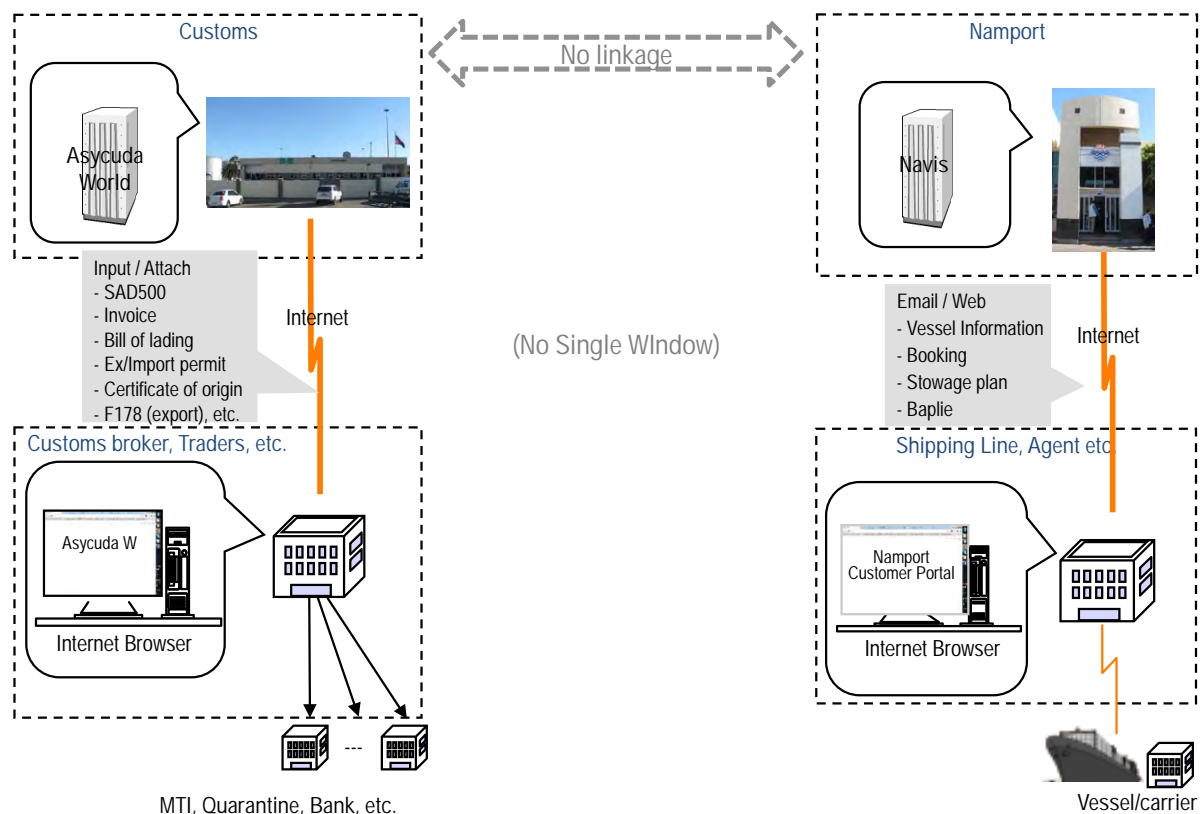


## 7. Border Infrastructure

### 7.1 Integrated border management

#### 7.1.1 Integration of systems

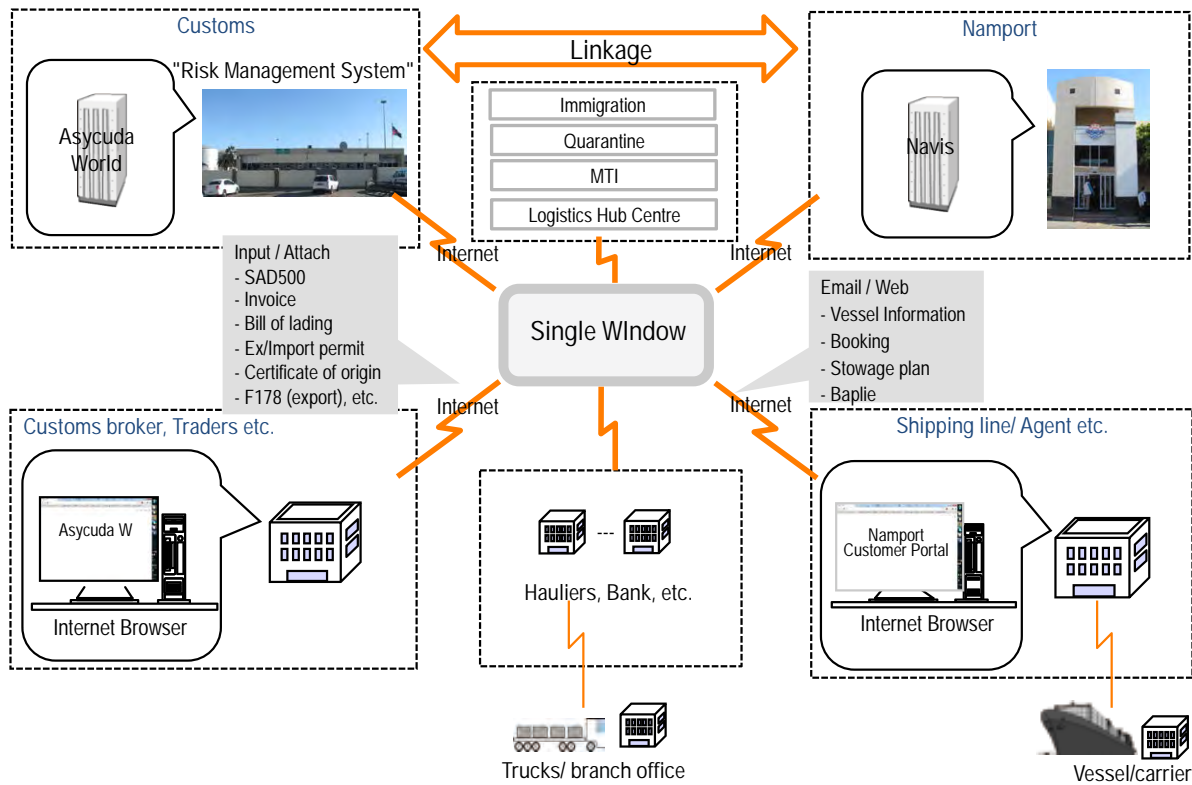
In order to facilitate international trade, there must be an “Integrated Border Management System”, a system to control and facilitate cross-border movement of people and cargo. It consists of an integrated network of several different systems related to border management such as Asycuda (Customs), Navis (Namport), and other systems related to various entities of international trade, and procedures of cooperation and demarcation among the entities. Regarding to the first point, the different systems are not yet integrated in Namibia, which makes trade and the border process time consuming with excessive paper work at present. The current situation is fragmented as shown in Figure 7.1.



Source: JICA Study Team

**Figure 7.1: Current border management systems in Namibia**

In contrast, with “integration of systems”, all entities related to international trade and logistics are forming a system of information flows. A conceptual structure of an “integration of systems” is as shown in Figure 7.2. There are several key elements to be installed in order to transform the current fragmented system to an “integration of systems”.



Source: JICA Study Team

**Figure 7.2: Concept of “Integration of systems”**

Firstly, it is essential to strengthen the function and linkage between the Customs & Excise Department and Namport.

Secondly, integration of systems between Customs and Namport, Customs is enabled to apply a risk management system that is indispensable to handle an increased volume of cargo (“Risk Management System” is explained in a sub section 7.1.1.2).

Thirdly, the development of the “Single Window” which connects all trade-related entities is important to streamline border management related procedures. For example, only one portal site on the Internet can serve as a single entry point to fill and submit all different application forms and documents instead of doing a lot of paper work and faxing or visiting to deliver them to many different places. In Dubai, “Dubai Trade (the name of a single window system)” is one of the key factors to the success.

A “close linkage between Customs and Namport (and other border control agencies)”, “Single Window” and “Risk Management System” is the key elements for “Integrated Border Management” as well as development of physical infrastructure (optical fibre network).

#### **7.1.1.1 Linking Asycuda (Customs) and Navis (Port)**

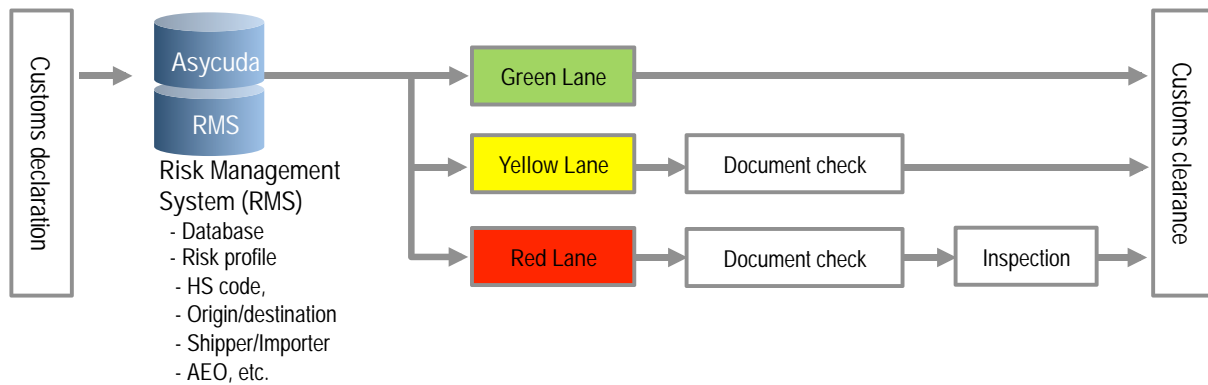
Recently, customs has started using “Asycuda World” as a customs procedure system in Walvis Bay from 1<sup>st</sup> of October 2014 while Namport is using “Navis” which is a system for berth booking, loading/unloading, container yard (CY) management, etc. In general, many major international ports are trying hard to integrate customs and port systems including other relevant trade systems because their close coordination has been getting more important in recent years. Such trend is well understood in Namibia as well. Customs and Namport has a plan to link each system, and the installation of a “Single Window” has been addressed among relevant ministries. In practice, however, the linkage between Namport, customs and other relevant organizations is still not sufficient at present (Figure 7.1).

The target of the Logistics Master Plan is to increase the transit cargo volume between the Landlocked Areas of SADC and America & Europe via Namibia. Currently, Namibia routes (port, road and border facilities) are not congested because of relatively good infrastructure conditions and small amount of cargo. However, the expected increase in the cargo volume would cause serious congestion at various places in the future unless throughput capacity is dramatically expanded. Even at present, it is pointed out that some border posts are already congested due to a shortage of staff. Improvement of the ICT system will help to reduce the burden on the border post staff. In addition to that, when the Logistics Hub Centre is constructed outside Walvis Bay Port as proposed, an ICT network connection between Walvis Bay Port, customs office, and Logistics Hub Centre is definitely required.

#### **7.1.1.2 Risk management system**

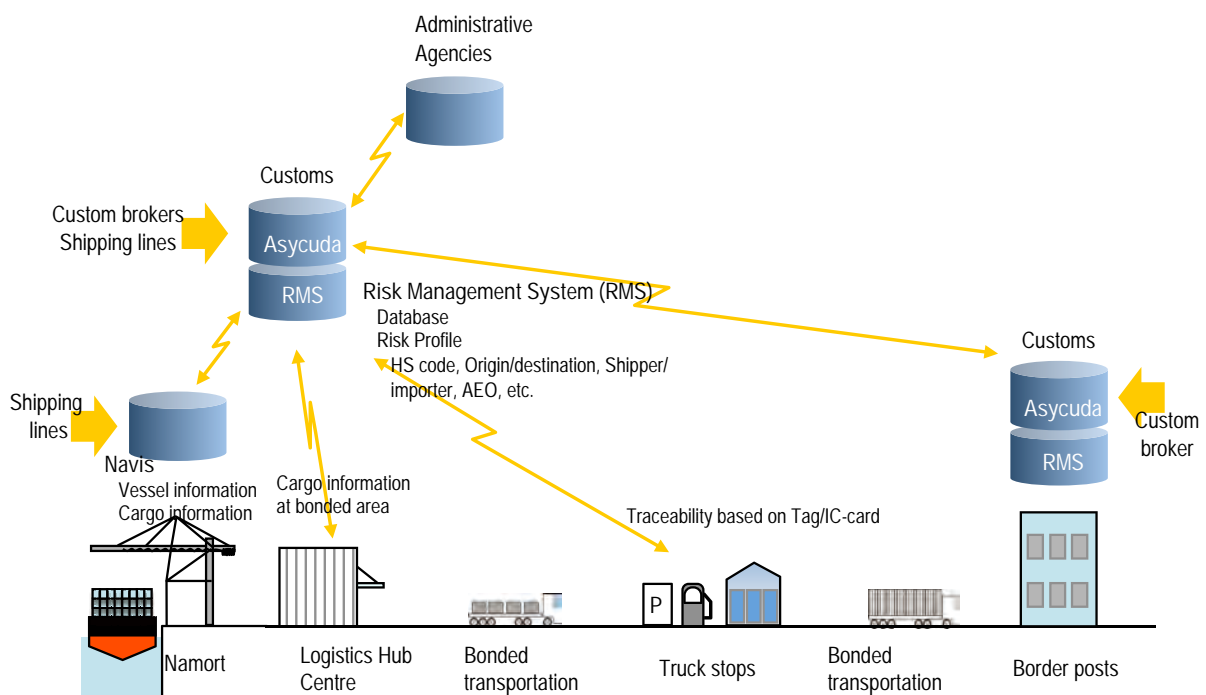
Integration of the systems of Customs and Namport enables Customs to operate a risk management system based on a database. The system enables handling an increasing volume of cargo more efficiently, and maintains a higher level of security. Customs & Excise Department analyses customs declaration data using information such as HS code, origin/destination, shipper/importer and AEO, and divides declarations into certain types (e.g. green lane, yellow lane, red lane). After that, each declaration is checked according to the result. Figure 7.3 shows the concept of the system. Such risk analysis method can be more accurate when installation of Single Window is completed and the

database is enriched. In the case of transit cargo, traceability information based on Single Window will be useful as cargo management from border to border is important. The linkage between different systems is illustrated in Figure 7.4.



Source: JICA Study Team

**Figure 7.3: Concept flow of Risk Assessment and Customs clearance**



Source: JICA Study Team

**Figure 7.4: Linkage between Asycuda, Navis and RMS**

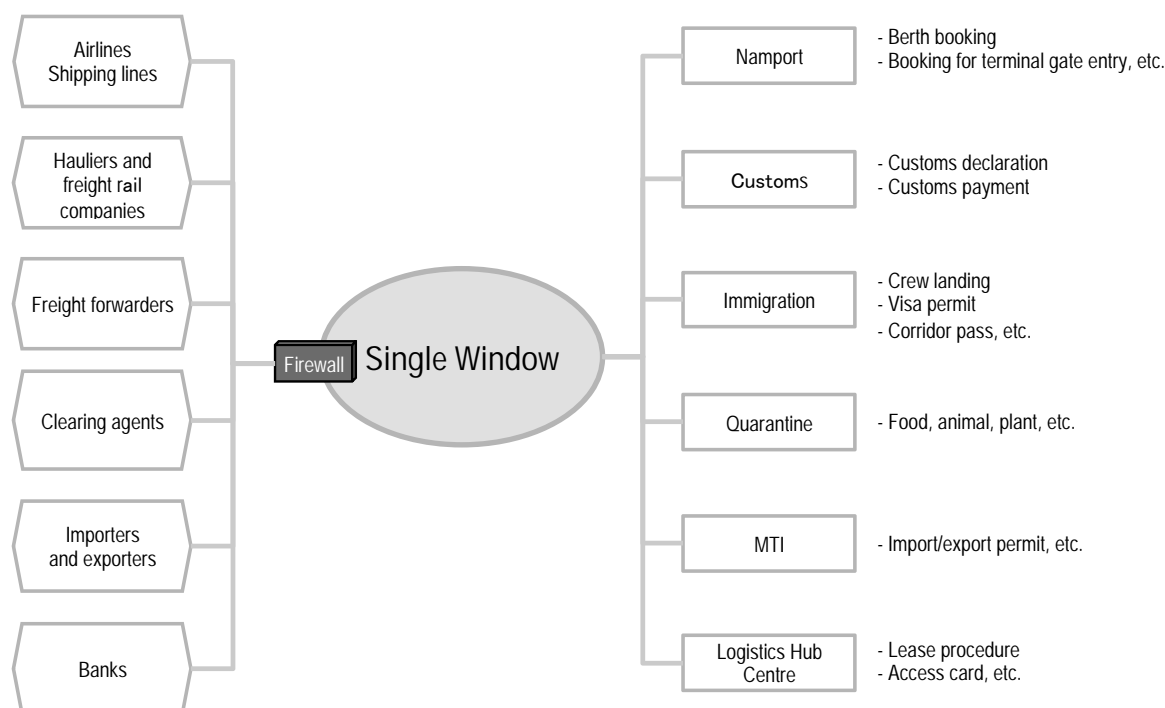
### 7.1.1.3 Single Window system

The Single Window system is to provide “one portal site” serving as a single gateway providing access to all relevant procedures on the Internet. This is a key factor for trade facilitation as much as

good physical infrastructure (port, road and so on), For example, “Trade Net” of Dubai is a very important element for development of Dubai Port as described in the previous section. In the case of Dubai, they established “Ports, Customs and Free Zone Corporations (PCFZC)” in 2001 which manages customs, port and free zone. Under PCFZC, Trade Net provides single window system.

The Single Window system is an important element of the Integrated Border Management System because the system needs cargo and vessel information with which Namport, Logistics Hub Centre, border posts and other relevant agencies have to assess risks of cargo properly. Since Namibia has only two ports (Walvis Bay and Lüderitz), it is not so complicated to integrate port system, customs system and other relevant agencies’ systems.

Similar to the case of PCFZC in Dubai, the Single Window system should be managed by a new single window management body through which Namport, Customs & Excise Department and other relevant agencies should provide the necessary information in one place (Single Window). Figure 7.5 shows a concept of Single Window.



Source: JICA Study Team

**Figure 7.5: Concept of Single Window**

Directorate of International Trade, MTI is responsible for development of the Single Window. The directorate has an assistance of USAID “Sothorn Africa Trade Hub Project”, and is preparing a system of the Single Window together with Custom & Excise Department and other relevant organizations until the middle of 2016.



### 7.1.2 Protocols for cooperation and demarcation

In order to formulate the “Integrated Border Management”, it is necessary to prepare protocols for cooperation and demarcation among entities which are relevant to international trade as well as the “integration of systems”.

In this regard, operation of Finnish Customs (TULLI) is good reference for Namibia because Finland has similar conditions such as low-population density and transit transport to Russia. TULLI developed efficient border management system with relevant agencies.

In Finland, inter-departmental coordination among Police, Custom and Border Guard (PCB) is legislated by the Act and the government decree. The 3 entities make tripartite agreement and two-party agreements and prepare 5-year strategy and annual action plan for coordination, and cooperate in common ICT solution (accessing databases each other), purchasing equipment and materials and education and training.

Finnish Customs also prepares protocols with the organizations as indicated in Table 7.1. If a special inspection to a border-crossing truck is needed, custom office at a border point contacts to the relevant organization and sends information about the truck’s registration number and its destination, etc. The relevant organization dispatches inspectors to the truck’s destination and conduct inspection at the timing that the truck arrives at the destination (likely to be at a warehouse of a private company not at the border). Finish Custom makes such agreement with the organization tabulated in Table 7.1.

**Table 7.1: Cooperation and demarcation of customs with relevant organization for international trade in Finland**

Sectors	Organization	Areas of cooperation and demarcation
Tax Administration	Ministry of Finance	Export controls, corporate audits, grey economy
Interior	Police Border Guard	Crime prevention, LIPRE Passport controls, weapons, cash
Transport and Communications	Finnish Transport Safety Agency (Trafi)	Controls of heavy traffic Safety measures at ports
Agriculture and Forestry	Food Safety Authority (Evira) Agency for Rural Affairs (Mavi)	FEOPA, food products Plant and animal diseases
Foreign Affairs	Department for External Economic Relations, Political Department	Dual use products including weapons of mass destruction; International trade regulations, e.g. customs value and provenance
Social Affairs and Health	Medicines Agency (Fimea) Supervisory Authority for Welfare and Health (Valvira) Radiation Safety Authority (STUK)	Inspection of medicines Inspection of alcohol and tobacco Inspection of radioactive materials
Education	Copyright organisations Board of antiquities	Inspection of copyright materials and goods Inspection of objects of cultural value
Environment	Environmental Administration (SYKE) Oil Pollution Compensation Fund	Waste, chemicals, CITES Oil damage duty
Employment and Economy	Safety Technology Authority (Tukes) Board of Patents and Registration	Chemicals, consumer goods, explosives Intellectual property rights
Defence	Ministry of Defence	Defence materiel and weapons

Source: Presentation material titled “The concept of coordinated/Integrated Border Management” by Mika Poutiainen, Finnish Customs

The Integrated Border Management System of Finish Custom is very efficient and has many points to be learned for Namibian. However, the system will not work if it is just transferred from Finland to Namibia. Namibian Custom and relevant organizations have to confirm border crossing procedures and develop an Integrated Border Management System suitable for Namibia. Custom and Excise Department should take initiative to develop the Integrated Border Management System.

### **7.1.3 One Stop Border Post Project**

“Project for the Establishment of the One Stop Border Post (OSBP) between Botswana and Namibia at Mamuno/Trans Kalahari Border Post” from October 2010 to October 2013 with a support of JICA. After the project, Botswana has already completed preparation of legislative measures but the “Control OSBP bill” has not been completed in Namibia. Therefore, a bilateral agreement has not yet been signed as of January 2015. It is expected that GRN prepares legislative framework to conduct the OSBP as soon as possible and the both countries start preparation works such as signing of bilateral agreement and completion of operation manual.

After starting operation at Manuno/Buitepos OSBP, it is expected that GRN started discussion with Zambia to start OSBP at Wenela/ Sesheke border post. The Logistics Hub Master Plan expects rapid increase of cargo (0.8 million tons in 2013 to 3.4 million tons in 2025) from Namibia to Zambia and DRC through WNLDC, and increase of needs on efficient border management at Wenela/Sesheke border post.

### **7.1.4 Addressing lack of human resource at border posts**

Lack of officials is also observed at national border offices. In case of Wenela Border Post which is positioned as Category 1 (highest rank) in the border offices, number of immigration officers stationed in the daytime was only 4 persons and that of custom officers was 6 or 7 persons as of September 2014. Such situation is common in national border posts in the remote area. Ministry of Home Affairs and Immigration and Custom & Excise Department need to address this manpower issue.

## **7.2 Border town development**

Border towns are important places in terms of managing logistics development, and various factors have to be considered. Certain industries in such towns might rely on the economic activities generated by cross border traffic. Spatially, the border poses a constraint to development of a town. The direction of town development is often constrained by the border. Once the location of the border facilities is fixed it is difficult to change the layout and alignment, since the approval of several



organizations from both countries is required. In addition, traffic might be congested if a town plan is bad and increases the time required to pass the town and border.

Therefore, well-planned urbanization and facilities development is crucial in border towns. In this section, Katima Mulilo and Oshikango (Helao Nafidi) are covered since those are towns located at the border points on Trans Cunene and WNLDC where an increase in demand is projected. Issues that should be highlighted up to 2025 are examined.

## **7.2.1 Katima Mulilo**

### **7.2.1.1 Border facility expansion and reserve area**

In order to improve border control and to cope with the increased volume of traffic, the border control area should be expanded. Roughly 10 hectares of land is required and a further 10ha is to be reserved for further expansion. The following facilities are to be introduced or refurbished.

**Staff housing:** Staff houses located to the east of the gate are to be relocated to another place to provide space for expansion. If the number of staff increases, the number of houses also needs to increase

**Quarantine:** There is no space for quarantine facilities at this moment. In order to accommodate this function, new space and function should be introduced.

**Health check facilities:** Currently there is no designed space and facility in the compound. Staffs are forced to work in a tent with limited equipment. Upgrading facilities are to be planned for expansion.

