KENYA: NAIROBI-THIKA HIGHWAY IMPROVEMENT PROJECT

ENVIRONMENTAL & SOCIAL IMPACT ASSESSMENT (ESIA)
SUMMARY
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SUMMARY

Project Name: Nairobi-Thika Highway Improvement Project
Country: Kenya
Project Number: P-KE-DB0-018

1. Introduction

The Government of Kenya (GOK) has solicited the financial assistance of the Bank for the rehabilitation and upgrading of the Nairobi-Thika highway. The Nairobi-Thika road is a dual-carriageway highway of about 45 km. The road is part of the classified international trunk road A2 which originates in downtown Nairobi and extends to Moyale at the Ethiopian border. The section of highway under consideration was constructed to bitumen standard in the early 1970’s. This section currently operates beyond capacity, carrying more than 30,000 vehicles per day. In addition, its condition has deteriorated requiring rehabilitation. Therefore to accommodate the exiting and future traffic, the highway needs substantial improvements to increase its capacity which will entail the construction of additional lanes and the removal of at-grade intersections at six locations to be replaced by interchanges.

2. Project Justification and Objectives

The objective of the project is to improve road transport services along the Nairobi-Thika corridor by reducing traffic congestion and enhancing mobility within the metropolitan area through better linkages to the immediate and distant suburbs.

The Nairobi-Thika road is characterised by heavy traffic that is increasing with time as a result of the rising urban population along the route. The poor physical condition of the road and its limited capacity are associated with significant travel delays, high fuel consumption, high vehicle emissions as well as social inconveniences.

The proposed expansion and rehabilitation of Nairobi – Thika road will substantially alleviate traffic congestion within Nairobi City, and between the city and the satellite town of Thika. A large number of commuters who work in Nairobi reside along this section of the project road. In addition, main centres along the road, namely Kasarani, Githurai, Ruiru, and Juja, are burgeoning industrial and commercial centres.

3. Project Concept and Description

The scope of project includes the following components:

A Nairobi – Thika Highway Upgrading Works: This component involves: (i) The provision of additional capacity through construction of additional lanes (from four-lane to a six/eight-lane highway), and reconstruction of the existing carriageway pavement; (ii) the construction of services roads to segregate through traffic from local traffic; (iii) the construction of traffic interchanges at six (6) locations to replace the existing roundabouts at Pangani, Muthaiga, GSU, Kasarami, Githurai, and Eastern Bypass; and (iv) The rehabilitation of some existing bridges, execution of drainage structures, road safety devices, and environmental mitigation measures.
B Project Feasibility and Detailed Engineering Design for Nairobi Public Transportation System – This component is a follow-up to the Nairobi Urban Transport Master Plan study funded by JICA. This component will focus on public transportation system. A comprehensive public transportation study will be undertaken. The study will include an economic feasibility, environmental and social impact assessment (ESIA), financial and institutional arrangements for various options including Light Rail Transit System, Bus Rapid Transit System, Enhanced Commuter Rail, etc. Detailed engineering design and tender documents will be prepared for the most viable options to address the immediate and short term public transportation needs.

C Private Sector Participation in the Nairobi-Thika Highway Project – Under this consultancy component, the consultant will conduct alternative financial and institutional analyses for the proper management, operation and maintenance of the Nairobi-Thika Highway. The consultant will be responsible for preparing the necessary bidding and contractual documents and advising the government in the transaction process.

D Project Technical and Financial Audits: An independent external financial auditor and an Independent Engineering/Construction Auditor shall be selected to provide project audit services. The purpose of the financial audit will be to ensure that the proceeds of the loan are used economically, efficiently and solely for the purpose for which they are intended. The purpose of the technical audit is to ensure that the contractor and consultant are performing according to specifications.

E Compensation and Resettlement of Project Affected People – This component makes provision for the adequate compensation and resettlement of Project Affected People identified in the Project Environmental and Social Impact Assessment.

4. Policy, Legal and Administrative Framework

The Government of Kenya’s Policy on Road Transport is to provide efficient and reliable road network to spur social, economic and security improvement.

Kenya’s National Environment Action Plan process culminated in the formulation of the policy on Environment and Development under Sessional Paper No. 6 of 1999. This policy presents broad categories of development issues that require a sustainable approach. Its main objectives are to ensure that:

- all development policies, programmes and projects take environmental considerations into account from the onset,
- an independent environmental impact assessment (EIA) report is prepared for any project or development before implementation.

