at the campsite and batch plant includes solid-waste. This includes packaging materials and drums of bitumen. Besides these wastes, stock piles of construction materials like aggregate and gravel may impose visual impacts. Mitigation measures for these environmental impacts have been included in the bidding documents and will be implemented through the contract.

Social Impacts and Mitigation

The potential positive impacts anticipated after the completion of the project are the increased use of larger planes, introduction of direct services from European and Far Eastern markets, resulting increased tourism, increased move to air cargo that could reduce the congestion at the seaport as well as increased potentials for beneficial PPP

arrangements for the management of the airport and the expected resulting improved services provision at the airport.

Identified negative social impacts are disease infection and transmission (HIV/AIDS, STI, malaria etc) during construction. These are caused by association and interaction of construction workers with the local people. Also, abandoned pits filled with rainwater could harbor disease vectors responsible for malaria, cholera, dysentery etc. Occupational health and safety during construction phase is also a risk to the construction workers. Increased noise and vibration during construction can be a nuisance. The discomfort caused by noise includes auditory fatigue and temporary lessening of hearing ability.

The negative impacts which may result from the construction and operation of the airport are considered to be negligible and appropriate measures to address them have been included in the bidding documents and will be mitigated through the contract.

The lack of a completed airport fence poses safety and security risks. The completion of the airport fencing is part of the works contract and has been made a priority under the contract so that the contractors must have the fencing completed after seven month of contract execution (halfway through the contract).