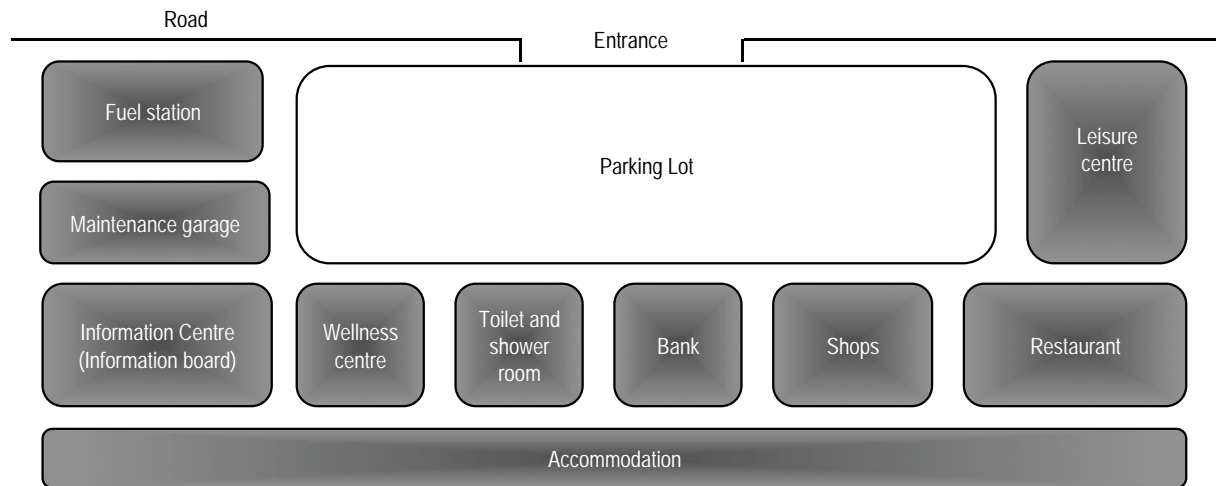
**Parking lot:** In order to cope with an increase in the traffic volume, the parking lot for both trucks and passenger cars is to be expanded.

### **7.2.1.2 Bypass road and truck stop**

The traffic volume (AADT) of B8 Road is expected to increase from 660 vehicles in 2013 to 1,440 vehicles in 2025, and the traffic volume of heavy trucks (2 axle, 3 axle and multi axle trucks) will increase from 260 to 680. This volume can be accommodated with the existing road. However, from the safety and social points of view, it is recommended to plan and build a bypass road in order to protect citizens from large trucks running in the built-up area. A circular bypass is recommended with two directions meeting at B8; one direction is to Wanela (to Zambia) that is expected to accommodate most of the increased traffic, and needs to be planned immediately. The other direction is to Ngoma border, where less volume is expected and the right of the way of the bypass is

to be reserved for future development.

As described in Chapter 6, Katima Mulilo Town has the potential to locate a truck stop. A conceptual layout plan and functions are shown in Figure 7.7. The area required for this facility is estimated to be 10 ha in maximum.



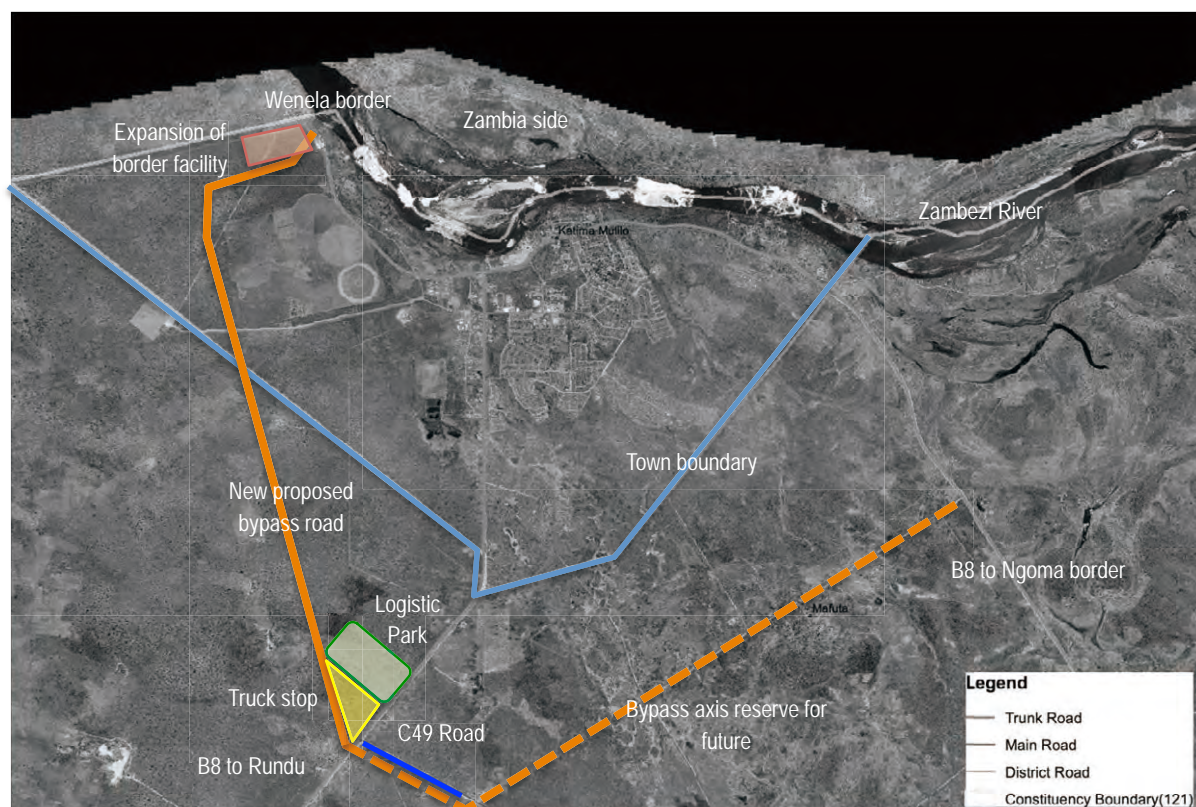
Source: JICA Study Team

**Figure 7.7: Sample layout of a large scale truck stop**

### 7.2.1.3 Layout plan

There might be a demand for logistics companies to locate their operation bases near Katima Mulilo. However the size of the park is not required to be very large. It is proposed that a 10ha logistic park be located adjacent to the truck stop where a synergy effect between them can be expected.

A proposed concept plan of border infrastructure is shown in Figure 7.8. The bypass road and a truck stop are located outside the built up area of Katima Mulilo Town. This is because the alignments of the circular bypass road for both Ngoma and Wanela are planned to avoid the current built-up area. Better alignments of bypass can be designed by positioning them out of the town. The truck stop is to be sited at the junction of the roads to serve both directions of the circular road. A further detail study is needed to decide on the alignment and locations of a truck stop and logistics park.



Source: Study Team Base Map prepared by NSA

**Figure 7.8: Conceptual plan for border infrastructure at Katima Mulilo Town**

## 7.2.2 Oshikango (Helao Nafidi)

### 7.2.2.1 Bypass road plan

The Roads Authority planned a bypass and started the design in 2014. When the budget is approved, they plan to start construction from 2015.

This plan makes provision for about a 20 km long bypass with direct connection to the border facilities from the south end of Helao Nafidi Town. The alignment is as shown in Figure 7.9.

Once this bypass is completed, a new town planning concept will be introduced, since traffic flows of people and cargo will be changed completely. In order to reserve potential areas for the next step of development such as public space and common facilities, the town council should formulate and enforce the town planning scheme and structure plan.

The town currently does not have the capacity to conduct such town planning. For example, the town council is not able to hire a registered residential town planner, and thus consultants are hired from private companies. In addition, the town does not have sufficient financial capacity to conduct

land development by themselves according to the CEO of the town.



Source: Roads Authority

**Figure 7.9: Alignment of B1 bypass in Helao Nafidi Town**

### 7.2.2.2 Bypass road and truck stop

The inter-city traffic volume (AADT) going back and forth on the B1 Road is projected to increase from 2,240 vehicles in 2013 to 3,510 vehicles in 2025. In particular, that of heavy trucks (2 axle, 3 axle and multi axles trucks) will increase from 540 in 2013 to 1,190 in 2025. This volume can be accommodated by the existing road capacity although the traffic volume is expected to increase by 1 and half fold. Given the fact that local traffic volume is quite large in the town, traffic jams are often created due to trucks queuing up to cross the border. A bypass aims at coping with these congestions

caused by mixing both inter-city and local traffic on B1. Construction on this bypass plan prepared by the Roads Authority is expected start in 2014 at the earliest.

Once the main access axis shifts to the east, the town structure will also change. Access roads from the existing built-up area to this new bypass need to be planned as well. However, the number of the access points to the bypass and development along the bypass road should be carefully examined at the planning process. Uncontrolled development along the bypass may cause traffic congestion again.

As describes in Chapter 6, Oshikango Town has the potential to locate a truck stop similar to Katima Mulilo. A conceptual layout plan and functions are shown in Figure 7.7. The area required for this facility is estimated to be 10 ha at maximum.

### **7.2.2.3 Expansion of border facility and reserve**

Because of the limitation in availability of land for the border facility expansion, the only direction where the facility can expand is to the east. The following facilities should be introduced or refurbished.

**Staff houses:** Staff houses located to east of the gate should be relocated to another place to make available a new area for expansion. If the number of the staff increases, the number of the houses also needs to increase.

**Switching space for left side traffic to right side traffic:** Currently, a switching lane is achieved only by a traffic signboard. Once the traffic volume increases, it will not be able to cope. A dedicated area for switching traffic is required in the future.

**Quarantine:** There is no space for a quarantine station at this moment. In order to enable this function, a new dedicated space for quarantine should be introduced.

**Health check facilities:** Currently there is no dedicated space and facility in the compound. Staffs were obliged to work under a tent with limited equipment. Dedicated facilities should be allocated as part of the border facility expansion.

**Separation of flows of pedestrians and cars:** Pedestrians and cars are not separated at the border. To avoid congestion and to control the flows better and efficiently, traffic flows must be separated into categories after the expansion of the border facility.





Traffic side change by signboard and mixed traffic



Health check facility

**Photo 7.1: Current situation at border facility and health check facility**

#### **7.2.2.4 Improvement of built-up area**

Once the bypass has been built, the existing private logistics company might lose advantage in terms of access to the border since access from the existing road to the new bypass and the border facility is limited. Therefore, improvement of the town should be also planned in order to give the whole town good access to the new bypass. To achieve this, one or two access roads to the bypass road should be added to connect the existing built-up area to the new bypass road. In addition, east to west internal roads are to be planned to the east side of the existing road. This development will be a challenge because those access roads should go through existing privately developed land. The town council needs to acquire that land or propose equivalent exchange with the present landowners.

#### **7.2.2.5 Layout plan**

Figure 7.10 shows a conceptual approach and layout plan of Oshikango area. In this Logistics Hub Master Plan the focus is on the border area to ensure adequate facilities for logistics<sup>1</sup>.

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<sup>1</sup> When a town-planning scheme is prepared, the plan should include the whole Helao Nafidi town area. NDC is planning to develop a logistics facility (2.1ha) near the exiting Export Processing Zone. Coordination between the NDC's plan and the town planning schemes is needed.



Source: JICA Study Team

**Figure 7.10: Concept plan for improvement of Oshikango**

## 7.2.3 Required actions

### 7.2.3.1 Formulating Town Planning Scheme and Structure Plan

Priority should be given to both Katima Mulilo and Helao Nafidi towns for formulating town-planning schemes and structure plans. It is urgently required to develop this plan for Helao Nafidi in line with the bypass development. In the case of Katima Mulilo, the plan has to be prepared for the expected increase in the future traffic volume. Experiences in Oshikango should be good lessons of what Katima Mulilo should avoid.

After the formulation of those plans, the towns can concentrate on the development of the truck stop and logistics park.

### 7.2.3.2 Coordination among stakeholders

These two towns have many more stakeholders than usual town planning in the other places. The

border facility is the key for local industrial promotion. Therefore close consultation with stakeholders involved with border transactions is required. In the case of Oshikango, there must be an agreement with the Angolan side as well. Installation of a new separate access gate for trucks to cross the border should be also included in an agenda for negotiation with the Angolan Government.

### **7.2.3.3 Sharing experience between border towns**

Oshikango has advanced in terms of expansion of its logistics industry compared with Katima Mulilo. However, they also have many challenges for synchronizing and harmonizing this opportunity with urban development. Those experiences can be shared between the towns.

### **7.2.3.4 Capacity development and human resource development**

Both towns do not have registered town planners in their employment. There is a need to have experts to supervise the consultants preparing the plans. After the completion of the plan, expertise is also needed to implement it.

In 2015, the first batch of graduates from the bachelor course of town and regional planning at the Polytechnic of Namibia will be available. However, a considerable period of time is required for them to acquire practical skills and knowledge after they start to work in the towns. In the mean time, expertise should be acquired through outsourcing to consultants. At the same time, both towns need to employ resident town planners and the hired consultants should provide on the job training for them. MRLGHRD or another organization needs to provide periodic refresher training for the resident town planners as well.

In addition to Town Planners, it is observed that towns are lack the financial capacity to implement town development. Some towns started to conduct PPP scheme for housing. There might be room to explore further possibilities to introduce such scheme after the town planning scheme and structure plan are formulated.

## **7.3 Necessary actions for Integrated Border Infrastructure**

Based on the discussions in this chapter, the following actions (programmes and projects) in Table 7.2 are needed for Integrated Border Infrastructure.



**Table 7.2: Necessary actions for Integrated Border Infrastructure**

Key elements of an International Logistics Hub	Actions (programmes/projects)
(5) Integrated Border Infrastructure	<p>Border Towns and Border Points</p> <ul style="list-style-type: none"> <li>▪ Preparation of border town development packages (Land use plan, Bypass, Truck stop, and Integrated Border Infrastructure project).</li> <li>▪ Construction of border town development packages.</li> <li>▪ Implementation of "Border management system, Single Window and Risk management System".</li> <li>▪ Install "Corridor Net" to provide information services to transporters.</li> <li>▪ Implementation of OSBP at Mamuno border post</li> <li>▪ Preparation and implementation of OSBP at Wenela border post</li> <li>▪ Preparation for development of satellite hubs in border towns.</li> </ul>

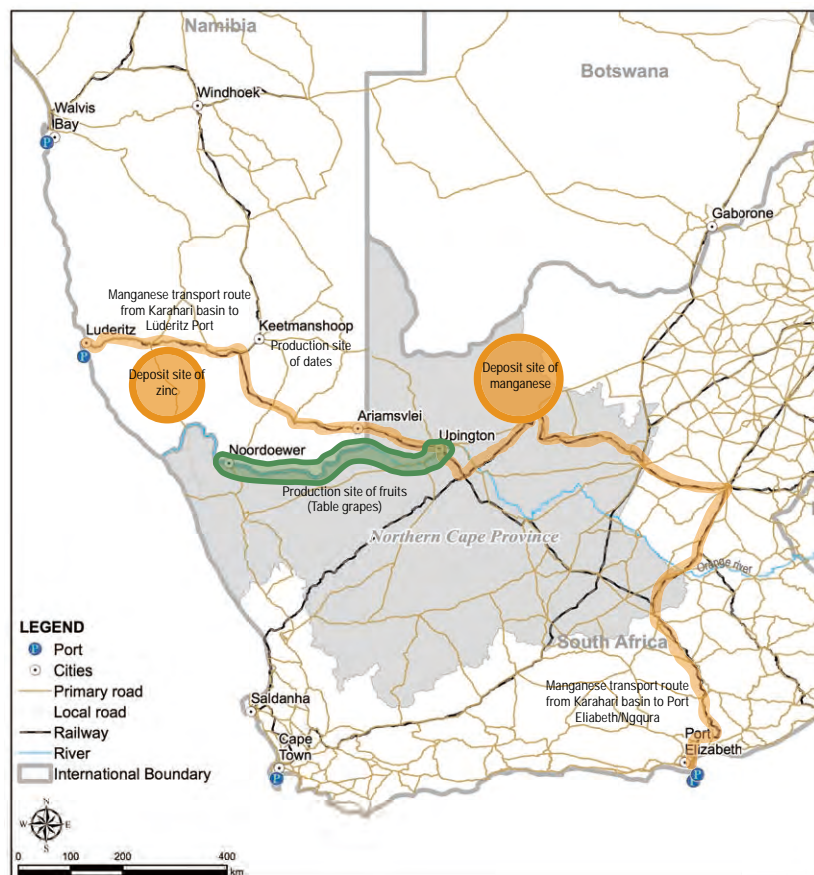
Source: JICA Study Team

## 8. Development of Lüderitz Port

### 8.1 Development approach of the southern part of Namibia

Namibia's approach to economic development should be to directly tap on economic growth in neighbouring countries as described in Chapter 1. The International Logistics Hub concept emphasises to strengthen linkages from Walvis Bay to landlocked areas of SADC. This concept is also applicable to Lüderitz Port but in a different context.

Since the national population size as well as the size of the economy is small, economic activities of the southern part of Namibia appear to be independent from the northern part of Namibia. The southern part of Namibia has a stronger economic relationship with Northern Cape Province in South Africa. The relationship should be enhanced, and the development plan of Lüderitz Port should be prepared in this context.



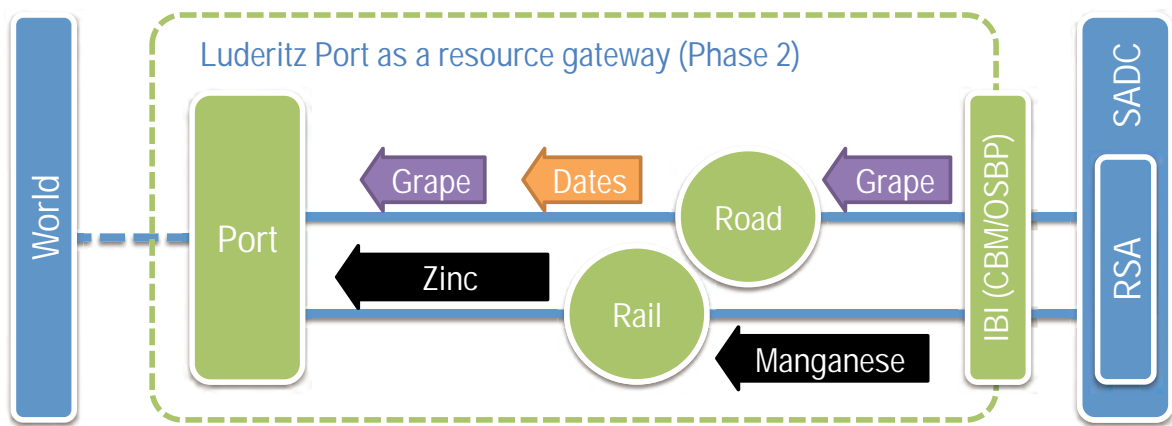
Source: Compiled by JICA Study Team from various information

**Figure 8.1: Major production activities in Karas Region and Northern Cape Province**

Figure 8.1 shows major production activities in the southern part of Namibia (Karas Region) and Northern Cape Province in South Africa. Potential sources of cargo for Lüderitz Port include manganese ore in Northern Cape Province, Zinc to the south of Lüderitz and fruit (table grapes) along the Orange River.

## 8.2 Development of Lüderitz Port as a resource gateway

The conceptual framework of “Lüderitz Port as a resource gateway” can be illustrated in Figure 8.2. Potential transport cargos for Lüderitz are manganese ore, zinc products (zinc ore and ingot of zinc) and fruit (table grapes and dates).



Source: Conceptual drawing to be used as working hypothesis by JICA Study Team

**Figure 8.2: Lüderitz Port as a resource gateway**

### 8.2.1 Zinc

Cargo handling of zinc products was moved to Walvis Bay from 2008 but came back to Lüderitz Port in 2014. Increases of the following types of cargo are expected at Lüderitz Port in the future<sup>1</sup>.

- Export of zinc concentrate: 100,000 tons per year,
- Export of lead concentrate: 20,000 tons per year,
- Export of zinc ingots: 95,000 tons per year.

Since the cargo handling volume at Lüderitz Port was 312,000 tons in 2011/12, the current volume including zinc related products at Lüderitz Port could exceed 500,000 tons. This is the minimum cargo demand of Lüderitz Port.

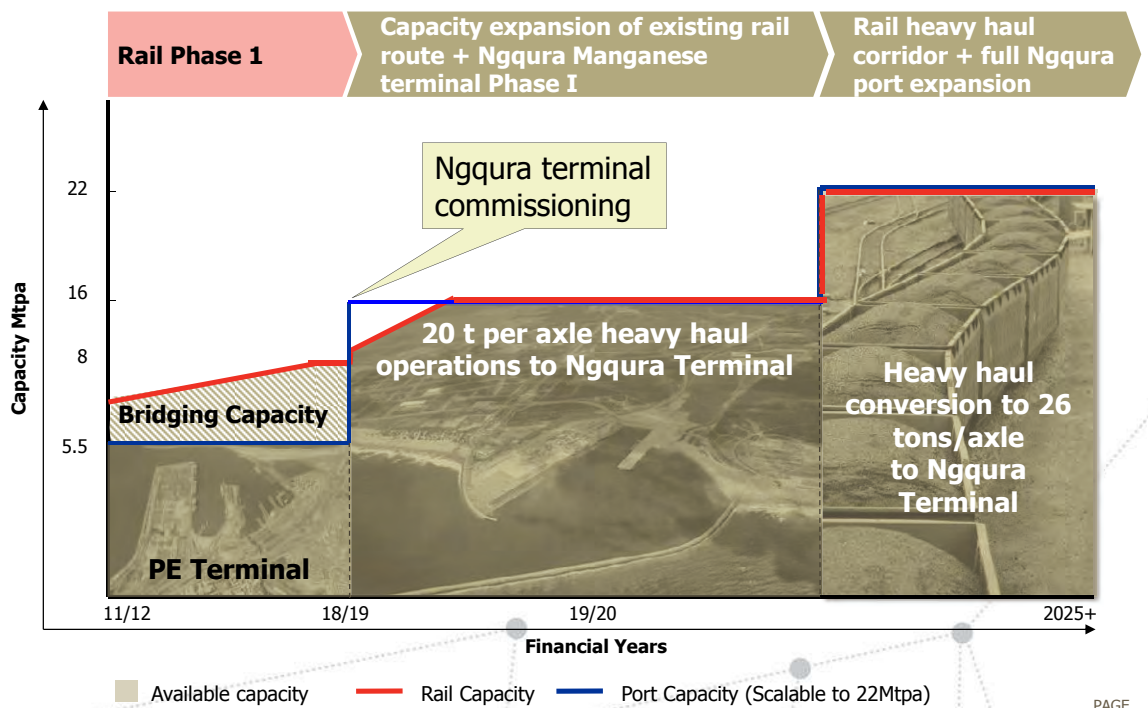
<sup>1</sup> Lüderitz port records increase in business – The Villager  
(<http://www.thevillager.com.na/articles/7249/L-deritz-port-records-increase-in-business/>)

## 8.2.2 Manganese

The Kalahari basin of Northern Cape Province has abundant mineral resources such as iron and manganese. Regarding manganese, two mining companies, both of which have a production capacity of 3 million tons per year, have been operating manganese mines and are transporting the manganese ore to Port Elizabeth by rail. In recent years, other mining companies have been exploring new manganese mining prospects while two new mines were opened and started commercial production in 2013.

The current manganese ore handling capacity at Port Elizabeth terminal is 5.5 million tons per year, therefore some private companies are interested in developing a terminal for handling manganese ore at Lüderitz since the distance from the manganese mines is almost the same as Port Elizabeth (1,100 kilometres; refer to orange lines of Figure 8.1).

However, Transnet has started a transport capacity expansion programme titled “Transnet manganese 16Mtpa expansion programme”. As shown in Figure 8.3, the programme includes a new manganese terminal development at Ngqura Port and capacity expansion of the railway from mines in Northern Cape to Ngqura Port for heavy haul operation. Once this plan of Transnet is realized, flows of manganese likely to remain to go through Port Elizabeth. It is necessary to stay informed on the progress of this project.



Source: Transnet manganese 16Mtpa expansion programme progress update, Transnet, 2013  
[http://imni.treatdev.com/images/uploads/board-documents/13\\_IMnI\\_2013\\_AC\\_-\\_Cleopatra\\_Shiceka.pdf](http://imni.treatdev.com/images/uploads/board-documents/13_IMnI_2013_AC_-_Cleopatra_Shiceka.pdf)

**Figure 8.3: Capacity expansion plan of manganese transportation by Transnet**

### **8.2.3 Table grapes**

The Southern African table grape industry has been supplying this product for both local and international markets more than 120 years<sup>2</sup>, and the lower Orange River valley is one of the major production areas. The production area was expanded to the Namibian side in the mid 1990s by South African farmers in the Upington and Kakamas areas of South Africa. Table grapes produced at these locations in southern Africa have an advantage over other table grapes at other places in the southern hemisphere. The area can export the table grapes to the world market one month earlier because of its specific climatic conditions. In addition to that, Namibian grape exporters enjoy 800 tons of free tariff export and a relatively low (8%) tariff for export of more than 800 tons of grapes.

The table grapes are exported to the world market, mostly to the European market from Cape Town Port now but Lüderitz Port has the potential to transport them in the future. The advantage of Lüderitz Port is due to the shorter distance from the table grape production sites along the Orange River and the shorter distance from Lüderitz to the European market. On the other hand, a major challenge of Lüderitz Port is a need to develop cold product transport chain from production sites to the port. Table grapes exported from Cape Town are transported with a form of reefer container; while those exported from Lüderitz Port could be transported by chartered reefer ship because there is sufficient cargo demand for the table grapes only for about 6 months from November to April. If good cold product transport chain could develop from harvesting at the production site to loading to the reefer ship at the port, Lüderitz Port would have an advantage. If transportation of table grapes to Lüderitz Port can be realized, it also would create a potential to transport other agricultural products in Karas Region and Northern Cape Province. For example, dates are a major product at Keetmanshoop, and it is exported from Cape Town at present.