The key environmental assessment and monitoring agencies in the Road Sector include the following:

- National Environmental Management Authority: This has the overall responsibility for approval of environmental assessment studies, enforcement and compliance as well as monitoring. NEMA may request a public meeting if objections to a project are raised by the public.
- Provincial and District Environment Officers: These officers represent NEMA at provincial and district levels, and are required to inspect and monitor all activities that may have environmental impacts, and to investigate any complaints and claims that the public may have with regard to environmental issues caused by any project or activity.
Environmental Unit at the Ministry of Roads and Public Works. The Environmental Unit oversees management of environment within the road sub-sector and the preparation / implementation of EIAs for the road sub-sector.

The study has been guided by the NEMA’s draft EIA Guidelines (November 2002), and the AfDB’s Integrated Environmental and Social Assessment Guidelines (October 2003).

The key legal instruments applicable to environmental and social management with respect to this road project are:

- Environmental Management and Coordination Act (EMCA), 1999
  - Environmental Impact (Assessment and Audit) Regulations, 2003
  - Environmental Management and Coordination (Water Quality) Regulations 2006
- Factories and Other Places of Work Act, Cap 514
  - Factories and Other Places of Work (Health & Safety Committees) Rules 2004;
  - Factories and Other Places of Work (Medical Examination) Rules 2005.
- Water Act, 2002
- Public Health Act, Cap 242
- Wayleaves Act, Cap 292
- Land Acquisition Act, Cap 295
- Public Roads and Roads of Access Act, Cap 399
- Limitations of Actions Act Cap 22.

5. Description of the Project Environment

Environmental Setting

The project area lies generally within Central Kenya that is part of the foreland plateau. Physiologically, the higher areas to the west of the route are characterized by deeply dissected topography with numerous slopes giving rise to ridge and valley patterns, while the eastern parts are lowlands that cover Ruiru area and Thika Municipality. The elevation of the area ranges from 1700m above sea level around Nairobi to an average of about 1,550 m asl between Kasarani and Ruiru, then down to 1,460 m asl at Thika. The general slope of the project area, however, is to the east and southeast.

The natural drainage within the project area is dictated by the numerous rivers and streams that cross the road. All the rivers flow from the Aberdare Ranges and Kikuyu dip-slopes to the west of the project area and flow south-eastwards forming the headwaters of Kenya’s two main rivers, the Tana and Athi Rivers, which eventually flows into the Indian Ocean. The major sub-catchment areas in the project area are the Nairobi River, Kamiti River, Ruiru River, Theta/Thiririka River Sub-Catchment, Ndaragu and Chania/Thika River River Sub-Catchments.

The geology of the project area comprise the Nairobi Trachytes extending from Dagoretti – Karen up to the east of Nairobi, and towards north of Kiambu and Githunguri; Nairobi Phonolites between the Nairobi National Park and Kiambu and resting directly on the Athi
Series; and the Kapiti Phonolites which are also overlain by the Athi Series. The Upper Athi Series formations mainly consist of sandy sediments, gravel, or pebble beds, tuffs and pyroclastic sediments. Welded tuffs are conspicuous in and along the streams around Thika, and give rise to a number of falls along the rivers. Soils between Thika, Ruiru and Kahawa are shallow, yellow-brown to yellow-red friable clays overlying a laterite horizon, while in Nairobi, black cotton soils with calcareous and non-calcareous variants are dominant.

Surface water is abundant in the project area, and 15 main streams and rivers cross the project road. However, many of the rivers are polluted, where most of the pollution originating from settlements and urban centres along the project route is drained through the Athi River system, while the Chania and Thika Rivers largely carry agricultural based pollutants into the Tana Basin. Approximately 75% of water consumers in the project area get their water from public supply systems. Nairobi Water and Sewerage Company serves the Nairobi area and selected areas along the pipeline route (running along the project road) delivering water from Thika Dam in Thika District. Ruiru town is supplied by the Ruiru river whose water intake and treatment plant are located within the road reserve (KM 22+900); Ndarugu water intake and treatment plant is on Ndarugu river about 50m downstream of the project road at KM 33+500, and supplies Juja town and its surroundings; and Thika water supply intake and treatment plant is located on Chania river downstream of the project road at KM 41+500. The Ruaka, Ruiru, Theta, Thiririka, Ndarugu, Komu, Chania and Thika Rivers support rural communities for domestic water requirements, general irrigation and agro-industrial activities. Others have low economic value due to either inadequate flows or are highly polluted (the latter being the main problem for streams close to the city of Nairobi).