### **8.2.4 Development options of Lüderitz Port**

The improvement plan of Lüderitz Port by Namport has been on-going for years. Phase 1 of the improvement plan (refer to Table 8.1) has been almost completed, and rail access from the entrance of Lüderitz Town to Aus station will be completed in November 2014. Connection from the entrance of Lüderitz Town to Lüderitz Port will be completed within 2015.

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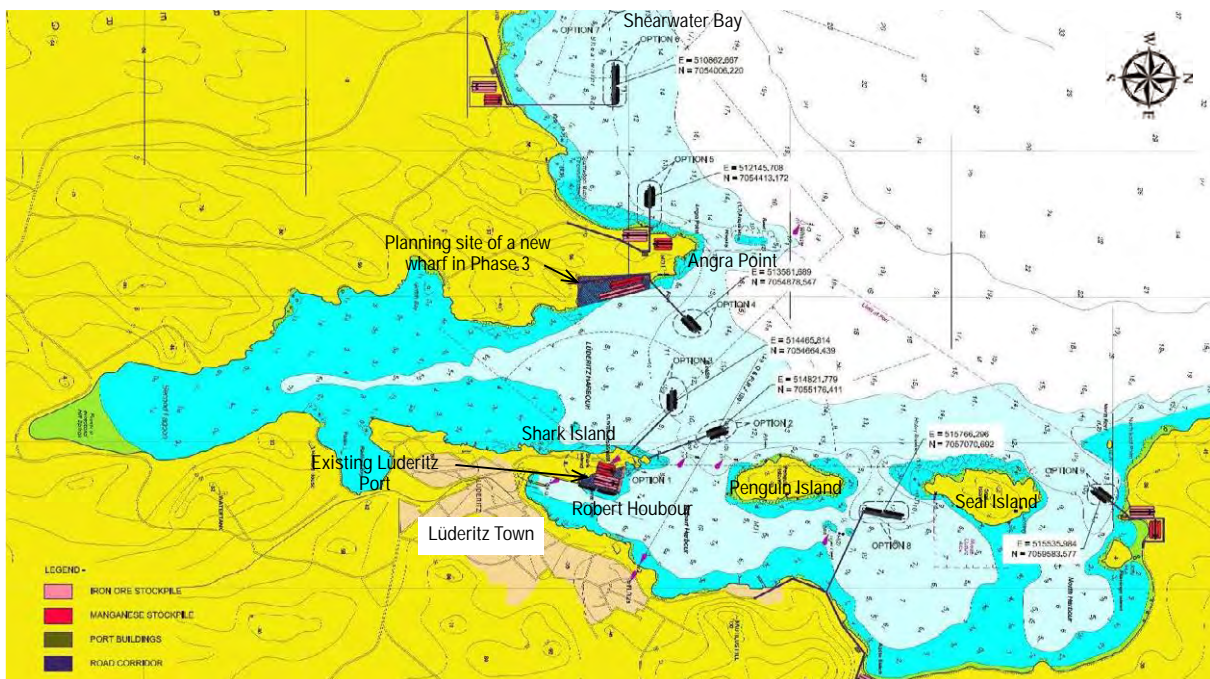
<sup>2</sup> <http://www.satgi.co.za/admin/upload/pdfs/The%20Power%20of%20the%20Grape.pdf>

**Table 8.1: Lüderitz Port Improvement Plan**

Phase	Outline of a Plan
Phase 1	Improvement of cold storage, container/reefer, and stuffing and de-stuffing facilities.
Phase 2	<ul style="list-style-type: none"> <li>- Completion of the railway access to the existing port allowing for a ramp-up in the throughputs.</li> <li>- Part of the ramp-up involves the transshipment of 1 million tons of manganese a year, via barges to larger vessels anchored in deeper waters.</li> <li>- The remaining commodities would still operate out of the main harbour.</li> </ul>
Phase 3	<ul style="list-style-type: none"> <li>- Greenfield bulk terminal at Shearwater Bay and Angra Point.</li> <li>- The bulk terminal would cater for the possible export of iron ore and manganese from Lüderitz.</li> <li>- The existing port would cater primarily for containers/reefers, general cargo and passenger vessels.</li> </ul>

Source: Diagnostic and Scoping Survey for the Namibia Spatial Development Initiatives Program Draft Corridor Master Plan, Aurecon, March 2014

In phase 3 of the improvement plan, it is intended to expand the port facility to the other side of Lüderitz Harbour (Angra Point). The expansion is to overcome the shallowness of the existing port; however, the cost of phase 3 will be huge. One of the important things to attract manganese mining companies and table grape producers is to offer cost effective transport. If the cost for the port improvement is charged to the transport cost, export from Lüderitz Port is not attractive for the private sector.



Source: NAMPORT MEGAPROJECTS OVERVIEW, 15 October 2014 (presentation material); edited by JICA Study Team

**Figure 8.4: Development options of new port facilities at Lüderitz**

The other issue is that the phase 3 plan will have high risk of negative impacts on natural environment, aquaculture and tourism activities. Strategic Environmental Assessment (SEA) found that there was significant biodiversity and tourism value in the general area of Lüderitz Bay, both in the terrestrial and marine environment. Development of bulk terminal on the Peninsula and deep water port at Angra Point will seriously threaten the habitat of Red Data bird species and cetaceans (dolphins and



whales), and endemic vegetation diversity on Peninsula (See Chapter 10 of the Main Text and Chapter 13 of Appendix).

As shown in Figure 8.4, Namport has ever examined development options of new port facilities in the pre-feasibility study in response to transport the expected goods through Lüderitz Port as addressed in the sections 8.2.1 and 8.2.2. It means that there is a possibility to find alternative. In order to avoid excessive investment to the port facility and to protect natural environment, the study team recommends that detailed survey including EIA and proper stakeholder consultation process should be conducted to find an alternative place for constructing a bulk jetty instead of a new port in Angra Point.

### 8.3 Upgrading railway

According to TransNamib, upgrading axel load of rails from 16.5 tons to 18.5 ton is needed in the section of national border (Ariamsvlei) to Aus to enable direct operation from South Africa to Namibia. 18.5 tons of axel load is required to accommodate Transnet's 34 class locomotives.

**Table 8.2: Condition of the core trunk line and Seeheim Noord – Lüderitz branch**

No	Section	Distance (km)	Re-laid or Built Year	Rail (kg/m)	Sleeper	Ballast	Maximum speed of train
Core Trunk Line: RSA Border – Windhoek : 866.152 km							
T1	RSA Border	196.705	1972 – 1986	30 & 48	STS=30kg	Ballast	30km/h: 22km 40km/h: 108km 60km/h: 736km  Total 866km
T2	Grabwasser						
T3	Holoog	50.917	1970	48	STS & CS	Ballast	
T4	Seeheim Noord	66.561	1950 – 1960	30	STS=40kg	Ballast	
T5	Falkenhorst	229.468	1958 – 1984	48	STS & CS	Ballast	
T6	Ebeneerde	31.059	1964 – 1979	30	STS=40kg	Ballast	
T7	Rehoboth	194.171	1970 – 1990	48 & 57	STS=40kg & CS	Ballast	
	Windhoek	97.271	1973 & 2011	48 & 50	STS=40kg & CS	Ballast	
Branches							
(1) Seeheim Noord – Lüderitz Branch: 318.361km							
Ba1	Seeheim Noord	179.267	1970 – 1974	30	STS= 30 & 40kg	Ballast	15km/h: 40km 100km/h: 139km
Ba2	Aus						
	Lüderitz	139.094	The construction work between Aus and the border of Lüderitz Town completed in November 2014. The section between the border and Lüderitz port will be completed in 2015.				

Note: STS means steel ties sleeper.

Source: Directorate of Railways of Ministry of Works and Transport

Table 8.2 indicates condition of core trunk line (from RSA border to Windhoek) and Seeheim Noord – Lüderitz branch. The section from Aus to the border of Lüderitz Town has just completed in November 2014, and the section from border of Lüderitz Town to Lüderitzport will be completed within 2015. However, trucks of sections from Aus to Sheeheim Noord (179km) and from Sheeheim

Noord to RSA border (314km) were laid between 1960's and 1980's. 30kg rails and steel ties sleepers are still used. It is necessary to replace these rails and sleepers with heavy rails and concrete sleepers.

The upgrading work should be conducted along with confirmation of economically viable business demand for direct train operation from Northern Cape to Lüderitz Port. It is necessary to monitor progress of negotiation between private sector and Namport regarding development of Lüderitz Port and situation of manganese market in the world.

#### 8.4 Promotion of Public Private Partnership

Introduction of a Public Private Partnership (PPP) type of project implementation is being discussed to improve the port facility of Lüderitz Port and to promote port marketing. Introduction of PPP is favourable to optimize investment scale as described in the previous section.

The efforts to introduce PPP in Namibia started in 2010 when Ministry of Trade and Industry appointed an Indian consulting company to undertake a comprehensive review of the legal and institutional framework in Namibia. The consultant submitted a report titled "Namibia PPP Policy Final Policy Document" which should be a prototype for PPP legislation. After the report was submitted to MTI, responsibility to prepare PPP legislation has moved to MOF.

However, there is no need to wait for the PPP framework to be fully completed. Rather, start provisional talks first, and use the results of the talks as useful inputs for improving the PPP framework to be more attractive to FDI. The PPP framework is primarily to attract FDIs by "welcoming" and "encouraging" them, not to "regulate" and "discourage" them.

#### 8.5 Necessary actions for Development of Lüderitz Port

Based on the discussions in this chapter, the following actions (programmes and projects) in Table 8.3 are needed for development of Lüderitz Port.

**Table 8.3: Necessary actions for development of Lüderitz Port**

Key elements of an International Logistics Hub	Actions (programmes/projects)
(6) Development of Lüderitz	<p><i>Depends on assessment of demand for manganese export.</i></p> <ul style="list-style-type: none"> <li>▪ <i>Preparation of port development with PPP.</i></li> <li>▪ <i>F/S and EIA on port development (alternatives).</i></li> <li>▪ <i>Preparation and improvement of rail link from Aus to Ariamsvlei.</i></li> </ul>

Source: JICA Study Team



## 9. Cross-cutting Issues

### 9.1 Financing mechanism

#### 9.1.1 Infrastructure needs in Namibia

According to the report, “Infrastructure Financing in Namibia”, published by the Bank of Namibia in September 2014, the infrastructure funding requirement of Namibia for 2014/15 to 2019/2020 accounts for N\$223.6 billion. Table 9.1 indicates the amount required annually by the infrastructure sector. Transport infrastructure accounts for 55% of the total amount, followed by energy (23%) and housing (20%).

Regarding annual distribution, financial years from 2017/18 to 2019/20 require 69% of the total amount.

**Table 9.1: Infrastructure funding requirement in Namibia**

Unit: N\$ millions

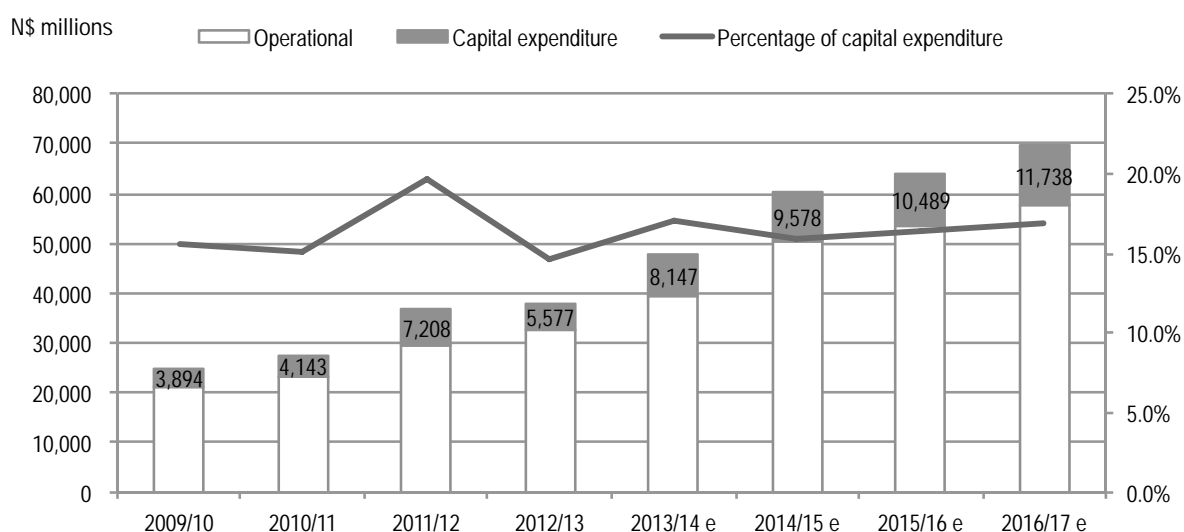
Infrastructure Sectors	2014/15	2015/16	2016/17	2017/18-19/20	Total
Transport	9,649.9	11,689.8	10,359.5	91,652.3	123,351.5
Road	4,572.3	5,659.8	4,136.6	3,492.3	17,861.0
Rail	2,300.0	2,500.0	2,400.0	53,600.0	60,860.0
Port	1,967.6	2,450.0	1,012.9	29,500.0	34,930.5
Airport	810.0	1,080.0	2,810.0	5,000.0	9,700.0
Energy	1,902.5	11,423.4	13,350.3	24,161.2	50,837.4
Water	101.7	395.2	540.9	592.9	1,630.7
ICT	737.0	608.0	642.0	701.0	2,688.0
Housing	2,500.0	2,500.0	2,500.0	37,500.0	45,000.0
Total	14,891.1	26,616.4	27,392.7	154,607.3	223,607.3

Source: Infrastructure Financing in Namibia, September 2014, Bank of Namibia

The amount of funding required from 2017/18 to 2019/20 is not clear. For example, the port sector (N\$29.5 billion) includes the SADC Gateway Port (North Port) project, the development schedule of which has changed recently<sup>1</sup>, and the rail sector (N\$53.6 billion) includes upgrading of almost the entire railway network. Considering the progress of on-going railway rehabilitation between Kranzburg and Tsumeb, it is likely to be difficult to complete the upgrading project only in 3 financial years. Similarly, funding requirement for the housing sector is unconvincing because the annual average amount of funding requirements from 2017/18 to 2019/20 is 37.5 billion Namibian dollars, 5 times bigger than the amount required between 2014/15 and 2016/17.

<sup>1</sup> Development of deep seaport, which requires large-scale civil works, has been postponed according to the latest development schedule of the SADC Gateway Port.

In addition, the annual infrastructure funding requirement of the first half, from 2014/15 to 2016/17, is bigger than the current capital expenditure. Figure 9.1 shows actual disbursement and estimated operational and capital expenditure of GRN from 2009/10 to 2016/17. In 2014/15, the estimated capital expenditure amounts to 9.6 billion Namibian dollars, whereas the infrastructure funding requirement is 14.9 billion Namibian dollars. The increasing infrastructure development needs are due to the aging of the existing infrastructure. About 20 years have already passed since Namibia attained independence, and the infrastructure that had been constructed at that time is due for replacement.



Note: "e" means estimated amount.

Source: Estimates of revenue, income and expenditure, annual issues, MOF

**Figure 9.1: Operational and capital expenditure of GRN in recent years**

The "Infrastructure Financing in Namibia" report also mentions financial sources for infrastructure development by the parastatals as indicated in Table 9.2. The expected funds required for infrastructure development from 2014/15 to 2019/20 is N\$73.5 billion in total. The report points out that the net funding gap between the infrastructure funding requirement and the amount supposed to be obtained from various sources totals N\$150 billion.

**Table 9.2: Source of funds for infrastructure development**

	2014/15	2015/16	2016/17	2017/18-19/20	Total
User fees	3,446.3	5,964.6	6,279.7	10,426.6	26,117.2
Government Subsidy	1,999.0	4,523.4	3,598.9	4,787.8	14,909.1
Borrowing	2,176.6	6,723.8	8,639.4	14,965.2	32,505.0
Total	7,622.0	17,211.8	18,518.1	30,179.6	73,531.4

Source: Infrastructure Financing in Namibia, September 2014, Bank of Namibia

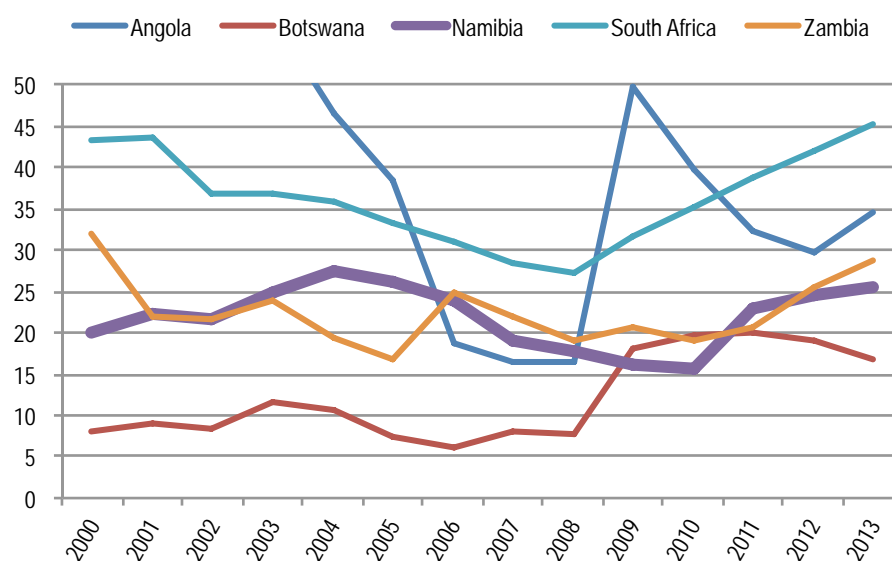
In the Logistics Master Plan, the intention is to make maximum use of existing and on-going transport infrastructure such as the trunk road network, railway network and the new container terminal at

Walvis Bay Port. The additional projects and programs identified in the Master Plan do not make an impact on the infrastructure funding requirement. In addition to that, this study proposes to employ the following financial resources for the implementation of the projects and programs.

## 9.1.2 Potential funding source to implement the projects and programs

### 9.1.2.1 Soft loan from DFIs

Figure 9.2 shows gross public debt to GDP ratio of the southern African countries (Angola, Botswana, Namibia, South Africa and Zambia). Namibia's ratio is at the second lowest level after Botswana. According to a GRN's annual budget plan, "Statement for the 2014/15 Budget", accumulated public debt amounts to 32.4 billion Namibian dollars, 26.3% of the GDP in financial year of 2014/15. GRN sets a ceiling of the public debt as 35% of the GDP; therefore, it is possible for GRN to take an additional loan of 10 billion Namibian dollars.



Source: World Economic Outlook Database, October 2014, IMF

**Figure 9.2: Comparison of gross public debt/GDP ratio**

A soft loan from development financial institutions (DFIs) is one of the financial sources for infrastructure development. Considering the relationship with Namibia so far and favourable loan conditions, African Development Bank (ADB), Kreditanstalt für Wiederaufbau (KfW; it means "reconstruction credit Institute" in English), Development Bank of Southern Africa (DBSA) and JICA are potential DFIs. Since a soft loan from DFIs does not need any institutional reforms to mobilize financial resources, rapid financing for infrastructure development is possible. The soft loan is a

useful source of the fund in the short term.

### **9.1.2.2 Pension funds and long-term insurance investments**

The second potential source for financing of infrastructure development is pension funds and long-term investments. Investment in infrastructure development by institutional organizations that manage the pension funds and long-term insurance is limited so far. In the case of the Government Institutions Pension Fund (GIPF), 69% of the asset is allocated to equity, and 26% to bonds. In addition to that, only 37% of the asset is allocated to Namibia, and the other portion is allocated to foreign countries such as South Africa (29%) and other African countries (8%).

In response to increasing needs of infrastructure development, GIPF intends to start investment in infrastructure, “developmental investment”, from 2015. According to its preliminary Developmental Investment Policy, the following sectors are positioned as target sectors.

- Logistics infrastructure (railways, roads, ports and telecommunications<sup>2</sup>),
- Renewable energy and energy frontier technologies,
- Agriculture and food processing,
- Education and skill development,
- Health and healthcare services,
- Housing,
- Small and medium enterprises (SMEs), and
- Information and communication technology (ICT).

GIPF intends to invest 5% of the total asset amount (N\$82 billion) in the above sectors at this stage. The expected yield and risk of the investment are very different in each infrastructure sector. The logistics infrastructure is a relatively high-yield and low risk sector among the 8 sectors if the target investment project is for developing the trunk network supporting logistics development of Namibia.

### **9.1.2.3 Mobilization of private funds**

Table 9.3 summarises the evolution of direct investment and portfolio investment of Namibia from 2009 to 2014. These items are a part of the capital and financial account of the balance of payments. Namibian people receive 400 to 1,100 million US dollars of direct investment from abroad annually; on the other hand, 500 to 600 million US dollars of investment such as equities and bonds flow out to foreign countries. The current portfolio of GIPF, which is explained in the previous section, shows the same trend, too.

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<sup>2</sup> “Telecommunications” is printed in the original documents.

**Table 9.3: Direct investment and portfolio investment of Namibia**

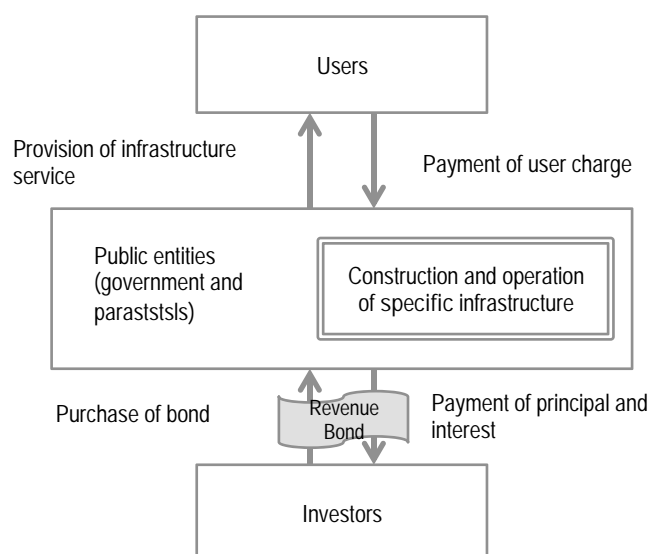
Unit: million US dollars						
Items	2009	2010	2011	2012 e	2013 p	2014 p
Direct investment	526.7	788.4	811.5	391.7	1,022.1	1,105.6
Portfolio investment	-616.3	-632.8	31.0	-545.4	-535.8	-525.0

Note: "e" means estimation and "p" means projection, respectively.

Source: 2013 Article IV Consultation Report IMF

The outflow of portfolio investment results from limited investment opportunities in Namibia. In order to attract the investment opportunities, the "Infrastructure Financing in Namibia" proposes an idea of privatization and "Listed Infrastructure Fund". The privatization is a transfer of ownership and control over public assets from the public sector to the private sector, and the Listed Infrastructure Fund intends list parastatals on the stock market to raise funds for infrastructure financing.

Another idea to attract the portfolio market is to ease regulations for bond insurance for infrastructure development. It also attracts public-private partnership projects. In a public-private partnership project, a special purpose vehicle which is established by the public entity and/or private entity will raise funds for infrastructure development in a variety of ways such as equity finance, bank loan and bond issuance.



Source: JICA Study Team

**Figure 9.3: Concept of revenue bond**

When parastatals issue bonds for fundraising, GRN should prepare a regulatory framework for "revenue bond". The revenue bond is a kind of local government bond in the United States and Canada, and the repayment of principal and interest comes from the specific revenue source.

Revenue of the infrastructure projects financed by the revenue bond is managed separately, and each project is **not** guaranteed by the government. If parastatals can issue a bond easily, and it is guaranteed by the government, infrastructure with a low priority would be constructed. Therefore,

the introduction of the concept of “revenue bond” is needed in terms of implementation of the “beneficiaries pay” principle.

### **9.1.3 Efforts needed for fundraising for infrastructure development**

In order to mobilize the potential financial sources, the following efforts are required. The first one is sound management of parastatals. If the business situation of a parastatal gets worse, subsidies, which could be used for infrastructure development from the government, would be needed. In addition to that, it is difficult to carry out measures to mobilize private funds that are proposed in the previous section. One of the important actions to achieve the sound management of the parastatals is to introduce the “beneficiaries pay” principle. In addition, it is also essential to distinguish infrastructure construction and management of parastatals into the following two categories: Economically viable ones fall in the first category that is covered by user charges, and the others in the second category that is financed by taxes based upon social criteria. Refer to section 2.3.6 about beneficiaries pay principles in detail.

The second effort to mobilize the potential financial resources is disclosure of information on each infrastructure development project. Provision of transparent and accurate information is the key to investors’ decision making. If such information is not provided, domestic funds such as pension funds and private funding would never be mobilized to the portfolio market, including infrastructure fundraising.