Groundwater sources include sources from the major faults (Ondiri, Lari, Tigon) and are important for ground water recharge of aquifers in the project area; springs derived from major faults including springs such as Tusoga and Karura discharging from Tigon fault, Kikuyu, Gitathuru and Mweteta from the Ondiri fault (these springs also form the headwaters of the major rivers and streams crossing the project route corridor); ground water on old land surfaces; and ground water in the rock beds (Ruaka area) where boreholes penetrating the beds have varying yields. Other sources of water in the area include boreholes (mainly in private premises and institutions).

Climate and temperature in the project area are influenced by altitude. In general temperatures are fairly uniform with coolest months occurring from June to August while hottest temperatures typically occur from December to March. Rainfall is bimodal in with long rains occurring from March to June while the short rainy period occurs from October to December. The average annual rainfall in Thika and its environs ranges between 900 mm and 1,250 mm per annum. The mean annual rainfall in Nairobi ranges between 800 mm and 1,300 mm per annum.

There is no significant wildlife in the project, a situation associated with intensive human activities and no migratory routes exist across the road. Vegetation generally comprises grassland characteristic of savana and scattered tree species. The region depicts a transitional zone from the high rainfall areas to the west (Kiambu and Thika District and Nyandarua slopes) with forested areas and the semi-arid area to the east (Kitui and Machakos Districts). However, again due to intensive human activities, the natural vegetation has all but disappeared. There is a unique notable wetland system on Theta River (~KM 29) comprising mainly of Cyperus papyrus species mixed with grasses and minor shrubs. Along sections of the road, various private and public initiatives have been taken to plant mixed tree species.
Social/ Economic Setting

The main catchment area of the project has an estimated population 843,526 comprising 446,930 male and 397,019 female and a total of 252,330 households (1999 Population Census Projections). The population growth rates are estimated at 2.68% with relatively high population densities averaging 660 persons per square km in Kiambu and 358 persons in Thika. The two districts have significant urban populations which determine the type of activities and characteristics. Kiambu has 69% urban and Thika 34% of the populations. Poverty is a major concern with 25% and 48% of the populations living below the poverty lines in the two districts, respectively (Kiambu and Thika). Unemployment is rampant especially in Thika which stood (2002) at 34%. Kiambu being very close to Nairobi city is classified as a residential area of people on wage employment (64% of households) hence its unemployment rate is relatively low, at 8%.

The main economic activities and features along the route are human settlement structures with some farming activities but with significant urban characteristics. There are well over 50,000 primary sub-plots along the project road. The area is characterized with mixed land use patterns which include residential plots and business premises such as petrol stations, commercial premises, shops, catering, stores and educational institutions. Extraction of building stones from quarries in Juja is quite vivid. There is a thriving informal sector (Jua kali) specializing in metal work, carpentry, vehicle repairs, dressmaking and construction. Other notable land uses include farming (in food and cash crops) as well as livestock keeping for meat and dairy. Road side traders are also a common feature in fodder, vegetables, Napier grass, tomatoes, maize, beans, tree nurseries and other farm products. Some commercial agriculture also takes place in the road corridor such as horticulture flower growing and coffee farming.

The social wellbeing of the people in the project area is characterised by relatively high primary school education performance with a net enrolment rate of 83% in Thika and 89% in Kiambu. In both cases, girls match up with boys. Secondary enrolment is also above average for most Sub-Saharan African countries averaging 61% in Thika and 50% for Kiambu. The main health problems in the area are malaria, respiratory tract infections, bronchitis and HIV/AIDS related diseases. While these are within national average HIV/ADS prevalence rates (6.4%, 2005), the impact on women is far much higher than that for men especially in Thika where prevalence among women is 9.5% compared to men at 2.5%. Availability of potable water varies between those in unplanned slams and those connected to the water articulation systems. Distances walked to water sources average between 0.5 km in Thika and 2.3 km in Kiambu. Usage of pit latrines is relatively high with 79% of households in Thika and 88% in Kiambu.

6. Project Alternatives

In terms of project alternatives, the following options have been considered:

i. “Do nothing” option;
ii. Rehabilitate the existing carriageway and incorporate traffic management, such improve traffic signals and better circulation systems;
iii. Increase the number of lanes along and provide grade separation interchanges.

The first option will not achieve the objective of the project, since the traffic congestion will not be alleviated, and in time, the situation will worsen. This will exacerbate loss in economic time and therefore productivity, and result in higher fuel consumption, increased levels of air pollution and severely hinder mobility.
The second option may provide relief in the short term, but as traffic levels increase in the medium term, there will be a need to reassess the situation to suggest alternative means of solving the congestion problem and associated issues.

Increasing the number of lanes along the existing road with grade separation interchanges has been assessed as the most viable option for the project.

7. Potential Impacts and Mitigation/Enhancement Measures

The major positive environmental and social impacts anticipated as a result of the project are:

- The reduction of “on-the-spot” vehicular aerial emissions emitted by stationary vehicles during traffic jams, especially during the rush hour.
- Reduced road accidents, particularly of heavy trucks, which would reduce the number of injuries and fatalities, as well as the risk of pollution of soil and water sources from spills.
- Reduced congestion along the entire project route, resulting in time savings and resultantly in increased productivity and less stress to road users, and even attracting more people to live in the peri-urban areas.

The road project comprises the rehabilitation of an existing road. No major realignments are currently proposed, while any improvements to curvature and sight distance will be accommodated within the road reserve. Thus, the direct impact on land use will be negligible, and the requirements for land acquisition are minimal. For the latter, an abbreviated resettlement plan has been prepared, where 11 permanent structures are likely to be affected.

Potential negative impacts include the degradation of water sources in terms of quality and over-abstraction, resulting from earthworks, pollution by oils and greases, leakage from solid waste and other construction activities. Mitigation includes observing abstraction limits and controlling pollution. The installation of rain gauge stations at the river crossings would enable river flows to be monitored. Dust and air emissions will emanate from earthworks and operating plant and equipment; this can be managed by keeping the work surfaces damp at all times, maintaining construction equipment and minimising dust prone construction activities. Pollution of air and water can be minimised through implementation of standard operating procedures and controls, as well as awareness raising.

Impacts on land will include erosion and soil loss, degradation in quality, loss of land and changes in land use, due to surface runoff, erosion, acquisition for the purposes of road rehabilitation and materials extraction. As soon as works have been completed at particular locations, areas cleared of vegetation within the road reserve will be re-vegetated, while materials sites landscaped and rehabilitated, as agreed with the landowners. Vegetation in the medians should be limited to bushes rather than trees so as not to present a hazard to motorists who may veer off the road, and so that nocturnal glare is reduced. Once the materials sites have been identified, they must undergo EIA studies which would identify all potential impacts, describe the agreements with each landowner and elaborate on means for rehabilitation. Land may have to be acquired either temporarily (eg. for deviations or the Contractor’s and workmen’s camps) or permanently for the right of way or for the road alignment itself. It is unlikely that any resettlement will be required, but there will be cases for compensation. The Abbreviated Resettlement Plan addresses this.
Construction works have several implications on health and safety. Personal injuries may occur from operating machinery or from accidents, road construction projects are associated with the spread of STI/HIV/AIDS resulting from the interaction of the workforce with the local communities, dust and air emissions can lead to respiratory and eye infections, and excessive exposure to noise causing irritability and may contribute to deafness. Mitigation includes the implementation of safety programmes during construction for materials sites, work areas and deviations – this includes signage, lighting and the enforced use of PPE. The workforce will also be provided with medical insurance cover. Maintenance of equipment and sensitisation among operators will lessen the impacts of noise. Section 11 discusses STI/HIV/AIDS awareness and road safety as complementary initiatives.

Construction activities will result in disturbance to the public caused by: disruption of business activities; hindered access to the highway, their homes or places of work; noise and vibration; and accidents.

Informal kiosks and workshops dealing with food vending, clothing and furniture among other consumables are present at Ngara, Ruaraka, Kasarani roundabout, Githurai, Ruiru. Others are at Mugutha, Muigai Inn and Witeithie. At Ngara and Githurai, the business activities may involve up to 5000 people daily. As these businesses are mobile and do not operate from fixed or permanent structures, they are able to move to other locations following demand for their services and goods, without incurring loss of income. The same people are likely to offer their services to the construction workers, and will be able to re-establish at the various access roads and services roads on completion of road construction.

Consultations will be held with the affected communities to sensitise them on these temporary impacts, while the implementation of the ESMP will reduce impacts on safety and noise. Members of the local communities will be given opportunities for employment on the Project Road, and women and youth will be especially encouraged to apply.

The MORPW will have to ensure that the road reserve is available for construction works, and accordingly must serve notice to encroaching development. After construction, the local authorities must see that there is no encroachment on the road reserve.

Decommissioning involves the removal of the Contractor’s camp, workmen’s camp, rehabilitation of all materials and work areas (including deviations) and removal of equipment, excess materials and oil tank farms. A decommissioning plan must be prepared by the Contractor for approval by the RE, and a decommissioning audit undertaken. Special attention must be given to remediation of oil polluted areas and the relocation of oil tanks.