The third effort is saving governments’ operational budget. According to the “estimates of revenue, income and expenditure”, the annual growth rate of operational expenditure of central government is 17.0%, while nominal GDP growth rate is 13.9% during the same period. It is desirable that the growth rate of the operational expenditure does not exceed the nominal GDP growth rate. Saving this amount of the operational expenditure can be used for capital expenditure.

**In the short-term, GRN should use soft loans to supplement infrastructure financing.** It should also start the necessary actions as soon as possible, in order to utilize other financial resources such as pension funds, long-term insurance and private funds in the mid- and long-term.

## 9.2 Human resource development

### 9.2.1 Open labour market to fulfil demand for labour in logistics sector

The analysis in section 3.2.2 makes clear that implementation of the Logistics Master Plan will increase the labour force in the transport and storage sector from 26,000 persons in 2013 to 58,000 persons in 2025. It can be said that 2,700 persons will enter the labour market in the logistics sector annually until 2025, and the number accounts for 10% of new employment in the entire Namibian labour market.

Education and training of Namibian people is indispensable but it is not enough to fulfil the increasing demand for labour in the logistics sector, in particular, in the short-term. Therefore, it is necessary to invite international human resource in the fields of management, experts and skilled workers.

One of the important actions will be to accommodate the international human resource is deregulation of work visas and work permits. Table 9.4 indicates the purpose and necessary process to obtain a work visa or work permit. It takes 3 to 6 month to obtain approval of the work permit which is valid for only one year in the current system.

**Table 9.4: Current work VISA and work permit system**

Items	Purpose	Process to obtain Work VISA/ Work permit
Work visa	Only when visiting Namibia on secondment or a short period in Namibia (3 or 6 months).	It takes approximately 7 – 14 days to obtain approval from Home Affairs, subject to the availability of the approval committee.
Work permit	When intend to take up permanent employment in Namibia. Valid for 1 year.	It takes approximately 3 – 6 months to obtain approval from Home Affairs, subject to the availability of the approval committee.

Source: A Business and Investment Guide for Namibia", published by Pricewaterhouse Coopers, 2008

It is necessary to shorten the length of time required for approval of the work permit, and to extend the validity of the work permit to e.g. 3 years. This study recognises that the best policy to invite foreign skilled workers is to introduce “off-shore” status at the Logistics Hub Centre. If it is difficult to introduce the concept, it is recommended that the requirement for a work visa and work permit for the Logistics Hub Centre be deregulated.

Regarding work visas, a common complaint from international truckers is the place of visa issuance. They have to submit application documents to the head office of Ministry of Home Affairs in Windhoek one to two weeks before they come to Namibia. Work visas should be issued at diplomatic establishments abroad, as well.

A new entry permit system for truck drivers called “corridor pass” is proposed. An international truck driver who transports cargo between Namibia and SADC countries should obtain such a corridor pass. Truck drivers who have SAD 500 documents can apply for entry permits, and receive such permits at border posts.

Deregulation of requirement for work visas and work permits is an example of an open labour market. It is necessary to investigate barriers for international human resource and eliminate them.

In addition to inviting international human resource (such as managers, experts and skilled workers), the important thing is that Namibian people have to learn from them. In the short-term, they will support Namibian people but Namibian people have to manage the logistics sector by themselves in the mid- and long-term.

### **9.2.2 Role of the Namibian–German Centre for Logistics**

The Namibian–German Centre for Logistics (NGCL) which was established in 2009 with the support of the German Government is the only educational and training institution for logistics in Namibia. It now has a bachelor –master course (550 students) and a diploma course (300 students). NGCL will have 2 important roles for logistics development.

Out of 2,700 persons who enter into the logistics businesses annually, 15% to 20% would work in management and as experts in the logistics companies. The first important role of NGCL is to educate and train such persons engaged as experts and in management.

However, NGCL has a major bottleneck which is the limited number of teaching staff. The total number of students is around 850 but the teaching staffs consist of only 5 persons. It is necessary to invite three types of teaching staff. Some should have a legal background, others an engineering background, and the third a logistics background. In order to find the international teaching staff, NGCL needs to expand its academic exchange program and increase opportunities to hire potential academic staff. Regarding professional staff, international workers who work in the logistics industry in Namibia are potential technical staff members. For example, it would be possible that the international worker at Walvis Bay is invited to be a guest lecturer and offers a lecture course. NGCL needs to maintain a good relationship with the business society to find the potential lecturers. GRN and the logistics industry should give financial support to NGCL's efforts to hire international teaching staff. In addition to that, introduction of conditional scholarships to send college level students to foreign universities should be considered.

It is also important to send students who are engaging in logistics and business chain management to foreign universities and educational institutes in order to supplement lack of teaching staff in Namibia. Introduction of scholarship programmes is also important to promote studying in the foreign countries. The scholarship programmes should be supported from government and logistics business society. A typical anxiety about the scholarship program is the students never come back to Namibia after graduation. In order to avoid that, the scholarship program should have a condition that the



scholarship students have to work for logistics sector in Namibia for a certain period after graduation.

The second important role of NGCL is research and development of logistics in Namibia. In South Africa, the Council for Scientific and Industrial Research (CSIR) has published a white paper on logistics titled “State of Logistics™ Report” since 2004. The report includes an analysis of logistics cost in the South African economy, and articles of specific themes that change every year. For example, the theme in 2013 was “Connecting Neighbours–Engaging the World”, and inland connectivity of SADC was analysed. NGCL intends to publish a similar annual report for Namibia. The effort should be supported by GRN and the logistics industry. In addition to that, NGCL should enhance their capacity to assess and benchmark the logistics sector in Namibia in the future. The results of the analyses should be shared between the public and private sector relevant to the logistics sector through NGCL’s publications. NGCL should work as an information hub to improve the logistics sector of Namibia in the future.

### **9.2.3 Development of experts for engineering, planning and coordination**

As mentioned in Chapters 6 and 7, engineers for transport sectors and technical experts such as town planners is lacking. In short-term, it is important to invite international human resource for engineering and planning for logistics industry. In the middle and long-term, University of Namibia (UNAM) and Polytechnic have more roles to develop human resource about the engineering and planning. MWT, MRLGHRD and parastatals need to have close relationship with the educational institutions in setting up internship program, dispatching lecturers and re-training programmes for engineers and planners in the ministries. Scholarship programme should be prepared for the students of future engineers and planners, just like logistics sector.

Human resource for coordinating policy issues to which several organizations are relating is required for logistics development. Such skill can be obtained through daily coordination works. An important action is to start exchange of human resource among ministries and parastatals. One example is from exchange of human resource among MWT, Namport and WBCG. The other example is between NPC and MRLGHRD. Participation into the “National Coordinating Body” which is proposed in Chapter 11 is also useful method of human resource development for coordinating policy issues.

### **9.2.4 Addressing lack of human resource at border posts**

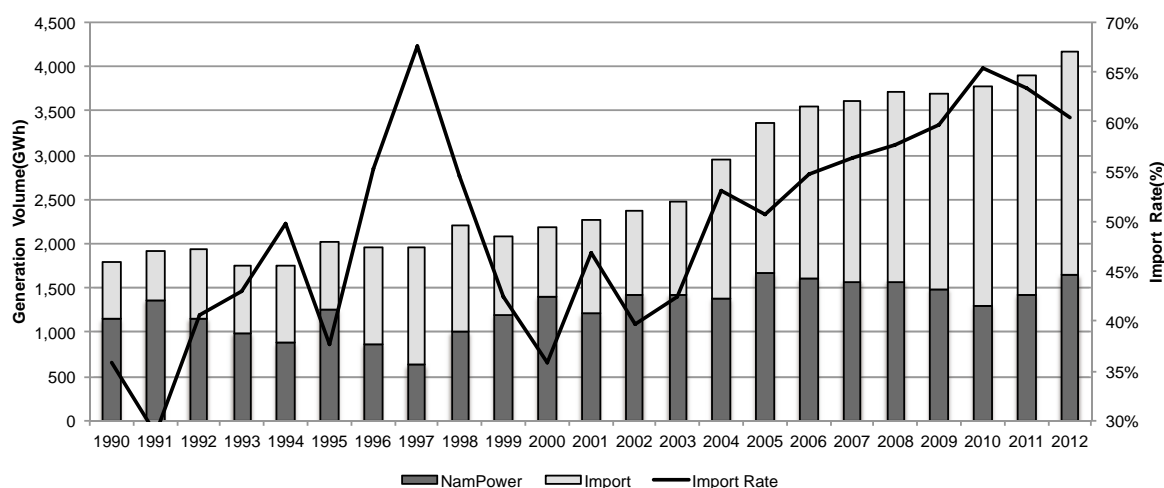
Lack of officials is also observed at national border offices. In case of Wenela Border Post which is positioned as Category 1 (highest rank) in the border offices, number of immigration officers stationed in the daytime was only 4 persons and that of custom officers was 6 or 7 persons as of September 2014.

Such situation is common in national border posts in the remote area. Ministry of Home Affairs and Immigration and Custom & Excise Department need to address this manpower issue.

### 9.3 Power supply and urban water supply

#### 9.3.1 Supply and demand on electric power

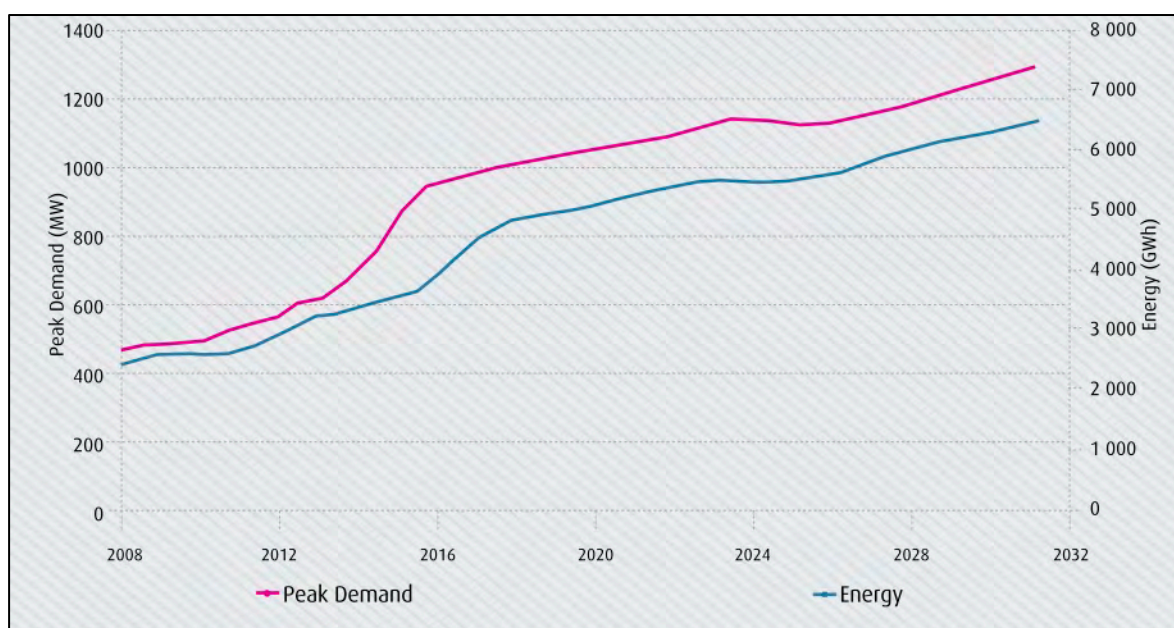
Figure 9.4 summarizes changes of Namibia’s power generation volume and import ratio. The growth of power generation after 2001 has been attributed to the increase in import. Consequently, the share of imported power has reached around 60 to 65% in recent years.



Source: ECB (Electricity Control Board)

**Figure 9.4: Power generation volume in Namibia (GWh) and its import rate**

The future demand for both consumption and peak power is summarized in Figure 9.5. Both consumption and peak power is projected to almost double from 2008 to 2025.



Source: ECB Annual Report

**Figure 9.5: Demand forecast**

### 9.3.1.1 Power generation and import

Currently four power plants of NamPower are operational as shown in Table 9.5. The local generation volume accounts for only 38% while 62 % was imported from SADC countries based on agreements. The import ratio has been gradually increasing in recent years.

**Table 9.5: Generation and import for local supply (2012/13)**

Source	Generation (MWh)	Capacity (MW)	Share in total supply	Remarks
<b>Local Power Stations</b>				
Ruacana	1,236,597	330.0	35%	Hydro
Van Eck	84,110	120.0	2%	Coal
Paratus	20	24.0	0%	Diesel
Anixas	8,270	22.5	0%	Diesel
<b>Total local generation</b>	<b>1,328,997</b>	<b>507.5</b>	<b>38%</b>	
<b>Imports</b>				
Eskom (South Africa)	649,037	-	19%	Supplementary power supply agreement (Year), Bilateral power supply agreement (15 Years from 2006)
Zesco (Zambia)	433,501	-	12%	Power supply agreement (10 Years from 2009)
ZESA (Zimbabwe)	1 049,669	-	30%	Power supply agreement (5 Years from 2008)
Aggreko (Mozambique)	45,600	-	1%	Power supply agreement from 2012
<b>Total imports</b>	<b>2,177,807</b>		<b>62%</b>	

Source: ECB

IPPs have not started operation, though licenses were given as shown in Table 9.6. This is the one of the critical factor that rate of import electricity power increase. .

**Table 9.6: Licenses given to IPPs**

Licensee	Type	Capacity (MW)	Issued date	Validity period (Year)	Remarks
CBEND (Bush Energy Namibia)	Biomass	0.250	1-May-10	5	Commercial operation to start
GreeNam Electricity (Pty) Ltd	Solar	30	1 June-11	25	
Diaz Wind Power (Pty) Ltd	Wind	44	1-Apr-07	22	
Vizion Energy Resources (Pty) Ltd	Coal (CFB)	300	4-Apr-08	25	Progress Report due
Atlantic Coast Energy Company (Pty)	Coal (pulverised)	700	1-Nov-07	25	
Ark Industries Namibia (Pty) Ltd	Biogas	16	1 Jan-13	25	
Namibia International Mining Company (NIMC)	Diesel CCGT	210 (68)	1-Jun-07	20	License expired and not renewed
Electrawinds (Pty) Ltd	Wind	50	1-Nov-09	20	
InnoWind (Pty) Ltd	Wind	60	1-Mar-10	20	

Source: ECB

The planned development in the generation sub-sector is summarized in Table 9.7. The maximum peak demand in 2025 is expected to be below 1,200MW as shown in Figure 9.5. If the development is on schedule, domestic plants will supply most of the electricity and the import volume might be minimized.

**Table 9.7: Construction and rehabilitation plan of power plants**

Name	Capacity	Type	Target Year	Remarks
Erongo Coal Power Station	300MW	Coal fired	-	This project has been shelved, following Government's decision to prioritize the Kudu Gas-to-Power project
Kudu Gas Power	800MW	Combine cycle thermal	2018	Base load
Baynes Hydro Power	600MW (300MW)	Hydro power	2020/2021	Joint project with Angola. Estimated project cost is USD1.3 billion. 50% of the total power generation capacity is allocated to Namibia.

Source: Annual Report 2013, NamPower

### 9.3.1.2 Need of steady implementation of future power plant projects

Power consumption in Namibia is increasing due to economic growth and improvement of access. However the increased consumption has been supplied through import from SADC countries. Currently almost 60% of power is imported. Risks are diversified by importing from more than one country, however most of the countries also face an imbalance of supply and consumption. There is no guarantee that Namibia continues to depend upon 60% of electric power from import for a longer period of time.

To alleviate this situation, development of new power sources has been planned and will be implemented such as Kudu Gas power development, and Baynes Hydropower Plant. Construction agreement of Baynes Hydropower Plant was signed with Angolan side, and it is going to be completed around 2020 or 2021. On the other hand, Kudu Gas Project has not been started yet. ECB also promotes to invite IPPs projects; however, the effort has not been successful so far. On the other hand, NamPower is going to develop a gas-fired power station with a capacity of 250 MW at Walvis Bay. The power plant is a joint venture with a private investor, and expected to fill the supply gap

prior to the commissioning of Kudu. It is important to monitor implementation of these power plant development projects.

Stable power supply is also a key issue for promotion of the logistics industry. There are many planned outages and unplanned power failures. Accordingly, operations of logistics companies were affected, since it is costly for them to install and operate generators.

### 9.3.2 Urban water supply

#### 9.3.2.1 Access to water

As shown in Table 9.8, the government has done much to provide access to safe drinking water. In the urban areas, the ratio of access to safe water reaches 97%, while that of the rural areas is 62%.

**Table 9.8: Water sources and rate of access to safe drinking water**

Area	Household	Piped water inside (%)	Piped water outside (%)	Public pipe (%)	Borehole with tank covered (%)	Well-protected borehole (%)	Safe water total (%)	River dam stream (%)	Others (%)
Urban	235,884	46.6	24.5	26.1	0.3	0.2	97.7	0.5	1.8
Rural	228,955	14.1	15.1	17	13.1	3.5	62.8	15.9	21.3
Total	464,839	30.1	19.7	21.5	6.8	1.9	80.0	8.3	11.6

Source: Population and Housing Census 2011

This master plan study paid particular attention to Walvis Bay in the coastal area, since the most important logistic hub centre proposed in the Logistics Master Plan will be situated here. Availability of water is one of the critical factors although the consumption volume is not large in logistics sector.

NamWater provides bulk water to Walvis Bay Municipality. The distribution record for the past five years is shown in Table 9.9. The ratio of technical loss during the water distribution is about 10%. This was achieved because water is distributed at low water hydraulic pressure by gravity, and lines are frequently maintained.

**Table 9.9: Water distribution in Walvis Bay in past 5 years**

Category		2009	2010	2011	2012	2013
Fish industry	Consumption (m <sup>3</sup> )	772,761	952,347	754,216	905,124	959,133
	Ratio	15%	18%	14%	16%	16%
Port	Consumption (m <sup>3</sup> )	222,768	148,905	144,308	158,552	309,602
	Ratio	4%	3%	3%	3%	5%
Other town area	Consumption (m <sup>3</sup> )	4,127,753	4,293,897	4,375,725	4,610,982	4,745,990
	Ratio	81%	80%	83%	81%	79%
Total	Consumption (m <sup>3</sup> )	5,123,282	5,395,149	5,274,249	5,674,658	6,014,725
	Growth Rate	-	5%	-2%	8%	6%

Source: Walvis Bay Municipality

### **9.3.2.2 Development of water resource**

NamWater had not updated and disclosed official water development master plan for coastal area including Walvis Bay municipality. However, it carried out water resource development projects based on the population projection and reflection of the recent changes of conditions

In a good rainy season, the current water source, the Kuiseb aquifer can supply 12 million m<sup>3</sup> per year, which is almost enough volume for domestic and industrial use in Walvis Bay. However, the sustainable yield is said to 7 million m<sup>3</sup>, although they have plans to expand the capacity to 13 million m<sup>3</sup> per year. There is another option to explore new water resource. It is reported that GRN is negotiating with Areva to purchase a desalination plant. This desalination plant with a capacity of 20 million m<sup>3</sup> per year started operation in 2010 to provide water to a uranium mines but the operation rate was not high due to limited demand. The plant can supply water to 130,000 inhabitants in Walvis Bay and Swakopmund if the capacity is fully used for domestic use and economic activity in the both municipalities<sup>3</sup>. However, negotiation between GRN and Areva has not been completed. In addition, the average production cost of the desalination plant is higher than the present water price, which remains a challenge.

Another option of water resource development is to use the 250 MW gas fired power plant mentioned in section 9.3.1.2. It could be possible to attach a desalination plant to the power plant. If the desalination plant were attached to the power plant, production cost of water would be cheaper. Desalinated water in this plant is a by-product of electricity. On the other hand, coordination between NamWater and Nam Power is needed for implementation of the project. Environmental conservation (disposal of high salinity seawater) is also an important issue.

Aging and shortage of the main pipeline in the coastal area is also an issue. 5 years reconstruction programme in the area is being planned to address the issue.

## **9.4 Necessary actions for cross-cutting issues**

Based on the discussions in this chapter, in particular, finance and human resource development, the following actions (programmes and projects) in Table 9.10 are needed for addressing cross-cutting issues.

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<sup>3</sup> Daily water consumption amount for domestic use and industrial use is assumed 450 litres in the calculations in this section.

**Table 9.10: Necessary actions for cross-cutting issues**

Key elements of an International Logistics Hub	Actions (programmes/projects)
(6) Cross-cutting issues	Finance <ul style="list-style-type: none"> <li>▪ Rationalize investment (refocus on economically viable projects).</li> <li>▪ Rationalize user charge in accordance with “mileage”.</li> <li>▪ Fund allocation in accordance with traffic volumes.</li> <li>▪ Use of soft loans for immediate needs of large investments.</li> <li>▪ Promotion of Public Private Partnership (success case approach)</li> </ul>
	Human Resources <ul style="list-style-type: none"> <li>▪ More flexible work permits/visas for strategically important areas.</li> <li>▪ Expand college level training capacity in Namibia.</li> <li>▪ Conditional scholarships to send college level students in foreign universities.</li> <li>▪ Needs survey for vocational training programmes.</li> </ul>

Source: JICA Study Team

## 10. Strategic Environmental Assessment

In this chapter, the outcome of the SEA Study and how the Master Plan address the environmental and social impacts are discussed. The SEA Study was contracted out to The Southern African Institute for Environmental Assessment (SAIEA), which is a non-profit Environmental Trust and has its headquarters in Windhoek, Namibia.

### 10.1 Scoping

#### 10.1.1 Stakeholder consultations

Consultation workshops for scoping were held in Windhoek, Walvis Bay, Lüderitz, Oshikango and Katima Mulilo, in October 2014. Stakeholders and identified interested and affected parties (IAPs) were invited to these workshops, and background information about SEA and the Master Plan was made available to them. At the workshops, the Master Plan proposal was broadly presented and issues and cumulative impacts considered.

A short article on the SEA was compiled for distribution in Namibia's three main daily newspapers (The Namibian, Die Republikein and Allgemeine Zeitung) and the central coast's Namib Times. This was distributed in early December (2/12/2014). The article also invited comments and inputs from the public.

#### 10.1.2 Possible impacts identified by stakeholder consultations

Stakeholders were invited to suggest impacts, either at the meetings or in writing to the SEA team. The following likely impacts were identified (Table 10.1).

**Table 10.1: Possible impacts identified by stakeholder consultations**

Economic impacts	<ul style="list-style-type: none"> <li>• The quality of roads and railways need much upgrading, which will take a long time and incur high costs.</li> <li>• By-pass roads and truck stops will take business away from shops in towns. Many towns e.g. Karibib rely on this through-traffic.</li> <li>• Increased traffic and trade likely to stimulate economic opportunities and growth. This is seen as positive, but there are concerns that the opportunities will be grabbed by foreigners and/or the elite, to the detriment of locals.</li> <li>• Shortage of suitable land for development, and the rising cost of such land, will limit optimisation of benefits, and further disadvantage locals.</li> <li>• Growth in retail sector in towns will continue to favour foreigners such as South Africans (e.g. Shoprite, Checkers, Pick n Pay) and Chinese shop owners.</li> <li>• Potential positive impact for agriculture, if the Master Plan stimulates marketing through improved transportation.</li> </ul>
Social and health impacts	<ul style="list-style-type: none"> <li>• Greater accident risks, especially for livestock and children in communal areas.</li> <li>• Greater likelihood of trafficking of illegal goods.</li> <li>• Transmission of diseases into Namibia along transport routes.</li> <li>• Rise in HIV and STD infection rates, already very high in Walvis Bay and Katima Mulilo.</li> </ul>



	<ul style="list-style-type: none"> <li>• Extra strain on social services such as schools, clinics, hospitals.</li> <li>• Accelerated industrialisation associated with the development of the hubs will compromise the tourism and recreational sector, especially at Walvis Bay, Lüderitz, Katima Mulilo.</li> <li>• Concern that foreigners will dominate improved employment prospects.</li> <li>• For the Master Plan to benefit Namibia adequately, there needs to be investment in training and skills development. Skills amongst locals are inadequate at present.</li> <li>• Rapid development and increasing urbanisation will erode traditional values, and may escalate social ills such as gender-based violence and child abuse.</li> <li>• Development may cause involuntary resettlement.</li> </ul>
Ecological impact	<ul style="list-style-type: none"> <li>• Greater risk of accidents involving hazardous substances.</li> <li>• Compromising the structural and functional integrity of marine and/or terrestrial "hotspot of biodiversity" habitats.</li> <li>• Increased water consumption in all towns from accelerated growth.</li> <li>• Greater risk of marine accidents causing major impacts at sensitive sites e.g. Lüderitz Bay, Walvis Bay Ramsar Site.</li> <li>• Construction camps along routes will be centres for poaching and wood-cutting. Recent road construction in Zambezi Region has been conclusively linked with poaching operations. Such activities jeopardise Namibia's conservation achievements.</li> </ul>
Impacts on infrastructure and institutions	<ul style="list-style-type: none"> <li>• Increased traffic and trade will place more pressure on roads, which are already deteriorating. If we do not capture the benefits of such trade, we will only carry the costs. Namibia must ensure that most freight is carried by rail.</li> <li>• Border posts and customs officials will come under increasing pressure. Current facilities and staff at border crossings will not be able to cope. Expansions to both will be required.</li> <li>• Rapid growth and accelerated construction work will strain governance and decision-making processes, with the potential for increased corruption.</li> <li>• Trucks in southern Angola presently prefer to use Namibia's tarred road between Oshikango and Katwitwi. Puts heavy maintenance load on our infrastructure, with little reward.</li> <li>• Spatial development plans for the affected towns must be well integrated with the Master Plan. E.g. future growth at Oshikango-Helao Nafidi is limited by existing unplanned sprawl.</li> </ul>
Specific site concerns	<ul style="list-style-type: none"> <li>• Walvis Bay – industrial and hub-related growth likely to jeopardise the Bird Paradise, a growing tourism attraction.</li> <li>• Lüderitz – port expansion to Angra Point, and associated road and rail infrastructure on the Peninsula, will severely impact endemic and endangered fauna and flora on the Peninsula (a Protected Area and part of the Marine Protected Area). Will also degrade archaeological and historical heritage sites.</li> <li>• Zambezi Region – upgraded Trans-Caprivi Highway likely to lead to more ribbon development along the route, blocking wildlife movement corridors.</li> <li>• The main concern at these sites is balancing industrial growth with care for sensitive habitats and wildlife. Careful zonation will be necessary to keep antagonistic sectors apart. For example, Katima Mulilo can be an industrial hub, but the wilder areas (e.g. national parks and conservancies), must be zoned for wildlife and tourism.</li> </ul>

Source: SEA Final Report

### 10.1.3 Additional survey at Lüderitz

At the consultation workshop at Lüderitz, strong concern was expressed about the new Deep Water Port, which is included in Namport's Lüderitz Port Improvement Plan (section 8.2.4). It was found that there is significant biodiversity and tourism value in the general area of Lüderitz Bay, both in the terrestrial and marine environments. Since it was not emphasised by the Baseline Report, additional information collection and analysis were carried out. Section 13.1 of the Appendix fully describes the result of analysis, and essential points are as follows.

- High density of Red Data bird species, especially breeding colonies on the islands,
- Local abundance of dolphins and occasional presence of whales in the Bay,
- Vegetation diversity and endemism on the Peninsula, and
- Huge tourism potential, which is not yet realised by the sector.

## 10.2 Assessment of the Master Plan scenario

### 10.2.1 'Zero option' scenario vs. 'with the Master Plan' scenario

As discussed in section 3.2, achievement of the Master Plan target will greatly contribute to GDP growth and employment creation. For the economic environment, 'with the Master Plan' scenario has much greater positive impacts rather than 'zero option' scenario. In addition, as discussed in section 2.1, logistics was chosen as one of the priority economic areas in NDP4 and the development of a logistics master plan is embedded in NDP4 as one of the high-level strategies for economic development. In that sense, 'zero option' scenario could not be the alternative for achieving the NDP4 objectives. However, it is still worth assessing the environmental impacts of 'zero option' scenario and 'with the Master Plan' scenario for comparison. Even without the Master Plan, the government is already planning a number of development projects relevant to logistics. SEA Study took this situation as 'zero option' scenario and the Master Plan, which consists of key development components, as 'with the Master Plan' scenario to make a comparison as summarized in Table 10.2.

**Table 10.2: Environmental impacts of the Logistics Hub Master Plan compared to the 'zero option' scenario**

Infrastructure development	Zero option	Logistics Hub Master Plan (with the Master Plan)
Development of Walvis Bay Logistics Hub	Not envisaged as part of scheduled port expansion	New light industrial property.  <u>Negative impact</u> <ul style="list-style-type: none"> <li>Traffic, dust, noise and public disturbance during construction</li> </ul> <u>Positive impact</u> <ul style="list-style-type: none"> <li>Economic stimulation, employment and ease of labour access (likely close to low-income residential area)</li> </ul>
Upgrading of existing roads in target corridors	Already envisaged as part of Namibia Roads Master Plan.  <u>Negative impact</u> <ul style="list-style-type: none"> <li>Road traffic disruption during construction/ upgrading</li> <li>Stock theft, poaching, wood collecting, littering, human waste, and veld fires by construction teams</li> <li>Social disruption by workers in rural areas (e.g. farms and villages) – including STDs</li> <li>Pollution (mostly diesel, oil, bitumen, camp waste)</li> <li>Habitat loss through expansion of quarries/borrow pits (supplying crushed stone, gravel)</li> <li>Increased road traffic, especially at night, will increase noise in rural areas. Also, frequency of accidents with livestock and children likely to increase.</li> </ul> <u>Positive impact</u> <ul style="list-style-type: none"> <li>Improved roads, and thus fewer accidents</li> <li>Improved transport and economic efficiency</li> <li>Jobs and local purchasing during construction/upgrading periods</li> </ul>	The Master Plan will probably accelerate allocation of resources for the already envisaged upgrades.  <u>Impact</u> Not significantly different from the zero option scenario.

Infrastructure development	Zero option	Logistics Hub Master Plan (with the Master Plan)
Upgrading of industrial service road (M44 behind dunes between WB and Swakopmund)	<p>Already envisaged as part of Namibia Roads Master Plan. Existing gravel road that will be bituminised.</p> <p><u>Negative impact</u></p> <ul style="list-style-type: none"> <li>• Traffic disruption and noise during construction</li> <li>• Pollution (bitumen and oil spills)</li> <li>• Increased traffic at night may affect dune evening dinners/events (noise and light pollution)</li> </ul> <p><u>Positive impact</u></p> <ul style="list-style-type: none"> <li>• Reduced heavy traffic on coastal road, and thus fewer accidents</li> <li>• Improved transport and economic efficiency</li> </ul>	<p>Road traffic volumes will likely be higher as a result of the implementation of the Master Plan</p> <p><u>Impact</u> Not different from the zero option scenario</p>
Upgrading of existing railway lines in target corridors	<p>Already envisaged as part of TransNamib plans, though perhaps at lower intensity.</p> <p><u>Negative impact</u></p> <ul style="list-style-type: none"> <li>• Rail traffic disruption during construction/ upgrading</li> <li>• Stock theft, poaching, wood collecting, littering, human waste, and veld fires by construction teams</li> <li>• Social disruption by workers in rural areas (e.g. farms and villages) – including STDs</li> <li>• Pollution (mostly camp waste)</li> <li>• Expansion of quarries (supplying crushed stone)</li> <li>• Increased rail traffic, especially at night, will increase noise in rural areas.</li> </ul> <p><u>Positive impact</u></p> <ul style="list-style-type: none"> <li>• Reduced heavy traffic on roads, and thus fewer accidents and lower road maintenance costs</li> <li>• Improved transport and economic efficiency</li> <li>• Jobs and local purchasing during construction/upgrading phase</li> </ul>	<p>Rail traffic volumes will likely be higher as a result of the implementation of the Master Plan.</p> <p><u>Impact</u> Not significantly different from the zero option scenario.</p>
Walvis Bay harbour upgrade and expansion	<p>Envisaged before conceptualisation of the Logistics Hub Master Plan</p> <p><u>Negative Impacts</u></p> <ul style="list-style-type: none"> <li>• Dredging – suspension and dispersal of toxic substrate – affecting Ramsar site, fish, birdlife, aquaculture</li> <li>• Disturbance of dolphins (construction and operational phases)</li> <li>• Encroachment of harbour into residential areas</li> <li>• Loss of coastal habitat</li> <li>• Increased traffic in urban areas (noise, inconvenience, pollution, accidents)</li> <li>• Increased noise and light pollution</li> <li>• Public disruption during construction</li> <li>• Influx of job-seekers (social disruption, crime, health impacts)</li> <li>• Pressure on water resources</li> <li>• Increased risks of oil spills, pollution and accidents</li> </ul> <p><u>Positive impacts</u></p> <ul style="list-style-type: none"> <li>• Economic stimulation (direct, indirect, multipliers)</li> <li>• Employment</li> <li>• Improved efficiency and better technology</li> </ul>	<p>The Master Plan will probably accelerate allocation of resources for the project.</p> <p><u>Impact</u> Not significantly different from the zero option scenario.</p>

Infrastructure development	Zero option	Logistics Hub Master Plan (with the Master Plan)
Luderitz harbour upgrade and expansion	<p>Envisaged before conceptualisation of the Logistics Hub Master Plan. Key concern is development plan of Angra Point Deep Water Port.</p> <p><u>Negative impact</u></p> <ul style="list-style-type: none"> <li>• Additional habitat loss (endemic plants)</li> <li>• Disturbance to marine species (e.g. dolphins and seabirds)</li> </ul>	<p>The Master Plan will probably accelerate allocation of resources for the project.</p> <p><u>Impact</u></p> <p>Not significantly different from the zero option scenario, but impacts of Angra Point Deep Water port are critical.</p>
Bypass road development (Katima, Oshikango, Karibib, Omaruru, Usakos, etc.)	<p>Not envisaged as part of Namibia Roads Master Plan, except for Windhoek.</p>	<p>Important component of the Master Plan.</p> <p><u>Negative impact</u></p> <ul style="list-style-type: none"> <li>• Stock theft, poaching, wood collecting, littering, human waste, and veld fires by construction teams</li> <li>• Social disruption by construction workers in small towns, including STDs</li> <li>• Pollution (mostly diesel, oil, bitumen, camp waste) during construction</li> <li>• Habitat loss through additional road footprint and expansion of quarries/ borrow pits (supplying crushed stone, gravel)</li> <li>• Bypassing of smaller towns might reduce their retail business/economic activity.</li> </ul> <p><u>Positive impact</u></p> <p>Decreased heavy traffic through the towns will reduce traffic, noise and pollution levels for residents, and increase safety. Improved transport and economic efficiency. Jobs and local purchasing during construction periods</p>
Upgrading and establishment of truck stops along target corridors	<p>Not envisaged as part of Namibia Roads Master Plan.</p>	<p>Important component of the Master Plan.</p> <p><u>Negative impact</u></p> <ul style="list-style-type: none"> <li>• Social disruption by construction workers in small towns, including STDs</li> <li>• Habitat loss through land clearing</li> <li>• Pollution (mostly diesel/ petrol from fuel bowsers)</li> <li>• Light pollution (floodlights)</li> <li>• Reduced retail spending in towns (since they will be bypassed), but probably compensated by increased retail at the truck stops.</li> </ul> <p><u>Positive impact</u></p> <ul style="list-style-type: none"> <li>• Jobs and local purchasing during construction and operational periods</li> <li>• Reduced social and health impacts (providing facilities are good and truck drivers visit the nearby towns less)</li> <li>• Reduced road accidents (drivers have a proper rest)</li> </ul>

Infrastructure development	Zero option	Logistics Hub Master Plan (with the Master Plan)
Upgrading of border and customs posts (e.g. Katima Mulilo, Oshikango)	Not envisaged as part of Namibia Roads Master Plan.	<p>Important component of the Master Plan.</p> <p><u>Negative impact</u></p> <ul style="list-style-type: none"> <li>• Social disruption by workers in nearby small towns, including STDs</li> <li>• Habitat loss through additional border-post footprint and expansion of quarries/borrow pits (supplying crushed stone, gravel, sand)</li> <li>• Increased pressure on customs officials (more staff needed).</li> </ul> <p><u>Positive impact</u></p> <ul style="list-style-type: none"> <li>• Better transit systems, less waiting and thus improved economic efficiency</li> <li>• Jobs and local purchasing during construction periods</li> <li>• Better control (e.g. drugs, human trafficking, stolen goods and vehicles, illegal animal products).</li> </ul>

Source: SEA Final Report

As shown in Table 10.2, many likely impacts caused by existing development plans in ‘zero option’ scenario remain constant in ‘with the Master Plan’ scenario. The ‘zero option’ scenario probably carries fewer negative impacts for the biophysical environment, but ‘with the Master Plan’ scenario brings socioeconomic benefits more significantly than the ‘zero option’ scenario. The SEA study supports the fact that implementation of the Master Plan will contribute to the improvement of living conditions and economic growth in Namibia.

## 10.2.2 Modal share scenarios

In order to achieve the Master Plan target, two different modal share scenarios, i.e. “existing modal share case” and “rail orientation case” are compared and assessed from a national socio-economic point of view in section 3.3. The SEA study assessed these two cases from the viewpoint of environmental and social considerations.

The impacts of “existing modal share case” and “rail orientation case” are identified as Table 10.3 shows.

**Table 10.3: Impacts of two modal share scenarios**

Impacts	Detail	Rating (without mitigation)	
		Existing modal share case	Rail orientation case
Road kills and disturbance to wildlife and livestock	<ul style="list-style-type: none"> <li>• In ‘existing modal share case’, the higher volumes of road traffic will lead to a higher incidence of road kills. Disturbance to local livestock and wildlife will also occur from the activities of road construction and maintenance camps, such as stock theft, poaching and collecting of trees.</li> <li>• In ‘rail orientation case’, volumes of road traffic will be less than in ‘existing modal share case’ and maintenance less for rail. Therefore, the overall impact is less than ‘existing modal share case’.</li> </ul>	Medium negative	Low positive

Impacts	Detail	Rating (without mitigation)	
		Existing modal share case	Rail orientation case
Road congestion and traffic accidents	<ul style="list-style-type: none"> <li>In 'existing modal share case', higher volumes of road traffic will lead to more road congestion and traffic accidents. On the other hand, 'rail orientation case' will be lower the traffic volume as analysed in Chapter 3.</li> <li>In 'existing modal share case', traffic accidents caused by truck drivers, who do not take enough breaks, will increase more than 'rail orientation case'.</li> </ul>	High negative	Medium positive
STDs	Mobile populations such as long-distance truck drivers have an elevated risk of HIV infection due to their behaviour and they have inadequate access to prevention, treatment, care and support services. The sex workers, who service them and the local community, are also at higher risk.	Medium negative	Unknown
Economic benefit	As analysed in Chapter 3, economic benefit is higher in 'rail orientation case' rather than 'existing modal share case'.	Low positive	Medium positive

Note: Impacts are rated as positive or negative, and as having a Low, Medium or High Impact.

Source: SEA Final Report

The SEA Study concludes that the 'rail orientation case' is the more preferable scenario than the 'existing modal share case'. As summarised in Table 10.3, there are significant negative impacts in the 'existing modal share case', arising from the heavy road traffic loads while the 'rail orientation case' has some positive impacts. However, even in the 'rail orientation case', a significant volume of cargo will still be transported by road. Therefore, the measures to mitigate negative impacts of increased road traffic will still need to be implemented.

The negative impacts mentioned above are further elaborated in Section 10.3 and mitigation measures are discussed in Section 10.4.

### 10.3 Assessment of the Master Plan Impacts

The Master Plan consists of the components newly proposed in the Master Plan such as development of the Logistics Hub Centre, truck stops, bypasses, and border town development, and some of the infrastructure development projects/programmes already envisaged in various development plans of GRN. Except for the case of the Logistics Hub Centre development in Walvis Bay, most of the impacts caused by implementation of the overall Master Plan and its components will be expected to be in the corridors and the nodal towns on the corridors. They are assessed in Sections 10.3.1 and 10.3.2. Development of the Logistics Hub Centre in Walvis Bay is a prime program of the Master Plan and it has unique features different from other components of the Master Plan, on the other hand, impacts of the Centre are assessed separately in Section 10.3.3. In addition, impacts on ecosystems and biota, which need special consideration, are highlighted in Section 10.3.4.

#### 10.3.1 Impacts on nodes

The SEA Study identified the following impacts which key nodes are predicted likely to experience as

a result of the implementation of the Master Plan.

#### **10.3.1.1 Destruction of habitat in the footprint**

Development of truck stops and bypasses are the main greenfield projects at the key towns. They will clear all vegetation and level the substrate on a large scale. At Walvis Bay, land clearing for the Logistics Hub Centre will be on a brownfield site and is not sensitive from a biodiversity point of view.

At Lüderitz, the terrestrial footprint of the proposed Angra Point Deep Water Port is approximately 9 km<sup>2</sup>, which is about one third of the total area of the Peninsula. This will destroy local populations of endemic plants, and destroy the habitat of animals such as lizards, bustards and more common large herbivores. The Peninsula is currently the only place where people can go outside of Lüderitz for recreation, as the town is surrounded from all sides by Namdeb security area. Taking away a third of this therefore limits local recreation venues and movement of locals and tourists even further.

#### **10.3.1.2 Disturbance to local fauna**

Development of bypasses and truck stops will mostly take place in towns, where there is little local wildlife. At Walvis Bay, the Master Plan developments are unlikely to interfere with or disturb wetland and shore birds that frequent the Important Bird Areas at the lagoon or along the shore of the Bay. However, at Lüderitz, establishment of the new Angra Point Deep Water Port and the activities on land and at sea when it is operational, could have significant impacts on threatened birdlife and cetaceans in the Bay.

#### **10.3.1.3 Increased risk of pollution**

The truck stops will have fuel storage and dispensing facilities. These facilities carry a risk of spillages, which can contaminate soil and water. At Walvis Bay, increased ship traffic at sea, and transport of fuels and chemicals on land, also increases the risk of pollution accidents. Any major oil spill offshore or in the Bay, which gets into the lagoon, could cause highly significant impacts for the local birdlife. At Lüderitz, Angra Point Deep Water Port will handle various industrial types of cargo, and transport of this cargo will go overland on the Peninsula and on the sea. All these activities carry the potential for pollution. Oil spills at sea in particular could have a devastating impact on seabirds that congregate on islands and shores around the Lüderitz Bay. Cetaceans and fish stocks at sea could also be severely impacted.

#### **10.3.1.4 Degradation of sense of place**

Most of the developments proposed in the Master Plan take place in areas that do not have great aesthetic beauty. However, at all towns, logistics and light industry infrastructure might have a negative impact on the atmosphere of tourism attractions or routes. This might manifest as increased heavy truck traffic in the towns and industrial areas such as truck stops interfering with the calm atmosphere.

At Lüderitz, the industrial development on the scale proposed for the Angra Point Deep Water Port would drastically affect the natural and wild sense of place currently experienced on the Peninsula. This would jeopardise the fledging tourism industry at the town and would conflict with efforts in the tourism industry to make visitors stay longer at the town.

#### **10.3.1.5 Increased use of water resources**

Logistics activities themselves do not place a heavy demand on water resources, but the accelerated growth that is desired as an outcome of the Master Plan will raise levels of water consumption. However, the project overall will not cause water consumption to increase substantially above normal growth rates. Construction projects will cause small peaks in water consumption, although these are not significant increases overall, the projects should avoid excessive pressure on surface and ground water resources.

#### **10.3.1.6 Urban congestion and unlawful parking of trucks**

At present, heavy trucks drive into the nodal towns for services. It is likely that an increase in heavy truck traffic will induce urban congestion and unlawful parking of trucks. As proposed in Oshikango and Katima Mulilo, establishing truck stops outside built-up areas will contribute to maintain or improve the quality of accessing existing services by its inhabitants in towns as well as road safety.

#### **10.3.1.7 Increased STDs e.g. HIV/AIDs**

HIV prevalence rates in Namibia are highest in towns along road corridors, wherever truck drivers stop for breaks and where road construction/maintenance companies camp. The local girls and women who service them also raise the infection rates within their local community. Health awareness messaging needs to be continuously reinforced in these communities, and the Ministry of Health and Social Services (MOHSS) and the Roads Authority needs to ensure that local outlets such as shebeens and garages are continuously supplied with condoms.



### **10.3.1.8 Social disruption due to inefficient border control**

Increase of international cargo transport will make border posts very congested and result to inefficient border control and long delays. Such situations are conducive to illegal activities, where a driver, irritated by a long delay, might be more tempted to bribe officials to get through quickly. Informal and/or ad hoc processing of cargo allows greater opportunities for illegal trafficking. Long waiting time for clearance will also induce drivers to involve with local sex workers and result in HIV and/or other STD infection. Such situations are likely to take place at Oshikango and Katima Mulilo.

### **10.3.1.9 Land acquisition and resettlement**

The Master Plan proposes bypass road and truck stop development whose main purpose is to reduce traffic congestion in the city centre. Therefore, this development will be implemented in urban fringe where people might have settled already. In such case, they will be forced to relocate somewhere else and their property should be compensated. It is recommended that, at project planning stage, bypass route and truck stop site should be determined not to require involuntary resettlement as much as possible.

### **10.3.1.10 Increased economic activity and job creation**

As discussed in Chapter 3, given the Master Plan target of increasing transit cargo volume, it is predicted that the proportion of “the transport and storage” sector to GDP and employment in the sector will greatly increase. It is most likely that major nodes close to the transit gateway will first obtain economic benefit from the Master Plan implementation. For example, in Walvis Bay, economic benefits and the potential for value addition and job creation will be greatest as the volume of cargo handled could more than quadruple by 2025. In Swakopmund where many relatively affluent people working in Walvis Bay choose to live, increasing job opportunities in Walvis Bay will likely benefit the local economy of Swakopmund indirectly through increased consumption of goods and services by those who live in Swakopmund and commute to Walvis Bay. Lüderitz will also benefit economically, as the Port will function as “resource gateway”. The border towns like Oshikango and Katima Mulilo will benefit from overnight stays and maintenance services while trucks wait to get processed through the border control points.

## **10.3.2 Impacts on main corridors**

The SEA Study identified the following impacts that the corridors are predicted likely to experience as a result of the Master Plan implementation.

### **10.3.2.1 Increased barrier effect to wildlife**

The road through Namibia's north-eastern regions traverses National Parks and conservancies, where wildlife is present and gradually growing in abundance. Wildlife tourism in this area is an important component of the national economy and contributes significantly to local livelihoods.

Even though there is no physical fence alongside the Trans-Caprivi Highway, some animals still regard it as a barrier. The barrier is not absolute (i.e. many animals do cross the road without concern), but more settlements and cleared fields, pipelines, stop-off places along the route, and increased traffic at night, are some of the factors which might increase the barrier effect.

### **10.3.2.2 Increased wildlife disturbance during construction**

During the construction phase, disturbance to wildlife at and close to the construction sites is a very likely problem. Noise, illegal woodcutting, and involvement in poaching by construction teams, are possible disturbance factors. Road construction involves much movement of heavy trucks hauling material from borrow pits and gravel quarries, earth-moving machinery along the route and at the quarries, abstraction of water from boreholes and rivers, and groups of people deployed at all these sites. The potential for illegal activities that exploit the local resources is immense. Furthermore, a sharp increase in the incidence of elephant poaching has been directly linked to road construction work in Zambezi Region.

### **10.3.2.3 Increased road kills of wildlife and livestock**

Once the roads are operational, the greater volume of road traffic, possibly travelling at higher speeds because of wider and better roads, will increase the rate of animal deaths by road kills. This will affect both domestic animals and wildlife.

### **10.3.2.4 Degraded sense of place from borrow pits and gravel quarries**

Road substrate material is excavated from borrow pits that are dug at frequent intervals along the course of a road. Gravel is quarried at outcrops of suitable rock. These materials are hauled from the source to the construction site, sometimes over long distances. These activities create dust and commotion during construction, and can leave ugly scars on the landscape after the construction is completed.

### **10.3.2.5 Degraded road surfaces from increased need for maintenance**

The Namibia Roads Authority will have to widen several sections of corridors and some of these have

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already been budgeted for while others will need to be added to future plans. With the extra number of heavy vehicles on the roads, the annual budget for on-going road maintenance and rehabilitation will also need to be increased. Poor road surfaces (e.g. increasing presence of pot-holes and crumbling verges) can be expected if maintenance programmes are not adequately sustained.

#### **10.3.2.6 Increased road accidents**

The corridors across the country pass through settlements of various sizes. In the more populated north, settlements have grown up along the WLNDC and the Trans–Cunene Corridor. The roads are access routes for local traffic and pedestrians. The increased number of trucks will inevitably increase the risk of traffic accidents with slow moving donkey carts, old passenger vehicles, livestock and pedestrians.

#### **10.3.2.7 Increased STDs and parasitic infections along corridors**

As already discussed in 10.3.1.7, increased STDs will be the impacts predicted in the corridors as well. Increased traffic into Namibia, especially from the more tropical countries to the north such as Zambia and Angola, raises the possibility of foreign and/or tropical diseases entering the country along the transport routes. This will require greater vigilance of the health officials, for both human and livestock diseases. For instance, health screening for Ebola symptoms was recently observed at entry points. This will probably become more necessary in future.

#### **10.3.2.8 Land acquisition and resettlement**

The corridors run along the trunk road network in Namibia. The Roads Authority keeps sufficient right of way (ROW) for trunk roads for widening. In the ROW, it is prohibited to build any structures, and this regulation is well observed so that no dwellers have to be involuntarily resettled. Although there are small settlements alongside the trunk roads in some areas (e.g. North and Northeast regions), the Master Plan does not propose any road widening projects in such areas. Thus, no land acquisition or resettlement is required.

#### **10.3.2.9 Stimulation of local economies**

Given the distance between towns in Namibia, all settlements on the major corridors will be used by truck drivers for breaks, and an increasing number of drivers and passengers will stimulate businesses and services. The types of services which are likely to expand in response to the higher demand are parking lots, fuel stations, snack shops, restaurants, toilets, showers, accommodation, leisure and

wellness centres, maintenance garages, shops and banks.