During the operation phase of the project, issues of water quality degradation, air pollution, solid waste dumping, materials and oil spills will all contribute to environmental pollution. The MORPW’s Environmental Unit will have to develop a system for monitoring and to ensure compliance with, for example, air emissions standards. The responsibility for clean up of materials spills will lie with NEMA, but needs to be coordinated by the MORPW's Environmental Unit. The public must be sensitised with regard to solid waste disposal into drainage channels.

The overall maintenance regime of the road will cover maintenance of drainage, maintenance of the road reserve (including issues of re-encroachment), sight distance, roadside litter and solid waste, and road safety. Socio-economic aspects that need to be monitored and managed after construction include changes in land use/settlement, impacts on economic activities and traffic volumes.
8. Environmental and Social Management Planning

The Environmental and Social Impact Assessment (ESIA) together with the Environmental and Social Management Plan (ESMP), and the Abbreviated Resettlement Plan (ARP) describe the proposed implementation arrangements for mitigation measures, environmental and social monitoring and reporting. A number of special activities are elaborated below (Section 11, Complementary Initiatives) which will contribute to mitigation, particularly the efforts by the local councils to relocate informal traders to well-planned, permanent locations, for example the Massai Market at Globe Cinema Roundabout and the market at Githurai; and the tree and flower nursery operators.

The Chief Engineer (Roads), through the Environmental Unit at the MORPW, is responsible for all coordination activities and inter-departmental liaisons, particularly in regard to the quality control and social issues. The Resident Engineer (RE), who is the Ministry’s representative on the ground, will be responsible for ensuring that the Contractor implements all environmental and social mitigation measures. The RE’s office, through their Project Environmental/Social Expert, will coordinate between the Contractor, the Community and the MORPW. The Contractor’s Project Manager will be responsible to the RE’s office on matters of environmental and social nature, and for implementing the ESMP. The Contractor’s Environmental Expert will ensure on a day to day basis that the ESMP is being implemented properly. The Contractor’s Environmental Expert would be required to liaise with representatives from the local authorities (particularly NEMA, the District Environment Officers, the District Works Officer, District Water Officers and the District Planning Officers). National Environmental Management Authority, through its District Environment Officers, will be overall responsible for monitoring environmental and social aspects of the project implementation. Their concerns will be communicated through the Resident Engineer and/or his Environmental/Social Expert.

The Project’s Bills of Quantities includes the cost of standard construction mitigation measures. The total project cost for environmental mitigation and monitoring, the HIV/AIDS and Road Safety awareness campaigns and compensation and displacement is estimated at US$ 3.5 million and is broken down as follows:

<table>
<thead>
<tr>
<th></th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARP Compensation</td>
<td>3,076,923</td>
</tr>
<tr>
<td>HIV/AIDS Campaign</td>
<td>80,000</td>
</tr>
<tr>
<td>Road Safety</td>
<td>60,000</td>
</tr>
<tr>
<td>ESMP Management and Monitoring</td>
<td>162,000</td>
</tr>
<tr>
<td>Off Road Environmental Mitigation Measures</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Total ESMP Mitigation</strong></td>
<td><strong>US$ 3,478,923</strong></td>
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</tbody>
</table>

9. Monitoring Program

The environmental and social monitoring program will operate through all phases of the project. It will consist of a number of activities, each with a specific purpose, key indicators, and significance criteria. The following aspects will be subject to monitoring:

- Provision for drainage;
- Rehabilitation of materials sites;
- Impacts on road safety (including road accidents);
- Land use changes (particularly settlement patterns) along the project road;
- Changes in socio-economic activities along the project road;
- Traffic patterns;
- Impacts on changes in the incidence of STI/HIV/AIDS;
- Encroachment onto the commissioned road reserve;
- Relocation of displaced persons (particularly traders at the markets and flower nurseries).

The monitoring of mitigation measures during design, construction and defects liability period will be carried out by the Contractor’s Environmental Expert, who will provide regular reports to the Resident Engineer. After construction, the responsibility for monitoring will lie with the MORPW’s Environmental Unit as well as NEMA.


Public consultation was carried out in two phases designed to capture concerns of the immediate neighbourhood of the project road as well as other stakeholders. In total, more than 400 people were consulted. Phase 1 involved a one-on-one interaction with members of the public in their normal daily operations. A questionnaire was administered to samples of the public comprising adults, youth and the physically disabled. The categories of the participants included landowners, tenants, squatters and special groups. The process covered four blocks from Globe Cinema Roundabout to Muthaiga, Muthaiga to Kasarani, Githurai to Juja town, and Juja town to Blue Post Hotel Thika. Government officers interviewed hailed from Nairobi City Council, Thika District and Kasarani. Phase 2 of the consultation process was done after the completion of the design concept, and involved five public meetings with participation drawn from the business community, institutional management, individuals, local government officials, government and the consultant teams.