### **10.3.3 Logistics Hub Centre in Walvis Bay**

#### **10.3.3.1 Impacts of proposed “pull-factors”**

According to the SEA Study, the proposed “pull-factors” to be introduced in order to attract FID in the Logistics Hub Centre will have the following impacts.

##### **Possible loss of Government income due to exemption from corporate tax, VAT and stamp and transfer duties**

The Master Plan recommends that the Logistics Hub should be an offshore tax free zone. This will have a high positive impact, as FDI stimulates the country’s economic growth. However, the extent of tax reduction in a tax exemption zone should be determined by consideration of the balance between total economic benefits (including comparative advantage to attract regional operations of logistics companies), and reduced Government revenue. Government should consider tax reductions rather than exemption for operating companies so it reaps some returns for its economic investment in the Master Plan.

##### **Potential loss of revenue to GRN from land subsidies**

The Master Plan suggests that low land prices are indispensable to attract well-known international logistics companies as “anchor tenants” to operate their international transit business in Walvis Bay. Selling land at a lower price than the market price will amount to a potential opportunity loss to Walvis Bay Municipality. In addition, acquiring land at below market price could lead to an escalation of the current tendency of land speculation and quick financial gain of middle dealers who then sabotage the effectiveness of the other initiatives to create the Logistics Hub Centre. It is recommended that mechanisms be put in place to prevent property speculation and windfall profits from short-term developers.

##### **Potential influx of low-skilled foreign labour**

One of the incentives proposed by the Master Plan is to allow very flexible work permits within the Logistics Hub Centre which would enable companies to bring in foreign staff without working visas and working permits, but if not possible, to deregulate the application process and allow for easy extension of duration for working visas and working permits for those who work in the Logistics Hub Centre. On the other hand, of popular concern in Namibia is the influx of foreign workers who are

doing semi-skilled and unskilled work. They seem to have easy access to work permits, permanent residence status and Namibian citizenship.

The SEA team believes that the GRN needs to focus on making the process easier for all companies which operate in Namibia to meet the shortage of professionals with scarce skills as drivers of economic growth, and not limit this to companies in the Logistics Hub Centre.

### **Increased risk of illegal trade**

There is a concern that the Logistics Hub Centre developments will lead to protected Southern African resources being illegally exported through the logistics corridors. This concern is not confined to the Logistics Hub Centre in Walvis Bay. Nevertheless, it is raised here as the Logistics Hub Centre should employ additional measures to avoid any opportunity for trading in illegal goods through the Logistics Hub Centre.

### **10.3.3.2 Comparison of alternative sites**

In section 5.4.3, three potential sites are proposed for the Logistics Hub Centre in Walvis Bay: Site 1 in the proposed new North Port, Site 2 in the triangle area closest to the existing port, and Site 3 at Farm 58. The SEA Study compared these sites from the viewpoint of environmental and social considerations.

#### **Biodiversity impacts:**

Site 1 and Site 2 are close to the current built up area of Walvis Bay. Site 2 will eventually be surrounded by other light industry and possibly residential growth according to IUSDF, which limits further expansion of the city to the south and southwest. Bird movements around the Ramsar Site are mostly along the coastline, either southwards towards Sandwich Harbour, or northwards along the shore of the '30-mile beach' and towards other salt pans up the coast. There is some movement of small numbers of birds to the Bird Paradise, a small area of reed beds and ponds associated with the water treatment works located south-west of the traffic circle at the intersection of the B2 and C14 roads. Movements of birds are unlikely to be affected by a Logistics Hub Centre at Site 1, as it is more than 1 km inland from the shore north of town. Regarding Site 2, it is located about 2 km away from the Bird Paradise, in the direction away from the coast, so wetland birds are also unlikely to be impacted by a Logistics Hub Centre at that site. Impacts on biodiversity at both these sites are therefore insignificant.

Site 3 is far removed from the shore and wetland areas, or Ramsar Site, where sensitive biodiversity is found. No significant impact on this aspect.

Figure 10.1 illustrates the location of each alternative site and the sensitive areas.



Source: SEA Final Report

**Figure 10.1: The location of each alternative site and the sensitive areas**

### Impacts on water and air quality:

The Logistics Hub Centre might involve storage and handling of fuels and chemicals, with the

possibility of contamination of water. This risk is small and roughly the same at Sites 2 and 3. Site 1, being closer to the inlet of the North Port, carries a slightly higher risk. Emissions of smoke and air pollutants are not expected from the Centre.

**Neighbouring land uses:**

According to the Integrated Urban Spatial Development Framework (IUSDF) for Walvis Bay (2014-2030), Site 1 will neighbour industrial land and the B2 road and the dune belt. It may get affected by sand blowing across the B2 from the dunes. Site 2 is on the land designated for light industrial and surrounded by the area for low cost housing planned to be built in the period 2014 – 2018 and from 2019 – 2030 in accordance with IUSDF. Since light industry includes logistics and storage, the plan of the Logistic Hub Centre is consistent with IUSD. The noise generated from the transshipment of cargo and from the Centre will have a negative impact on the neighbouring residential areas as the predominant wind direction is from the South West. It may be the site which is least affected by wind-blown sand when the East wind blows. Site 3 is on land designated for heavy industry. It is close to the popular public recreation and tourism activities at Dune 7.

**Traffic flows:**

Site 1 is located at the corner where the newly aligned B2 road will enter the town. Although this site will be closest to the new port, all the heavy trucks accessing the Hub Centre will have to cross or enter the Centre from the “civilian” B2 traffic, which is one of the busiest roads in Namibia. With the upgrading of the M44 road behind the dunes, the aim is to divert all heavy traffic entering or leaving Walvis Bay without using the B2 road. This site will have the highest risk of road accidents. Site 2 is closest to the CBD. It will be adjacent to the new alignment of the B2 road to Swakopmund and to the M44 which will be upgraded as the main access road to the rest of Namibia. Site 3 will have the least impact on traffic flows. It is potentially adjacent to the main corridor in and out of Walvis Bay (M44 road). Trucks will have to pass by the entrance to the Logistics Hub Centre on their way to and from the port. Table 10.4 summarizes the overall assessment of three alternative sites.

**Land acquisition and resettlement:**

All three sites are under the jurisdiction of Walvis Bay Municipality and squatting is strictly controlled. Site 2 is currently on greenfield land designated for light industry in the IUSDF. The surrounding area, which is designated for low cost housing, is also greenfield land at present. Site 1 and Site 3, zoned for the new North Port and heavy industry respectively, are also currently open space. Therefore, involuntary resettlement will not take place.

**Table 10.4: Assessment of alternative sites for Logistics Hub Centre**

Impacts	Site 1: North Port	Site 2: Triangle	Site 3: Farm 58
Biodiversity	Negligible	Negligible	Negligible
Water quality (possible contamination from fuel/chemical storage/handling)	Slightly higher risk than Sites 2 and 3	Low risk	Low risk
Air quality	Negligible	Negligible	Negligible
Neighbouring Land uses	Negligible	Medium negative Noise affecting residential areas	Medium negative, because of proximity to popular public recreation and tourism activities at Dune 7
Traffic flows	<u>High negative</u> Cargo traffic would either cross or enter from the B2 road at the town entrance.	<u>Medium negative</u> Cargo traffic must integrate with the B2 in town and the C14 to the harbour and CBD.	<u>Low negative</u> Close access to M44 and C14 and all corridor traffic
Land acquisition and resettlement	Not applicable	Not applicable	Not applicable

Source: SEA Final Report

At all three sites, the impacts on the environment are expected to be relatively low. On balance, the impacts at the three sites are not significantly different from each other. Therefore, from a viewpoint of environmental and social considerations, there is no preference among the three sites. Whichever site is chosen, an EIA must be conducted at project level and appropriate impact avoidance and mitigation measures will have to be implemented.

### 10.3.4 Impacts on ecosystems and biota

The JICA's Guidelines for Environmental and Social Considerations<sup>1</sup> provides that projects must not involve significant conversion or significant degradation of critical natural habitats and critical forests. "Critical natural habitats and critical forests" here is based on the definition of "Critical Habitat" in IFC Performance Standard 6<sup>2</sup> as follows.

*Critical habitats are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and (v) areas associated with evolutionary processes.*

IFC Performance Standard 6 also states that, in areas of critical habitat, any project activities will not be implemented unless all of the following conditions are demonstrated. The JICA Guidelines are also subjected to these conditions:

<sup>1</sup> JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) GUIDELINES FOR ENVIRONMENTAL AND SOCIAL CONSIDERATIONS (Translation of Japanese Version) (JICA, 2010)

<sup>2</sup> Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources (IFC, 2012)



- No other viable alternatives within the region exist for development of the project on modified or natural habitats that are not critical;
- The project does not lead to measurable adverse impacts on those biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values;
- The project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time; and
- A robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the client's management program.

In relation to the Master Plan, four areas are considered to be "Critical habitat":

- 1) Ramsar Wetland site and surrounding areas of Walvis Bay,
- 2) National Parks and conservancies in north-eastern regions traversed by the Trans-Caprivi Highway,
- 3) Lüderitz Bay and the offshore islands within and close to the Bay and the Peninsula, and
- 4) National Park in the central coast area traversed by the B2 road.

In this section, whether the Master Plan proposals meet the above conditions in the four areas is assessed.

#### **10.3.4.1 Ramsar Wetland site and surrounding areas of Walvis Bay**

The Master Plan proposes development of a Logistics Hub Centre in this area, at one of three alternative sites (see 10.3.3.2 and Figure 10.1). All of the sites and surrounding areas are currently greenfield sites with no vegetation.

Site 1 is north of Walvis Bay and about 8 km away from the closest part of the Ramsar Site which is south-west of the town. It is approximately 1 km from the shore and about 1 km south of an Important Bird Area called '30-mile beach'. Its situation is therefore far removed from the Ramsar site and sufficiently far away from the shore where birds sometimes concentrate.

Site 2 is close to the built-up area of Walvis Bay Municipality and about 5 km from the closest part of the Ramsar Site. A small feature which attracts small numbers of wetland birds, the Bird Paradise, lies about 2 km south-west of the site. The site is sufficiently far from these areas of bird concentrations to not cause disturbance to the biodiversity there.

Site 3 is much farther inland, more than 10 km away from the shore and about 15 km away from the closest part of the Ramsar Site. It is well removed from the area where birds concentrate.

Thus, it is concluded that the Logistics Hub Centre will not be located at critical habitats and have no negative environmental impacts on the areas with high biodiversity value, of which the most important one is the lagoon Ramsar Site.

Walvis Bay port is only the sea gateway of Namibia for transshipment and transit cargo. There is no other viable alternative for an industrial port in Namibia other than Walvis Bay, because Lüderitz has environmental constraints and development of a new port at the other coastal areas has no viability.

#### **10.3.4.2 National Parks and conservancies in north-eastern regions traversed by the Trans-Caprivi Highway**

In this area, the Master Plan does not propose any activities which require significant conversion or degradation of natural habitats and forest. Since the Trans-Caprivi Highway is the only trunk road directly connecting Namibia and Zambia, environmental impacts caused by an increase in road traffic are unavoidable. Thus, it is recommended that general measures to mitigate negative impacts along the corridors, discussed in 10.4.1, should be taken into consideration.

#### **10.3.4.3 Lüderitz Bay and the offshore areas**

The Master Plan does not propose any project in this area. However, Namport has a plan to develop a new deep water port at Angra Point. This project will involve significant conversion of the Lüderitz Peninsula which is a critical habitat for Red Data bird species and range-restricted, Namibian-endemic plant and reptile species. Cetaceans in the Lüderitz Bay might also be negatively affected. Thus, consideration of alternative sites for port expansion is essential.

#### **10.3.4.4 Dorob National Park traversed by the B2 road**

The Master Plan proposes widening the B2 road between Swakopmund and Karibib. A part of the section will fall within the Dorob National Park. The road section within the National Park is surrounded by desert gravel plain with sparse vegetation. There is no critical habitat recognised along the section, and there is no forest as well. In addition, sufficient right of way (ROW) is already reserved for widening. Therefore, neither significant conversion nor degradation of natural environment is involved in the project. As the B2 road is one of the most important commercial and tourism arteries in Namibia, with no alternative tarred road between Windhoek and the central coast, road widening is necessary to improve traffic flow and reduce accidents.

## 10.4 Mitigation measures

### 10.4.1 For the Impacts in the nodes and corridors

The SEA Study rated the degree of impacts assessed in Section 10.3.1 and 10.3.2 and suggests the measures to mitigate them as shown in Table 10.5 which also includes how these mitigation measures are addressed in the Master Plan.

**Table 10.5: Mitigation measures (1)**

Impact		Rating (Without mitigation measures)	Mitigation measures	Rating (With mitigation measures)	The Master Plan
<b>Node</b>					
1 (Lüderitz)	Destruction of habitat in footprint and disturbance to local fauna	High negative	Move the proposed Angra Point Deep Water Port to a different, less sensitive site not on the Peninsula.	Low negative	The Master Plan (MP) suggests exploring an alternative place for constructing a bulk jetty instead of a new port in Angra point (section 8.2.4).
	Degradation of sense of place	Medium negative		Low negative or neutral	
	Increased risk of pollution from industrial cargo at sea and on land	High negative	<ul style="list-style-type: none"> <li>As above</li> <li>Pollution prevention plans and oil spill contingency plans must be in place and be regularly updated (especially contact lists), with appropriate equipment always ready and port staff trained in using the equipment.</li> <li>Ports should seek ISO14001 accreditation.</li> </ul>	Low negative	
2	Destruction of habitat in footprint (except for Lüderitz)	Medium negative	<ul style="list-style-type: none"> <li>Developments stay on brownfield sites as much as possible.</li> <li>In northern Namibia, where possible, avoid cultivated areas and do not cut down any large trees. Include them in the landscaping of truck stops, for shade and aesthetics.</li> </ul>	Low negative	To be taken into consideration in the next implementation phase when detailed planning of the projects/programmes
3	Increased risk of pollution from industrial cargo (Walvis Bay)	High negative	<ul style="list-style-type: none"> <li>Pollution prevention plans and oil spill contingency plans must be in place and be regularly updated (especially contact lists), with appropriate equipment always ready and port staff trained in using the equipment.</li> <li>Ports should seek and maintain ISO14001 accreditation.</li> </ul>	Low negative	To be taken into consideration in the next implementation phase
4	Increased risk of pollution from industrial cargo (except for Walvis Bay and Lüderitz)	High negative to low negative	<ul style="list-style-type: none"> <li>Pollution prevention plans must be in place.</li> <li>Truck stops should seek ISO14001 accreditation.</li> </ul>	Low negative	To be taken into consideration in the next implementation phase
5	Degradation of sense of place	Medium negative	<ul style="list-style-type: none"> <li>All logistics infrastructure (e.g. truck stops) should be well planned so they impact least on the tourism sector.</li> </ul>	Low negative or neutral	<ul style="list-style-type: none"> <li>To be taken into consideration in the next implementation phase when detailed planning of the</li> </ul>

Impact		Rating (Without mitigation measures)	Mitigation measures	Rating (With mitigation measures)	The Master Plan
			<ul style="list-style-type: none"> <li>Where possible, route heavy trucks on roads that are less used for tourism.</li> </ul>		<p>projects/programmes</p> <ul style="list-style-type: none"> <li>MP proposes traffic control between Walvis Bay &amp; Swakopmund (heavy trucks on M44 rather than B2) (section 6.1.2.3)</li> </ul>
6	Increased use of water resources (especially during construction activities)	Low negative	EIAs should be conducted for any infrastructure projects to ensure that local (ground- or surface-) water sources are not jeopardised.	Neutral	To be taken into consideration in the next implementation phase when detailed planning of the projects/programmes
7	Urban congestion and unlawful parking of trucks	Medium negative	Town Councils should consult their community to find a suitable site for a truck stop to be developed when traffic volumes increase; include it in the Town Planning Scheme and Structure Plan.	Neutral to Low negative	MP proposes border town development, bypass road & truck stops development programme (section 7.2, 6.6, 6.7, & Project/Programme Profiles).
8	Increased STDs, e.g. HIV/AIDs	Medium negative	<ul style="list-style-type: none"> <li>Establishment of health information desks and wellness centres along routes and at the truck stops as proposed in the Master Plan</li> <li>Increase funding to NGOs which focus on HIV prevention among mobile populations</li> </ul>	Medium positive	Wellness centre is one of the essential functions included in the truck stops proposed by MP (section 6.7.3 & Project/Programme Profiles)
9	Social disruption due to inefficient border control	Medium negative	Improvement of border post facilities and management system, more customs officers with better training, and better controls on trafficking	Medium positive	MP proposes integrated border management (section 7.1 & Project/Programme Profiles).
10	Land acquisition and resettlement	High negative	Plan and Design the development project not require involuntary resettlement	Neutral	To be taken into consideration in the next implementation phase when detailed planning of the projects/programmes
<b>Corridors</b>					
11	Increased barrier effect to wildlife	Medium negative to Low negative	<ul style="list-style-type: none"> <li>Traditional authorities and land use planners should ensure that settlements are concentrated into groups, and that wildlife movement corridors are kept open, so that the barrier is not compounded by other factors such as settlements and fields.</li> <li>Construct underpasses allowing animals to cross the route underneath the road, but it will not economically viable.</li> </ul>	Low negative to neutral	<ul style="list-style-type: none"> <li>To be taken into consideration in the next implementation phase</li> <li>MP proposes traffic control between Walvis Bay &amp; Swakopmund (heavy trucks on M44 behind Dune 7 rather than coastal B2 road alongside of Important Bird Area) (section 6.1.2.3)</li> </ul>
12	Increased wildlife disturbance during construction	Medium negative	<ul style="list-style-type: none"> <li>Improved control over illegal activities of road construction camps might be desirable.</li> <li>Extra vigilance against illegal activities</li> <li>Provision of proper cooking facility during construction phase to reduce firewood demand</li> <li>Extra support to MET and Forestry authorities to improve law enforcement.</li> </ul>	Medium negative	To be taken into consideration in the next implementation phase when detailed planning of the projects/programmes

Impact		Rating (Without mitigation measures)	Mitigation measures	Rating (With mitigation measures)	The Master Plan
13	Increased road kills of wildlife and livestock	Low negative	<ul style="list-style-type: none"> <li>Installation of signage and rumble strips</li> <li>Enforce speed limits.</li> <li>Monitor road kill incidence by including it in Event Book management system for conservation staff.</li> </ul>	Low negative	<ul style="list-style-type: none"> <li>To be taken into consideration in the next implementation phase.</li> <li>MP propose development of truck stops where drivers can take enough breaks to avoid careless driving (section 6.7.3 &amp; Project/Programme Profiles)</li> </ul>
14	Degraded sense of place from borrow pits and gravel quarries	Low negative	<ul style="list-style-type: none"> <li>Situate borrow pits and gravel quarries away from the roads and to be out of sight</li> <li>Rehabilitate pits and quarries after closure</li> </ul>	Neutral	To be taken into consideration in the next implementation phase when detailed planning of the projects/programmes
15	Degraded road surfaces from increased need for maintenance	High negative	<ul style="list-style-type: none"> <li>Increase GRN budget / Road Fund for road maintenance, rehabilitation and upgrading schemes.</li> <li>The Roads Authority Act should be revised to distinguish between the roads whose maintenance should be funded by the Road User Charging (RUC) system and those whose maintenance should be funded by GRN.</li> <li>The RUC tariff needs to be revised.</li> <li>Attract and retain professional engineers/ technicians in Roads Authority to reduce vacancy rate (as recommended in the Master Plan).</li> </ul>	Medium positive	MP recommends these measures in section 6.1.2.
16	Increased road accidents	Medium negative	<ul style="list-style-type: none"> <li>Major nodes on the corridors should include a truck stop to be developed when traffic volumes increase.</li> <li>Enforce speed limits.</li> <li>Introduce more passive measures for speed control such as rumble strips.</li> </ul>	Medium positive	<ul style="list-style-type: none"> <li>MP proposes "Bypass road &amp; truck stops development programme" (section 6. 6, 6.7, &amp;Project/Programme Profiles)</li> <li>MP proposes two urgent road improvement projects (section 6.2.1 &amp; Project/Programme Profiles) to reduce traffic accident.</li> </ul>
17	Increased STDs and parasitic infections along corridors	Medium negative	<ul style="list-style-type: none"> <li>Same as No. 8 above</li> <li>Ministry of Health and Directorate of Veterinary Services will need to improve vigilance at border posts (especially Oshikango and Katima Mulilo) for foreign / tropical diseases.</li> </ul>	Medium positive	<ul style="list-style-type: none"> <li>Same as No. 8 above</li> <li>To be taken into consideration in the next implementation phase when detailed planning of the integrated border management programme</li> </ul>

Source: JICA Study Team and SEA Final Report

#### 10.4.2 For "pull-factors" proposed for the Logistics Hub Centre

Table 10.6 presents the rating of impacts assessed in Section 10.3.3 and the possible measures to

mitigate the impacts. In addition, the right-hand column in the Table explains how these mitigation measures are addressed in the Master Plan.

**Table 10.6: Mitigation measures (2)**

Impact	Rating (Without mitigation measures)	Mitigation measures	Rating (with mitigation measures)	The Master Plan
Possible loss of Government income due to exemption from corporate tax, VAT and stamp and transfer duties	Low negative	Reduction of taxes only for a limited 'start-up' period for companies. Not full exemption.	Insignificant negative impact	To be taken into consideration in the next implementation phase.
Potential loss of revenue to GRN from land subsidies	Low negative	<ul style="list-style-type: none"> <li>Put measures in place to prevent property speculation by short-term developers.</li> <li>The opportunity cost is expected to be offset by gains in GDP and employment.</li> </ul>	High positive	MP proposes to lease land, not sell, to private sector with conditionality (such as to take away a right of leasing from a party for not starting tangible operation within a certain period of time) (section 5.1.2)
Potential influx of low-skilled foreign labour	Medium negative	<ul style="list-style-type: none"> <li>Skilled labour is required but deregulation must still prevent fraudulent entry of low-skilled foreigners.</li> <li>Lobby for a streamlining for all companies, not just those in the Logistics Hub Centre.</li> <li>The important principle is that unskilled positions should not be taken by foreigners.</li> </ul>	High positive	MP focuses on deregulation of skilled - labour. Logistics Hub Centre could be used as a testing ground to quickly prove that deregulation of skilled - labour is powerful in attracting FDIs.
Increased risk of illegal trade	Medium negative	The GRN should employ additional measures to avoid any opportunity of trading in illegal goods through the Logistics Hub Centre	Medium positive	To be taken into consideration in the next implementation phase.

Source: JICA Study Team and SEA Final Report

In addition to the above mitigation measures, the SEA Study suggests that the Logistics Hub Centre must have effective coordination, both in terms of the parties involved and various physical and procedural aspects of the Centre itself with independent monitoring and assessment within the first 3 years of its operation. In this respect, as discussed in Chapter 11, the Master Plan proposes to establish coordinating body for implementation of the Master Plan. Start-up of the Master Plan will definitely be one of the mandates of this coordinating body.

## 10.5 Public consultation

Public consultation workshops were held in Windhoek and Walvis Bay late in January 2015. The workshops aimed at inviting comment and input from stakeholders and the public on the SEA outcome and the Master Plan.

Stakeholders and identified interested and affected parties (IAPs) were invited to these workshops and access was made available for the web link to the Draft SEA Report. For the public, a notice about

the workshops and disclosure of the Draft SEA Report was run in Namibia’s four main daily newspapers (The Namibian, Die Republikein, Allgemeine Zeitung, and Namib Times). In addition, short articles on the SEA were compiled in The Namibian and The Namibian Economist (weekly newspaper).

The comments and inputs received in the process of this public consultations as well as stakeholder consultations for scoping are compiled in section 13.2 of the Appendix. Most of the issues have been taken up in the assessment and mitigatory measures have been provided where appropriate. Some of the issues raised by the public were already included in the Master Plan, while a few comments were beyond the scope of the SEA.

## 10.6 Strategic Environmental Management Plan (SEMP)

The SEA Study proposes the Strategic Environmental Management Plan (SEMP) as environmental and social management framework to monitor the Master Plan implementation. The main goal of the SEMP is to guide decision makers on how best to realise the benefits of the proposed Master Plan while also minimising the key negative risks. The over-arching framework for addressing the direct, indirect and cumulative impacts of projects and activities, linked to the Master Plan implementation, is managed by setting Environmental Quality Objectives (EQOs) that need to be met by the individual projects, and through all of them collectively, the Master Plan as a whole. EQOs are minimum management objectives that any changes to the environment must be within acceptable limits and the pro-active intervention will be triggered by the responsible party to avoid unwanted changes. Six EQOs are proposed as shown in Table 10.7 while the full text of SEMP is in section 13.3 of the Appendix.

**Table 10.7: Environmental Quality Objectives for SEMP**

EQO 1: A growing, diversified Namibian economy	
Aim: The Logistics Hub Master Plan must improve Namibia’s sustainable socio-economic development and outlook without undermining the growth potential of other sectors or desirable land use practices	
<i>Desired outcome</i>	<i>Activities and performance indicators</i>
1. Significant increase in cargo transported through Namibia	<ul style="list-style-type: none"> <li>Namibia’s share of total potential transit cargo volume to landlocked areas of SADC increases from 12% (2013) to 20% (2025)</li> <li>Proportion of transport and storage to GDP increases from 2,5% to 4,6% by 2025</li> </ul>
2. Projects consider multiple sector needs	<ul style="list-style-type: none"> <li>All listed projects<sup>3</sup> have an EIA and EMP prior to final design and implementation, and in all cases, opportunity costs are considered</li> <li>After construction, impacted areas are rehabilitated in such a way that other land use is possible.</li> </ul>
EQO 2: Local benefits	
Aim: Promote local employment and socio-economic benefits.	
<i>Desired outcome</i>	<i>Activities and performance indicators</i>
1. GRN income is optimised	<ul style="list-style-type: none"> <li>Corporate taxes are paid in full by transport parastatals, private companies, industrial</li> </ul>

<sup>3</sup> Listed means the activity is required to have an EIA under the Environmental Management Act of 2007.

	<p>parks and associated companies</p> <ul style="list-style-type: none"> <li>• EPZ status only granted in accordance with existing policies and laws</li> </ul>
2. Economic opportunities optimised	<ul style="list-style-type: none"> <li>• Majority (preferably over 75%) of all sub-contractors are Namibian registered companies</li> <li>• Majority (preferably over 75%) of all employees are Namibian citizens or permanent residents</li> <li>• Increasingly, inputs are sourced locally rather than imported</li> </ul>
3. Where local skills are unavailable, training programmes improve skills	<ul style="list-style-type: none"> <li>• Every major project has a skills development programme for employees</li> <li>• All employees and contractors undergo regular training so that lost time incidents are within industry norms</li> </ul>
EQO 3: Combat STDs	
Aim: Mainstreaming HIV and AIDS into the environmental assessment and the Master Plan implementation process, so that project-specific EMPs incorporate measures to avoid, reduce, minimise or control the transmission of HIV.	
<i>Desired outcome</i>	<i>Activities and performance indicators</i>
1. "Hotspots" become "safe-spots"	<ul style="list-style-type: none"> <li>• Every truck stop has adequate appropriate facilities to entertain truck drivers and reduce their need for unsafe sexual interactions</li> <li>• The Master Plan has a specific awareness programme aimed at reducing the risk of unsafe sex</li> </ul>
Efficient border crossings	<ul style="list-style-type: none"> <li>• Lobby governments to improve border crossing procedures for trucks to minimise delays:</li> </ul>
2. Workers and affected communities are not more vulnerable to HIV because of the project	<ul style="list-style-type: none"> <li>• Project managers, supervising consultants and contractors should all receive adequate training and technical support to design and monitor HIV components.</li> <li>• Conduct regular health/disease surveillance in construction camps.</li> <li>• Voluntary testing and counselling of workers</li> <li>• Improve HIV awareness &amp; promote behaviour change based on agreed targets and key performance indicators.</li> <li>• Provide free antiretrovirals and condoms to staff during project construction operation</li> <li>• Recruit locally wherever possible.</li> <li>• Prevent job seekers flocking to the project site or local villages. Strategies include: <ul style="list-style-type: none"> <li>– Do not hire casual labourers 'at the gate';</li> <li>– Hire through established employment agencies;</li> <li>– Conduct job interviews at nearby towns, not on site;</li> <li>– Provide information about employment policies and procedures;</li> <li>– Work with local government and police to prevent squatter camps at site gate/nearby villages.</li> </ul> </li> </ul>
3. Transport staff are not more vulnerable to HIV because of the project	<ul style="list-style-type: none"> <li>• Lobby transport companies to adopt and implement in-house HIV programmes and policies;</li> <li>• Work with transport companies to ensure that their drivers receive adequate HIV training;</li> <li>• Develop tailored behaviour change communication (BCC) materials such as mirror hanger messages and bumper stickers;</li> <li>• Include condoms in the road safety kit;</li> <li>• Target main transportation hubs e.g. loading/offloading points, transporter rest stops, passenger transport terminals, etc. with HIV awareness campaigns.</li> </ul>
EQO 4: Sound infrastructure and associated institutional functioning	
Aim: To ensure that key infrastructure in selected nodes and corridors are in place and well maintained, thus enabling economic development, improved public convenience and enhanced safety	
<i>Desired outcome</i>	<i>Activities and performance indicators</i>
1. Roads are in good condition	<ul style="list-style-type: none"> <li>• All key road corridors are maintained timeously to avoid deterioration, and upgraded as required.</li> <li>• Road markings and signage are in place and in good condition</li> </ul>
2. Most bulk goods are transported by rail	<ul style="list-style-type: none"> <li>• &gt;14% of all bulk goods passing through Namibia, are transported by rail by 2025</li> </ul>
3. Walvis Bay and Lüderitz harbours are efficient and safe	<ul style="list-style-type: none"> <li>• Average loading/ offloading rate for containers is similar to / faster than at Durban or Cape Town ports</li> <li>• Average waiting time for ships to obtain a berth is similar to / shorter than at Durban or Cape Town ports</li> </ul>
4. Border control points are upgraded	<ul style="list-style-type: none"> <li>• Adequate processing facilities, parking and public amenities, are established (and maintained) at the relevant border crossings</li> <li>• Adequate staff are assigned to such crossings to ensure efficient processing and traffic movement</li> <li>• Average waiting times for industrial traffic are similar to / shorter than at other major border posts in southern Africa.</li> </ul>



EQO 5: Minimise ecological footprint	
Aim: To ensure that the ecological integrity and diversity of fauna and flora of Namibia is not compromised by the implementation of the Master Plan	
<i>Desired outcome</i>	<i>Activities and performance indicators</i>
1. Construction avoids impacts to biodiversity and ecosystems through careful site selection, and where impacts are unavoidable, mitigation, restoration and offsetting form part of the EMP	<ul style="list-style-type: none"> <li>• Greenfield projects in protected areas are avoided wherever possible</li> <li>• Infrastructure corridors are carefully planned to avoid important biodiversity areas - demonstrate consideration of alternatives, commitment to the 'green route'</li> <li>• Footprints of projects are minimized and every project has a biodiversity rehabilitation and restoration programme</li> </ul>
2. Important ecological processes must not be compromised	<ul style="list-style-type: none"> <li>• Surface hydrology and groundwater movement are not impeded and linear oases are protected</li> <li>• Wildlife movements are not disrupted</li> <li>• To minimize erosion, soil surface is not degraded by construction activities outside delineated footprint areas.</li> </ul>
3. Projects do not threaten integrity of aquifers and their associated biodiversity	<ul style="list-style-type: none"> <li>• Groundwater used for construction only if aquifer known to be able to supply adequate water without undermining the aquifers integrity</li> </ul>
4. Species extinctions must constitute a FATAL FLAW. If infrastructure placement will likely result in a species extinction, no infrastructure planning permission will be granted.	<ul style="list-style-type: none"> <li>• All EIAs must consider extinction possibility, and resources must be available for reasonable investigation.</li> <li>• GRN refuses project authorization if extinction likely</li> </ul>
5. No secondary impacts occur	<ul style="list-style-type: none"> <li>• Off-road driving, poaching, illegal camping, littering by construction personnel, are explicitly disallowed in contract documents</li> <li>• Effective vigilance and visibility of law enforcement personnel, with structured support from civil society</li> </ul>
EQO 6: Maintain sense of place	
Aim: To ensure that the natural and architectural beauty of the nodes and corridors, and their sense of place, are not compromised unduly by the implementation of the Master Plan.	
<i>Desired outcome</i>	<i>Activities and performance indicators</i>
1. Hub projects are planned and developed in an orderly fashion	<ul style="list-style-type: none"> <li>• Zoning restrictions are adhered to, thus avoiding inappropriate and conflicting land use and development</li> <li>• Planning safeguards and due process are applied to avoid undue fast-tracking and circumvention</li> </ul>
2. Rural landscapes (e.g. Namib and Zambezi) remain visually attractive	<ul style="list-style-type: none"> <li>• Project developers must minimize negative visual impacts. EIAs required prior to final design and outcomes-based EMPs must guide project planning and implementation. In all cases, visual impacts are assessed by a specialist</li> <li>• New roads, rail and other infrastructure should be kept as close to existing roads and other visual disturbances as possible.</li> <li>• No billboards are erected beyond a 5km radius of proclaimed towns.</li> </ul>

Source: SEA Final Report

# 11. Conclusions and Implementation of the Master Plan

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## 11.1 Vision

The Development Vision of the present International Logistics Hub Master Plan (referred to as “Logistics Master Plan”) is defined in the following statement with reference to NDP4 and Vision 2030 (see Chapter 2 for details).

**Vision: To transform Namibia as a whole nation into an international logistics hub for SADC region by 2025.**

## 11.2 Strategies: How to transform Namibia into an “International Logistics Hub”

The Study Team developed the Master Plan based upon the following seven over-all strategies in order to transform Namibia into an “International Logistics Hub”.

**Strategy 1: Namibia as a newcomer should be “impressive at a glance”;** must present very strong and clearly visible selling points that everyone can understand at a glance in comparison with the other well established gateways.

**Strategy 2: Namibia as a country with a limited demand base in its own hinterland must install “pull-factors” strategically and decisively.** A typical way to do so is to set the cost of utilizing land strategically low for the logistics industry.

**Strategy 3: The “Anchor tenants approach” is the best and fastest way to get the volume,** which is to attract global players in the international logistics business to establish their large-scale operational bases in Namibia to use its ports as gateways. A strategic centrepiece to attract “anchor tenants” must be the Logistics Hub Centre.

**Strategy 4: Remove critical bottlenecks in the key corridors** by expanding throughput capacity to enhance “speed and reliability.”

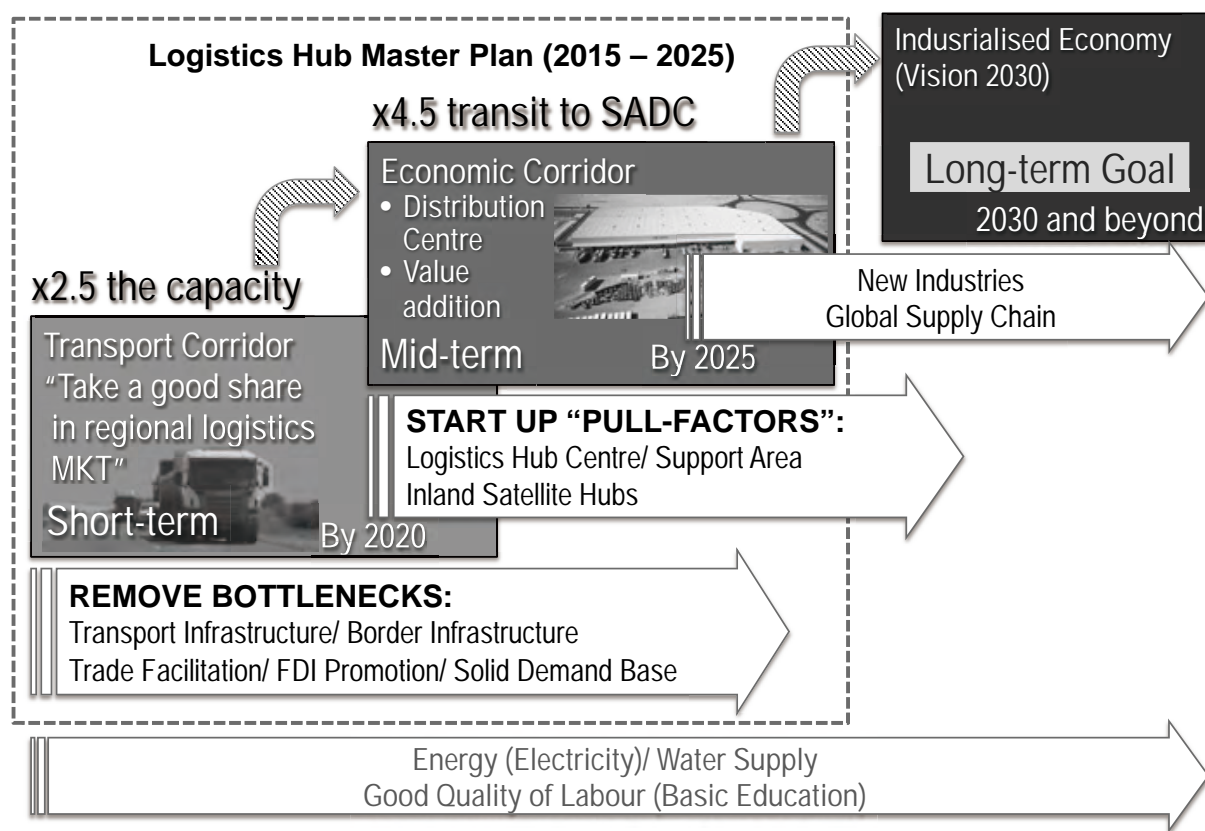
**Strategy 5: Get up to international standard as quickly as possible** – “Launch window is limited”. Namibia should not hesitate to utilize foreign financial sources and skills.

**Strategy 6: Re-introduce “beneficiaries pay” principles** – to stop cross-subsidisation in investment and operation of logistics related infrastructure in order to secure long-term sustainability.

**Strategy 7: Install a legal framework to give foundations for key stakeholders to implement the Master Plan.** A single legal instrument cannot establish the entire framework. Rather, a legal framework for implementation of the Master Plan should be as a cluster of relevant legislation and regulations under a “Basic legislation on Promotion of International Logistics” as an umbrella law and portal of cross-reference.

### 11.3 Development Scenario to Become “An International Logistics Hub”

An overall development scenario is assumed with different phases as shown in Figure 11.1.



**Figure 11.1: Expected Changes in Economic Structure by a “Logistics First Strategy” and a Flow of Development Scenario of “An International Logistics Hub”**

In the first phase, namely the “Short-term: Transport Corridor” phase, the focus is on removing bottlenecks and preparing for attracting a sizable share in the regional portion of the international transportation market, as well as the expansion and upgrading of infrastructure that is needed to accommodate a larger flow of goods. The capacity will be expanded to 2.5 times as large by 2020. Given that this results in a large volume of goods going through Namibia, the country will be ready to go on to the next stage.

In the second phase, the “Medium-term: Economic Corridor” phase, the focus will be on evolving Namibia as one of the regional distribution centres from being a “Transport Corridor” by developing the functions for becoming a supply and distribution depot for the region. Making Namibia a nation of “International Logistics and Distribution Centre” is one prospective path to lead the country to achieve the long-term target of Vision 2030, becoming an industrialized country by 2030. In the following sections, the contents of the Master Plan are summarized including priority actions to achieve these two phases.

#### 11.4 Targets

The Logistics Master Plan sets the targets for 2025 with given projected potential demand and supply capacity as summarized in the following table (See Chapter 3 for details).

**Table 11.1: Logistics Master Plan targets**

Target items			2013	2020	2025 Target	Growth rate 2013-25
Pre-conditions	Potential demand	Total transit cargo volume to landlocked SADC via major Gateway Ports (million tons/year)	6.8	11.4	18.0	8.5%
	Supply capacity	Port Capacity in TEU (million TEUs/year)	0.35	0.75	0.85	-
Targets	Transit cargo	Transit cargo volume using Walvis Bay (million tons/year)	0.8	1.3	3.6	13.2%
		Share of transit cargo via Namibia in total transit cargo volume to landlocked SADC.	12%	11%	20%	-
		Transit cargo volume using Walvis Bay in TEU (million TEUs/year)	0.07	0.11	0.30	11.5%
		Transit cargo volume using Walvis Bay as % of Port Capacity	23%	15%	35%	-
Impacts	Economic contribution of logistics.	GDP of logistics (NAD billion at 2013 price)	3.1	-	10.0	12.3%
		%Contribution to GDP	2.5%	-	4.6%	-
		Employment by logistics (000 persons)	25.7	-	57.6	8.4%
		% Contribution to employment	3.7%	-	5.7%	-

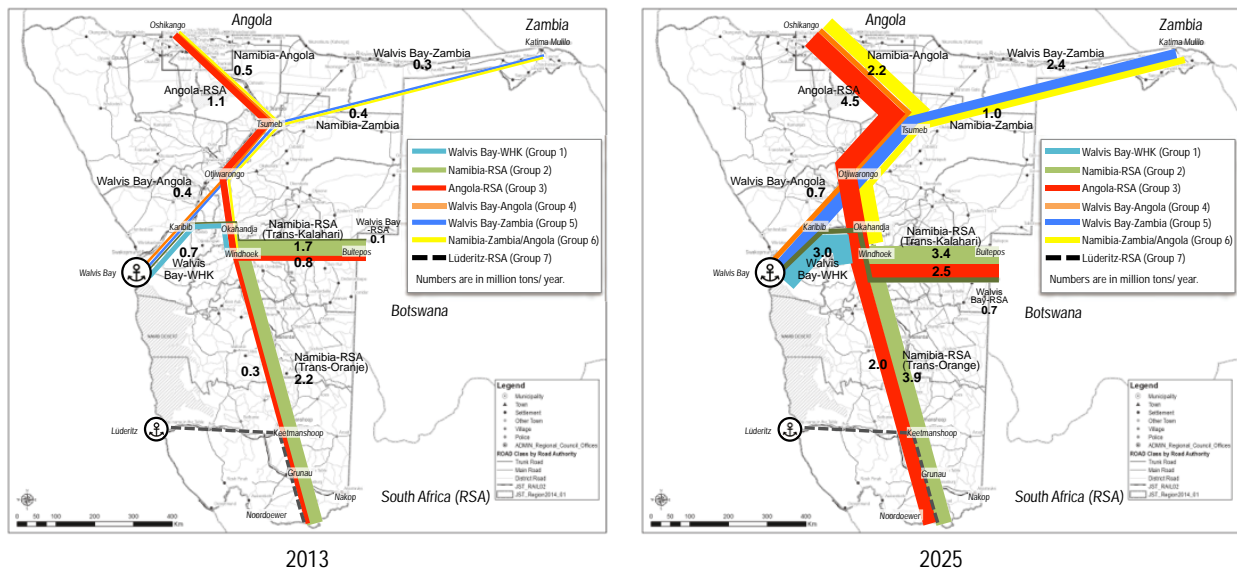
Source: JICA Study Team

**Table 11.2: Future cargo volume by kind of transport groups**

Unit: million tons

Transport groups	2013	2025	Growth rate 2013-25
Group 1: Walvis Bay - Windhoek	0.7	3.0	12.8%
Group 2: Namibia - RSA	3.9	7.3	5.4%
Group 3: RSA - Angola	1.1	4.4	12.1%
Group 4: Walvis Bay - Angola	0.4	0.7	6.4%
Group 5: Walvis Bay - Zambia	0.3	2.4	18.1%
Group 6: Windhoek - Zambia/Angola	0.9	3.2	11.1%
Others (Walvis Bay - RSA)	0.1	0.5	10.6%
Total	7.4	21.5	9.3%

Source: JICA Study Team



Source: JICA Study Team

**Figure 11.2: Cargo flow in 2013 and projected for 2025**

Modal shares between the railway and the road in 2025 are assumed to be more railway-oriented than in 2013 as shown in Table 11.3. The future rail cargo demand in this railway-oriented case for 2025 is assumed to be 6.0 million tons based on average growth rate in 2018 - 2020 projected by TransNamib. In this case, the rail cargo transport share will increase from 12.2% in 2013 to 14.7% in 2025. By this shift of cargo volume to rail, traffic conditions on the roads will improve, especially on those sections between Swakopmund and Okahandja.

**Table 11.3: Future total cargo volume by mode (Rail oriented case)**

Unit: million ton per year

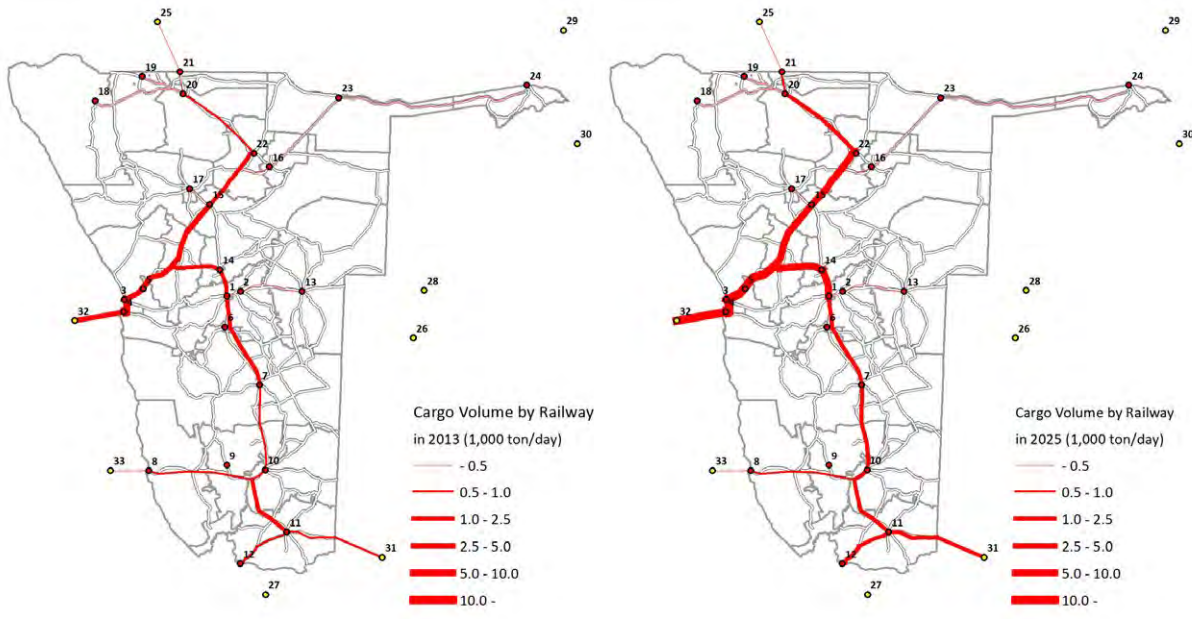
Transport modes	2013	Target in 2025	Growth rate 2013-25
Railway	2.7 (12%)	6.0 (15%)	4.9%
Road	19.6 (88%)	34.5 (85%)	6.9%
Total	22.2 (100%)	40.5 (100%)	5.1%

Source: JICA Study Team

**Table 11.4: Shares in cargo volume by rail in major sections**

Major section	2013	Target in 2025
Swakopmund - Walvis Bay	18%	23%
Kranzberg - Swakopmund	18%	23%
Okahandja - Kranzberg	17%	20%
Kranzberg - Otavi	20%	28%

Source: JICA Study Team



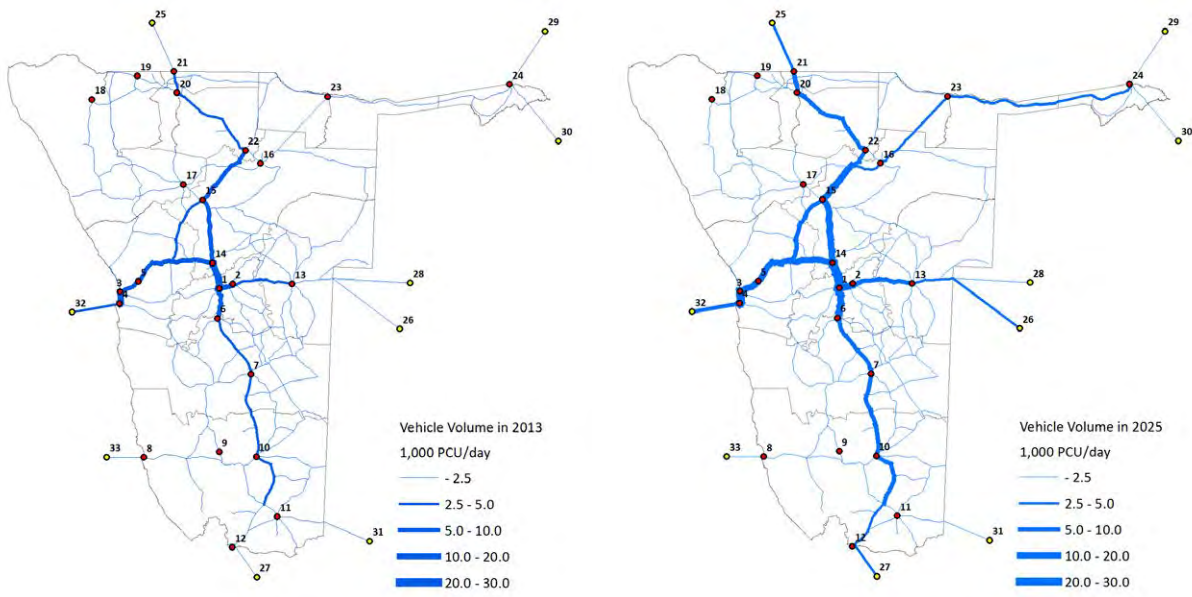
2015

2025

Note: The figures include road transport to access railway station.