Benefits associated with the rehabilitation of the road were cited as:

- Improved traffic flow into and out of the city;
- Savings in time, resulting in higher economic productivity;
- Improved access to social and economic centres, such as markets, schools, health facilities, government offices;
- Reduced transportation costs of people and goods between Nairobi and its outlying suburbs, as well as to eastern and northern Kenya, Ethiopia, and Somalia;
- Reduced numbers of accidents along the road;
- Reduction in fuel consumption, which translates into economic savings for vehicle owners.

Concerns raised by the participants included:

- Fair and prompt compensation where land and property may have to acquired;
- Changes in the social dynamic, leading to encouraging social activities such as prostitution, with the associated risks of spreading STIs/HIV/AIDS;
- The need for the contractor to ensure participation by women and youth during project construction;
- The disruption of infrastructure and services such as water pipes, electricity cables, telephone cables, drains and access roads;
- Dust emissions, and increased noise levels from construction equipment and workers;
- Temporary disruptions caused by diversion of traffic during construction may affect small businesses and livelihoods along the existing route.
11. Complementary Initiatives

Relocation/Compensation. Given that very few dwelling houses and commercial properties will be relocated as a result of the rehabilitation of the project road, an Abbreviated Resettlement Plan has been prepared for this project. There are several initiatives that are being undertaken by other players which are complementary to the relocation/compensation process.

Two main markets will be affected by the road rehabilitation works. The Maasai Market at the Globe Cinema Roundabout (KM 0+000) is an informal market that operates every Tuesday, where traditional ware and artefacts are sold to tourists and other customers. It is estimated that about 10,000 people comprising traders and buyers are present on that day, about 80% of the traders being women, and many others youth. A new permanent market (Muthurwa market) that is currently under construction at the junction of Ngara Road, Landhies Road, Racecourse Road and Haile Selassie Avenue. In addition Westlands market is expected to be upgraded which will offer a better long-term solution. The second market is at Githurai where both formal and informal structures may be affected. However, discussions with the District Physical Planning Officer (Thika) revealed that an alternative location will be made available where the traders will move to.

The “matatu” terminus for commuters towards Thika road estates including Zimmerman, Kahawa West, Kasarani and Baba Dogo is situated inside Globe Cinema Roundabout (KM 0+000). Approximately 2,500 public transport vehicles operates at this location every day, but the terminus will not be significantly affected by the road project as they will continue operating (although construction works may cause temporary disturbance to traffic flow and access and egress to the terminus).

There are tree and flower nurseries on sections of the road reserve operated by low income people, mainly women and youth. Some of the women are members of the Green Belt Movement (an environmental NGO that focuses on tree planting). These are predominantly flower and tree seedlings in movable clay and polythene pots. The sections where these activities are prevalent include Ngara area (KM 1+700), Muthaiga area (KM 4+300), Ruaraka area (KM 5+500 – KM 6+200), Kasarani area (KM 7+900 – KM 10+000, Githurai areas (KM 12+200 – KM 13+000). There are about 200 such nurseries. Potential areas for the relocation of these nurseries include City Park adjacent to the stretch between Pangani and Muthaiga Roundabouts; the area between Muthaiga Roundabout and Utalii College where there is plenty of land available for such activities; and at Kasarani. Beyond Kasarani there is more open land available for the nurseries to re-establish beside any of the access or service roads close to their current locations. Furthermore consultations are underway with the municipalities of Ruiru and Thika and Nairobi City Council on additional locations where these activities can be carried out after completion of road construction.

Nairobi City Beautification Programme. The Nairobi City Council’s Department of Environment has initiated a comprehensive beautification programme in collaboration with the private sector. The programme includes landscaping of roads reserves, roundabouts and open spaces, urban afforestation, maintenance of recreational facilities, e.g. City Park, Uhuru Park and Jeevanjee Gardens. These programmes are supported by the output of the unique nurseries that the Department runs at City Park. These nurseries are some of the largest in East Africa and are reputed for having a variety of rare plant species, eg. Begonia, Anthurium and Prunus africana. Areas that have recently been landscaped and maintained include Muindi Mbingu Street, Mama Ngina Street, Aga Khan Walk, and University Way in the Central Business District, and also the Ngara area.
Road Safety Awareness Campaign. The prevailing public consultations clearly indicated the concern over high rates of road accidents which they feel would increase with the improved road. In order to mitigate the negative outcomes, the project, in addition to the elaborate engineering design measures, shall incorporate road safety awareness campaigns which will help to re-ignite the activities of the Road Safety Unit in the Ministry of Roads and Public Works. In collaboration with the Traffic Police Department, this activity will review the approach and methodology for the road safety awareness campaigns and monitor the effectiveness of the proposed mitigation measures. The activity will take place during construction and operation, and will recommend new mitigation measures where those proposed are not effective. Baseline data will be collected which will augment the road safety audits undertaken by the ministry. This activity will target school children, street vendors, and matatu operators.

HIV/AIDS Awareness and Prevention. Given the relatively high prevalence rate of STI/HIV/AIDS, especially among women, the project will incorporate a component whose activities will involve implementation of advocacy and awareness programs among special groups (sexual workers, truck drivers and their assistants, vendors and communities); prevention campaigns through VCT centers, clinics and distribution of condoms; and embark on education programs to impart general knowledge on STI/HIV/AIDS to construction workers and school going children and youth. The campaign should be implemented by the contractor in collaboration with NGOs, CBOs and FBOs operating in the area, and targeting both the workforce as well as the local communities. There will be a review at mid-term of likely effectiveness and appropriateness of the approach and methods adopted. The activity will thus be reviewed as necessary to achieve its full potential in lasting benefits to roadside communities and road user groups by the end of the construction period.

12. Conclusion

The rehabilitation of the Nairobi-Thika Highway is essential to alleviate the appalling traffic congestion along between Globe Cinema Roundabout and Thika town, resulting in substantial time savings and consequently in overall increased productivity. The road project will contribute to improved access to social services such as health and education not only for the population located immediately along the road, but also for those within the larger area of influence of the Project Road, and the towns beyond Thika.

The Project Road provides a critical link along the Northern Corridor Route to eastern and northern Kenya, Ethiopia, and Somalia. This also has positive implications on regional and international trade.

All the negative impacts that have been identified as arising from the rehabilitation of the Project Road can be mitigated with appropriate measures. Mitigation and monitoring activities will require participation by the MORPW Environmental Unit, NEMA, District Environment Officers, Nairobi City Council as well as Ruiru and Thika municipal councils.

The road will present temporary employment opportunities, and as far as possible members of the local communities (including women and youth) must be employed on the construction project. The Contractor must develop his own ESMP that includes implementation and monitoring of mitigation measures in accordance with the schedule of works. In this way environmental and social impacts due to construction activities can be minimised. Furthermore, maintenance of the road and monitoring of key impacts will be important to ensure control of adverse impacts during operation.
References


Thika District Development Plan 2002 – 2008

Kiambu District Development Plan 2002 – 2008

Contacts

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ESIA SUMMARY ANNEX
ABBREVIATED RESETTLEMENT AND COMPENSATION PLAN
NAIROBI – THIKA HIGHWAY IMPROVEMENT PROJECT

1. Census Survey of Project Affected Persons (PAP): The proposed road project largely follows the existing alignment of what is predominantly a four lane highway connecting Nairobi City and the town and district of Thika whose span ranges between 34m (at Murang’a Road) to an average of between 55m – 90m for the rest of the road, with up to 110m on a few sections. For that reason, very few permanent structures are found in the prescribed Right of Way (RoW) apart from road side, open air vending of various items. The characteristic of new project shall entail expansion and geometric improvements in several places, there is high potential, therefore, that sections of the road might require realignment, hence interfering with private land and property. In such cases, compensation shall be paid in accordance with prevailing laws as stipulated in the ESIA Summary and consistent with AfDB Guidelines and Policies (2003). The table below lists the properties likely to be affected and socio-economic status of the owners.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Location/Identity</th>
<th>Socio-economic status</th>
<th>Type of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ngara, Fig Tree Hotel</td>
<td>Businessman</td>
<td>Protruding corner of a fence built in stone and concrete.</td>
</tr>
<tr>
<td>2.</td>
<td>Ngara, L.R. No. 209/6391</td>
<td>Businessman</td>
<td>Petrol/diesel filling station operated under BP license.</td>
</tr>
<tr>
<td>3.</td>
<td>Pangani, L.R. No. 209/1536</td>
<td>Nairobi City Council</td>
<td>Un-developed plot</td>
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<tr>
<td>4.</td>
<td>Pangani, L.R. No. 209/193</td>
<td>Businessman</td>
<td>Un-developed plot</td>
</tr>
<tr>
<td>5.</td>
<td>Pangani</td>
<td>Businessman</td>
<td>Frontage of commercial building</td>
</tr>
<tr>
<td>6.</td>
<td>Pangani</td>
<td>Businessman</td>
<td>Frontage of commercial building</td>
</tr>
<tr>
<td>7.</td>
<td>Pangani</td>
<td>Multinational Corporation</td>
<td>Caltex Petrol/Diesel Filling Station</td>
</tr>
<tr>
<td>8.</td>
<td>Mathare river at Pangani, L.R. No. 214/83</td>
<td>Businessman</td>
<td>Auxiliary building to a residential compound constructed in conventional material</td>
</tr>
<tr>
<td>9.</td>
<td>Mathare river at Pangani, L.R. No. 214/84</td>
<td>Businessman</td>
<td>Auxiliary building to a residential compound constructed in conventional material</td>
</tr>
<tr>
<td>10.</td>
<td>Mathare river at Pangani, L.R. No. 214/84</td>
<td>Businessman</td>
<td>Petrol/Diesel Filling Station</td>
</tr>
<tr>
<td>11.</td>
<td>Mathare river at Pangani, L.R. No. 214/83 and 214/84</td>
<td>Businessman</td>
<td>Brick and concrete fence of adjoining residential plots.</td>
</tr>
</tbody>
</table>

2. Consultations with PAP and Host Population: Public consultations with the host communities were carried out in two phases. These involved those residing in the immediate vicinity of the road corridor and other stakeholders including officials of the provincial and local governments. The categories of the participants included landowners, tenants, squatters and special groups. The process covered four blocks from Globe Cinema Roundabout to Muthaiga, Muthaiga to Kasarani, Githurai to Juja town, and Juja town to Blue Post Hotel Thika. Government officers interviewed hailed from Nairobi City Council, Thika
District and Kasarani. Individual consultations were held with those potentially negatively affected by the project where they were informed about the possible demolition of their assets and mode of compensation to be paid. Different options were discussed and are described in the paragraph below.

3. **Compensation Options and Resettlement Assistance**: In consequence of the nature and effect of impact, the affected persons and assets fall in 5 categories and the respective principals for valuation vary accordingly.

   (i) **Land**: During construction, there will be inevitable landing grabbing. The land values differ by location and potential use, and between urban and rural settings. Land value from Globe Cinema, Muthaiga and Ruaraka area would be valued at between KShs. 20m – 40m per acre; Land values from Ruaraka and Githurai would be between KShs. 3m – 6m per acre; land from Githurai and Thika would range between KShs.0.5m – 1m per acre in the rural setting and rise to KShs.1.5 – 2m in urban centers.

   (ii) **Buildings**: Building values vary significantly according to size, materials used, age of building, location and utility, among other criteria. Compensation for the affected properties will be based on the Ministry of Lands rates at the time of acquisition. This will apply to residential buildings and other permanent structures that will be affected.

   (iii) **Fences**: Fences and boundaries will be replaced by the contractor as part of the construction. In this case all permanent fences and boundaries will be reconstructed to the standards as before or better by the contractor.

   (iv) **Filling Stations**: There are potentially three filling stations along the project road that will potentially be affected. Following discussions with the owners, preferred compensation included identification of alternative piece of land in the same area and partial or full compensation of demolished part of the station. Re-development costs of the alternative site shall be borne by the filling station owner as stipulated in the land lease agreement.

   (v) **Undeveloped Plot**: The road project shall affect two undeveloped urban plots one belonging to the City of Nairobi and the other to a private individual. For the City of Nairobi, no financial compensation will be paid as per public sector norms and practices. The plot owned by the private individual, compensation will be based on prevailing land development charges and levies established by City Council at the time of grabbing.

4. **Payment Schedules and Sources of Funds**: The Responsibility for preparing the payment schedules, budgets and resource allocation is that of the Ministry of Roads and Public Works. The Consultants have recommended an amount of KShs.200 m to be set aside for compensation. This amount will be budgeted for in the Ministry’s budget for 2008/09 fiscal year as part of the overall counterpart funding by the Government of Kenya to the project cost. Subsequently the compensation funds shall be reflected in the apprised total project cost.

5. **Institutional Responsibilities for Implementation**: The Ministry of Roads and Public Works is responsible for ensuring that all matters of compensation and possible relocation have been fully dealt with before construction commences. The Ministry of Lands working in collaboration with the Provincial Administration, is responsible for execution of the undertaking including notices of intention to acquire the properties, valuation of the properties, commissioning any hearings including grievance redress, and making the compensation payments. The Chief Engineer of Ministry of Roads and Public Works shall monitor the entire exercise to its successful completion before works are commissioned.