Source: JICA Study Team

Figure 11.3: Rail cargo transport (Rail oriented case)

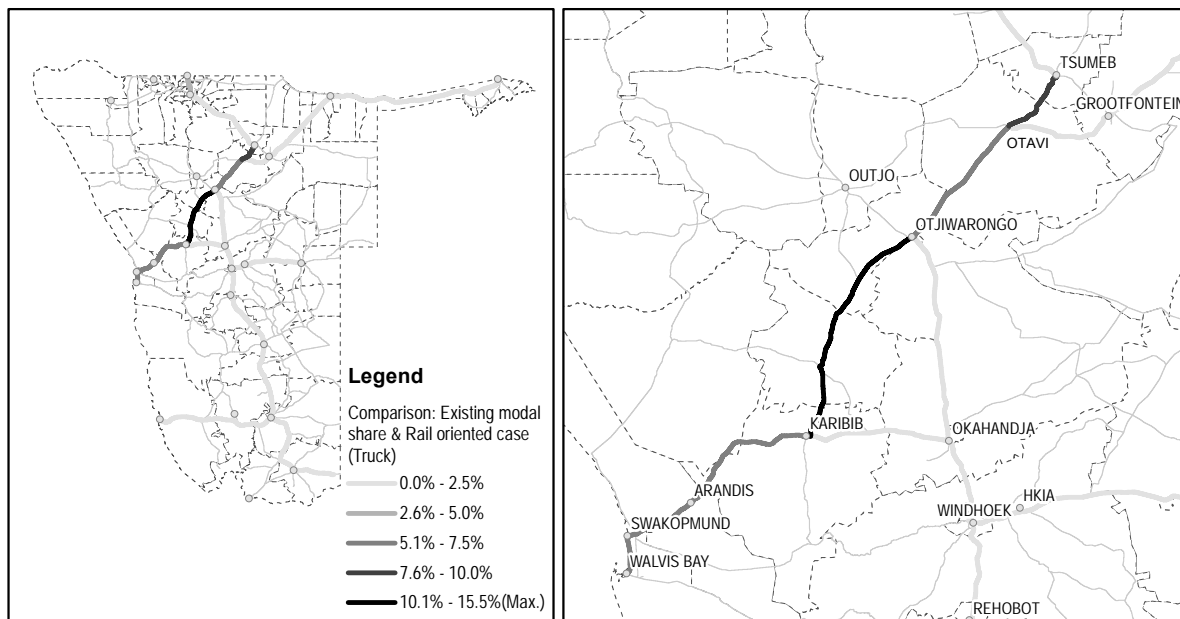


2015

2025

Source: JICA Study Team

Figure 11.4: Road traffic volume (Rail oriented case)



Note: Trucks includes 2 axle truck, 3 axle truck and multi axle truck in this analysis.  
 Source: JICA Study Team

**Figure 11.5: Decrease in ratio of truck traffic from existing modal share case to rail oriented case in 2025**

## 11.5 Key elements, diagnosis, strategies and actions

The overall structure of the Master Plan is as summarized in Table 11.5.

**Table 11.5: Overall structure of the master plan**

Key Elements	Diagnoses	Strategies	Actions
(1) Market (demand base) (2) Strong and attractive operation base for international logistics. (3) Efficient Transport Network (including town infrastructure). (4) Integrated Border Infrastructure. (5) Cross-cutting elements (Finance, Human Resources, Power Supply, Water Supply, ICT). (6) Environmental and Social Considerations.	(1) Volume is too small. (2) Cost (price) is higher than the other gateways. (3) Transport network fails to reach international standard. Volume matters. (4) Towns are not ready to accommodate increased volume. (5) Shortage in throughput capacity of border posts and need for Integrated Border Infrastructure. (6) Lack of integrated ICT System to support logistics services. (7) Immediate shortage of human resources. (8) Financial mechanisms for developing/ maintaining transport infrastructure are not sustainable. (9) Stable electric power supply. (10) Negative impacts of logistics development on environment and society are found to be manageable. Pay attention to mitigate negative impacts, and promote synergy effects with other sectors.	(1) Namibia as a newcomer should be “impressive at a glance” (2) Namibia must install “pull-factors” strategically and decisively. (3) “Anchor tenants approach” is the best and fastest way to get the volume. Logistics Hub Centre must be a strategic centrepiece. (4) Remove critical bottlenecks on the key corridors by expanding throughput capacity to enhance “speed and reliability.” (5) Get up to international standard as quickly as possible. (6) Re-introduce beneficiaries pay principles - to stop cross-subsidisation in investment and operation of logistics related infrastructure in order to secure long-term sustainability. (7) Install a legal framework to give foundations for key stakeholders to implement the Master Plan.	Develop all key elements.  See table below for detail.

Source: JICA Study Team

The “Key Elements” shown on the first column in Table 11.5 are the elements required for Namibia to develop in order to transform the nation as a whole to an “International Logistics Hub” as presented in Chapter 2. The items in the second column are the “Diagnoses” of gaps between the present conditions and required states as an “International Logistics Hub”. The third column summarizes proposed “Strategies” (overall level) to fill these gaps (see Chapter 2 for detail descriptions).

There are specific “Symptoms” behind overall diagnoses as summarized in Table 11.6. Given those symptoms, respective “Development requirements” are identified and “Actions” to fulfil these requirements are proposed as summarized in Table 11.6. The on-going projects already in



progress are not included in the list (such as “New Container Terminal Development in Walvis Bay”).

**Table 11.6: Summary of diagnoses, development requirements, and respective proposed actions**

Key elements of an International Logistics Hub	Diagnoses	(Symptoms)	Development requirements	Actions
Market (demand base)	Volume is too small.	<ul style="list-style-type: none"> <li>Lack of business cases to sell.</li> </ul>	<ul style="list-style-type: none"> <li>Market promotion for transit cargo.</li> <li>Market promotion for transshipment cargo.</li> </ul>	<ul style="list-style-type: none"> <li>Market research and promotion activities.</li> <li>Regular benchmarking of state of Logistics in Namibia.</li> <li>Proactive and strategic business plan to involve global players (shipping companies) in port operation.</li> </ul>
Strong and Attractive Operation Base for International Logistics	Cost (price) is higher in Namibia than the other gateways.	<ul style="list-style-type: none"> <li>Limited number of logistics companies for transit cargo market.</li> <li>Lack of logistics facility for serving Landlocked SADC.</li> <li>Non-tariff barriers (NTB) to foreign companies (e.g. VISA).</li> <li>Risks of soaring land prices due to land speculation.</li> </ul>	<ul style="list-style-type: none"> <li>Attract Namibian and foreign companies to enter transit cargo market.</li> <li>Human resource development on logistics businesses.</li> <li>Elimination of NTB.</li> <li>Stop land speculation.</li> </ul>	<ul style="list-style-type: none"> <li>Development of business plan and incentive mechanisms for Logistics Hub Centre</li> <li>Reforms of laws and regulations for development of Logistics Hub Centre.</li> <li>Preparations of Logistics Hub Centre development project (including road, drainage, water supply, sewerage, electricity).</li> <li>Marketing LHC.</li> <li>Preparation and development of inland satellite hubs.</li> </ul>
Efficient Transport Network	Transport network fails to reach international standard.	<p>Road:</p> <ul style="list-style-type: none"> <li>Low design standard in some trunk roads (narrow road width and low axle load).</li> <li>Unsustainable distribution of user charge funds.</li> </ul>	<ul style="list-style-type: none"> <li>Upgrading key sections of trunk roads.</li> <li>Rationalise fund allocation.</li> </ul>	<ul style="list-style-type: none"> <li>Upgrading trunk road section of Swakopmund–Karibib.</li> <li>Upgrading trunk road section of Karibib–Otjiwarongo.</li> <li>Re-introduce beneficiaries pay principle.</li> <li>Maintenance of trunk roads along the corridors.</li> </ul>

Key elements of an International Logistics Hub	Diagnoses	(Symptoms)	Development requirements	Actions
Efficient Transport Network (continued)	Transport network fails to reach international standard.	Railway: <ul style="list-style-type: none"> <li>▪ Unreliable operation.</li> <li>▪ Aging of locomotives and lack of loading machines and facilities</li> <li>▪ Low reliability in some sections of tracks between Walvis Bay–Kranzberg and Kranzberg –Windhoek.</li> <li>▪ Incapable of meeting increasing potential demand on bulk cargo in Namibia</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implementation of 5 year strategy plan</li> <li>▪ Comprehensive rehabilitation/ upgrade of 3 major lines to improve reliability and speed.</li> <li>▪ Development of new cargo trains to meet increase in bulk/ container cargo demand.</li> <li>▪ Investment in locomotives and loading facilities (umbrella agreement, outsourcing,)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Upgrading for the section of Walvis Bay–Kranzberg.</li> <li>▪ Upgrading for the section of Kranzberg–Windhoek.</li> <li>▪ Purchase, repair and maintenance of rolling stock and facility.</li> <li>▪ Operation of block cargo trains.</li> <li>▪ Comply with SADC standard.</li> <li>▪ Preparation and development of “Grooifontein–Katima Mulilo” rail link.</li> </ul> <hr/> <i>Depends on coalmines in Botswana.</i> <ul style="list-style-type: none"> <li>▪ Preparation and development of “Trans-Kalahari Railway (TKR)”.</li> </ul>
		Maritime: <ul style="list-style-type: none"> <li>▪ High dependency on volatile demand for transshipment.</li> <li>▪ Need more routes and frequency.</li> <li>▪ Good in terms of “African Standard”.</li> <li>▪ Port capacity will not be enough around 2020.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Secure transshipment demand-base</li> <li>▪ Market promotion for transshipment cargo</li> <li>▪ Improvement of handling capacity and throughput efficiency to go beyond African standard.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Examine 5 different alternatives in expanding container handling capacity of the port.</li> <li>▪ Re-arrangement of port facility and operation hours to stretch port capacity to max.</li> <li>▪ Human resources development.</li> <li>▪ Integrated operation with border management.</li> <li>▪ Integrated operation with “Hub Centre” and truck stops.</li> <li>▪ North Port Phase 2 (Multi purpose bulk terminal)</li> </ul> <hr/> <i>Depends on TKR.</i> <ul style="list-style-type: none"> <li>▪ North Port Phase 3 (Botswana coal terminal)</li> </ul>

Key elements of an International Logistics Hub	Diagnoses	(Symptoms)	Development requirements	Actions
Efficient Transport Network (continued)		<p>Aviation:</p> <ul style="list-style-type: none"> <li>▪ Momentum of an Intra-Africa Open Sky Policy.</li> <li>▪ Overall service level is not sufficient.</li> <li>▪ Burdens of unprofitable operations.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Realization of Intra-Africa Open Sky with neighbouring countries.</li> <li>▪ Improvement of service level.</li> <li>▪ Separation between profitable operations and non-profitable operations.</li> <li>▪ Explore new air cargo market opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Promotion of negotiations on open sky with neighbouring countries.</li> <li>▪ Market research on air cargo demand at HKIAK Airport.</li> <li>▪ Market research on air cargo demand at Walvis Bay Airport.</li> <li>▪ Closer coordination between NAC and airlines.</li> <li>▪ Human resources development and better customer service information system.</li> </ul>
	Towns are not ready to accommodate increased traffic volume.	<p>Town planning:</p> <ul style="list-style-type: none"> <li>▪ Congestions of trucks at town areas along the corridors.</li> <li>▪ Risks of soaring land price due to land speculation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Construction of bypass roads at towns</li> <li>▪ Development of truck stops.</li> <li>▪ Stop land speculation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Land use planning program.</li> <li>▪ Development of bypasses and truck stops.</li> </ul>
Integrated Border Infrastructure	Shortage of throughput capacity of the border posts and need of border Infrastructure.	<ul style="list-style-type: none"> <li>▪ Congestion at border facilities and the surrounding areas.</li> <li>▪ Time consuming to obtain the necessary permits for cargo transport from multiple government agencies.</li> <li>▪ Lack of "last one mile" of ICT network.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Preparation of land use plans and regulation.</li> <li>▪ Relocation and expansion of border facilities.</li> <li>▪ Bypass road.</li> <li>▪ Facilitation of ICT (linking Asycuda with Navis, introduction of Risk Management System).</li> <li>▪ Integration of different systems for cross-border procedures (Single Window).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Preparation and development of border town development packages (land use plan, bypass, truck stop, and Integrated Border Infrastructure project).</li> <li>▪ Integration of ICT system for border management (linking Asycuda with Navis, introduction of Risk Management System, and "Single Window".</li> <li>▪ Install "Corridor Net" to provide information services to transporters.</li> <li>▪ Preparation and Implementation of OSBP.</li> </ul>

Key elements of an International Logistics Hub	Diagnoses	(Symptoms)	Development requirements	Actions
Development of Lüderitz	Under utilized port capacity.	<ul style="list-style-type: none"> <li>Isolated from economic activities in Namibia.</li> <li>Limited public funds for investment.</li> </ul>	<ul style="list-style-type: none"> <li>Explore closer economic linkage with Northern Cape (RSA).</li> </ul>	<p><i>Depends on assessment of demand for manganese export.</i></p> <ul style="list-style-type: none"> <li>Development of Lüderitz Port with PPP scheme for exporting manganese and fruits.</li> <li>Improvement of rail link from Aus to Ariamsvlei.</li> </ul>
Cross-cutting issues	Financial mechanisms to develop/maintain transport infrastructures are not sustainable.	<ul style="list-style-type: none"> <li>Mismatch between demand for infrastructure and provision of funds for investment and maintenance.</li> <li>Relatively small public debts in proportion to GDP.</li> </ul>	<ul style="list-style-type: none"> <li>Re-introduction of Economic criteria of investment (beneficiary pay principle)</li> <li>Development of new financial schemes (e.g. use of GIPF)</li> <li>Explore more use of private investments for public infrastructure.</li> <li>Explore potentials for getting additional soft loans.</li> </ul>	<ul style="list-style-type: none"> <li>Rationalize investment (Refocus on economically viable projects).</li> <li>Rationalize user charge in accordance with "mileage".</li> <li>Fund allocation in accordance with traffic volumes.</li> <li>Use of soft loans for immediate needs of large investments.</li> <li>Promotion of Public Private Partnership (Success case approach)</li> </ul>
	Shortage of human resources.	<ul style="list-style-type: none"> <li>Immediate shortage of skilled labour.</li> <li>Long-term shortage to supply broad-based work force to the logistics sector.</li> </ul>	<ul style="list-style-type: none"> <li>Do not hesitate to use foreign skilled labour, especially to fill immediate gaps.</li> <li>Need to build up long-term supply base of human resource to the logistics sector.</li> </ul>	<ul style="list-style-type: none"> <li>More flexible work permits/ visas for strategically important areas.</li> <li>Expand college level training capacity in Namibia.</li> <li>Conditional scholarships to send college level students in foreign universities.</li> <li>Vocational training programmes.</li> </ul>
	Shortage of power generation capacity within Namibia.	<ul style="list-style-type: none"> <li>Increasing import of electricity.</li> </ul>	<ul style="list-style-type: none"> <li>Secure energy sources to meet increasing demand.</li> </ul>	<ul style="list-style-type: none"> <li>Explore new energy sources.</li> </ul>
	Stable water supply	<ul style="list-style-type: none"> <li>Enough supply at present.</li> <li>Risks of shortage in urban centres in the coastal areas in the future.</li> </ul>	<ul style="list-style-type: none"> <li>Secure water sources to meet increasing demand.</li> </ul>	<ul style="list-style-type: none"> <li>Explore new water sources.</li> </ul>

Key elements of an International Logistics Hub	Diagnoses	(Symptoms)	Development requirements	Actions
Environmental and Social Considerations.	Negative impacts of logistics development on environment and society are found to be manageable. Pay attention to mitigate negative impacts, and promote synergy effects with other sectors.	<ul style="list-style-type: none"> <li>Higher risks of traffic accidents, noise, and other negative impacts.</li> <li>Potential risks to impede movements of wild animals.</li> <li>Higher risks of spreading communicable diseases.</li> <li>Potential benefits to encourage tourism.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce traffic accidents.</li> <li>Reduce noise and pollutions.</li> <li>Conserve wild animals</li> <li>Prevent the spread of diseases (HIV, Ebola, etc.)</li> <li>Promote synergy effect with tourism.</li> </ul>	<ul style="list-style-type: none"> <li>Upgrade roads for more safety.</li> <li>Design transport infrastructure to minimize negative effects.</li> <li>Better and effective border control with integrated border infrastructure to prevent the spread of diseases.</li> <li>Better roads promote tourism.</li> <li>Utilise truck stops for tourism services as well.</li> <li>Conduct EIA for all required development projects</li> <li>Monitor implementation of the master plan (Strategic Environmental Management)</li> </ul>

Source: JICA Study Team

All actions listed in Table 11.6 above are given respective implementation timeframes of “Short-term (by 2020)”, “Medium-term (by 2025)”, or “Long-term” as summarized in Table 11.7. Key organizations for implementation of those actions are also identified.

**Table 11.7: “Roadmap”– Comprehensive timeframe of proposed actions**

Timeframe Key elements	Short-term Actions (by 2020)	Medium-term Actions (by 2025)	Long-term Actions	Key Organizations
(1) Market (demand base)	Marketing promotion program			
	<ul style="list-style-type: none"> <li>Establishment of a National Coordinating Body</li> </ul>	<i>(The body is effectively functioning)</i>	<i>(The body is effectively functioning)</i>	NPC/MTI/ MOF/MWT/ WBCG/NGCL
	<ul style="list-style-type: none"> <li>Market research and promotion activities</li> <li>Development of marketing promotion technique</li> <li>Regular benchmarking of state of Logistics in Namibia</li> </ul>	<i>(Continuation of the actions)</i>	<i>(Continuation of the actions)</i>	NPC/MTI/ MOF/MWT/ Namport/ WBCG

Timeframe Key elements	Short-term Actions (by 2020)	Medium-term Actions (by 2025)	Long-term Actions	Key Organizations
(2) Strong and Attractive Operation Base for International Logistics	<p>Development of "Logistics Hub Centre" (LHC) in Walvis Bay.</p> <ul style="list-style-type: none"> <li>Development of a business plan and incentive mechanisms for LHC</li> <li>Reforms of laws and regulations for development of LHC</li> <li>Establishment of operation body for LHC</li> <li>Preparations of infrastructure development project for LHC (including road, drainage, water supply, sewerage, electricity)</li> </ul>	<ul style="list-style-type: none"> <li>Marketing LHC to logistics companies (more than 80% of lots to be contracted by 2025)</li> <li>Preparation and commencement of development of satellite hubs in inland areas</li> </ul>	<ul style="list-style-type: none"> <li>Completion of development of satellite hubs in inland areas in accordance with prospects of the demand</li> </ul>	NPC/MTI/MOF/MWT/Namport/WB Municipality/WBCG
(3) Efficient Transport Network 1 (by Mode)	<p>Road</p> <ul style="list-style-type: none"> <li>Commencement of upgrade of trunk road section of Swakopmund – Karibib.</li> <li>Commencement of upgrade of trunk road section of Karibib - Otjiwarongo.</li> <li>Re-introduce beneficiaries pay principle</li> </ul>	<ul style="list-style-type: none"> <li>Completion of upgrade projects for trunk road sections</li> <li>Maintenance of trunk roads along the corridors</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of trunk roads along the corridors</li> </ul>	MWT/Roads Authority (RA)/ Road Fund Administration (RFA)
	<p>Railway</p> <ul style="list-style-type: none"> <li>Upgrading for the section of Walvis Bay – Kranzberg</li> <li>Upgrading for the section of Kranzberg – Windhoek</li> <li>Purchase, repair and maintenance of rolling stock and facility</li> </ul>	<ul style="list-style-type: none"> <li>Operation of block cargo trains by commodities</li> <li>Maintenance and upgrade of rail tracks along the corridors to comply with SADC axle load standard</li> </ul> <p><i>(Depends on coalmines in Botswana)</i></p> <ul style="list-style-type: none"> <li>Preparation and development of "Trans-Kalahari Railway (TKR)"</li> </ul>	<ul style="list-style-type: none"> <li>Preparation and development of "Grootfontein – Katima Mulilo" rail link</li> </ul>	MWT/TransNamib

Timeframe Key elements	Short-term Actions (by 2020)	Medium-term Actions (by 2025)	Long-term Actions	Key Organizations
	<p>Maritime</p> <ul style="list-style-type: none"> <li>Examine 5 different alternatives in expanding container handling capacity at Walvis Bay Port</li> <li>Re-arrangement of port facility and operation hours to stretch port capacity to max</li> <li>Human resources development in accordance with increase of cargo handling capacity</li> </ul>	<ul style="list-style-type: none"> <li>Integrated operation with border management</li> <li>Integrated operation with the LCH and truck stops</li> <li>Preparation and development of North Port Phase 2 (Multi purpose bulk terminal)</li> </ul> <p><i>(Depends on coalmines in Botswana and TKR)</i></p> <ul style="list-style-type: none"> <li>Preparation and development of North Port Phase 3 (Botswana coalterminal)</li> </ul>	<p><i>(Preparation for further development in accordance with prospects of demand)</i></p>	MWT/Namport
	<p>Aviation</p> <ul style="list-style-type: none"> <li>Promotion of negotiations on open sky with neighbouring countries</li> <li>Market research on air cargo demand at HKIA Airport</li> <li>Market research on air cargo demand at Walvis Bay Airport</li> <li>Human resources development and better customer service information system</li> </ul>	<ul style="list-style-type: none"> <li>F/S and implementation of air cargo projects (in accordance with the results of market research)</li> </ul>	<p><i>(Preparation for further development in accordance with prospects of demand)</i></p>	MWT/NAC/Air Namibia
(4) Efficient Transport Network 2 (by Towns)	<p>Towns along the Corridors</p> <ul style="list-style-type: none"> <li>Land use-planning program in 7 towns</li> <li>Commencement of development of bypasses and truck stops in 7 towns</li> <li>Commencement of development of truck stops in other towns where viable</li> </ul>	<ul style="list-style-type: none"> <li>Completion of bypasses and truck stops in 7 towns</li> <li>Completion of truck stops at other towns where viable</li> </ul>	<p><i>(Preparation for further development in accordance with prospects of demand)</i></p>	NPC/MWT/RA/MRLGHRD/7 Towns (Usakos, Karibib, Omaruru, Otjiwarongo, Ondangwa, Grootfontein, Rundu)

Timeframe Key elements	Short-term Actions (by 2020)	Medium-term Actions (by 2025)	Long-term Actions	Key Organizations
(5) Integrated Border Infrastructure	<p>Border Towns and Border Points</p> <ul style="list-style-type: none"> <li>Preparation and commencement of border town development packages (land use plan, bypass, truck stop, and integrated border infrastructure project)</li> <li>Integration of ICT system relating border management (linkage between Asycuda and Navis, Single Window and Risk management System)</li> <li>Install "Corridor Net" to provide information services to transporters.</li> <li>Implementation of OSBP at Mamuno border post</li> <li>Preparation of OSBP at Wenela border post</li> </ul>	<ul style="list-style-type: none"> <li>Completion of construction of border town development package</li> <li>Preparation for development of satellite hubs in border towns</li> <li>Implementation of OSBP at Wenela border post</li> </ul>	<i>(Preparation for further development in accordance with demand)</i>	NPC/MOF/MTI/MHAI/MOHSS/MAWF/MRLGHRD/WBCG/2 towns (Katima Mulilo, Helao Nafidi - Oshikango)
(6) Development of Lüderitz	<p><i>Depends on assessment of demand for manganese export.</i></p> <ul style="list-style-type: none"> <li>Preparation of port development with PPP</li> <li>F/S and EIA on port development (alternatives)</li> <li>Preparation and improvement of rail link from Aus to Ariamsvlei</li> </ul>	<i>(Depends on outcomes of various assessments related to manganese export)</i>	<i>(Depends on outcomes of assessments)</i>	MWT/Namport
(7) Cross-cutting issues	<p>Finance</p> <ul style="list-style-type: none"> <li>Rationalize investment (Refocus on economically viable projects)</li> <li>Rationalize user charge in accordance with "mileage"</li> <li>Fund allocation in accordance with traffic volumes</li> <li>Use of soft loans for immediate needs of large investments</li> <li>Promotion of Public Private Partnership (success case approach)</li> </ul>	<i>(Continuation of the actions)</i>	<i>(Continuation of the actions)</i>	NPC/MOF/MWT/RFA/GIPF
	<p>Human Resources</p> <ul style="list-style-type: none"> <li>More flexible work permits/ visas for strategically important areas</li> </ul>	<i>(Flexible regulations are in place)</i>	<i>(Flexible regulations are in place)</i>	MHAI
	<ul style="list-style-type: none"> <li>Expand college level training capacity in Namibia</li> <li>Conditional scholarships to send college level students in foreign universities (e.g. Stellenbosch Univ.)</li> <li>Needs survey for vocational training programmes</li> </ul>	<i>(Continuation of the actions)</i>	<i>(Continuation of the actions)</i>	SOEs/WBCG/Polytechnic/NTA



Timeframe Key elements	Short-term Actions (by 2020)	Medium-term Actions (by 2025)	Long-term Actions	Key Organizations
(8) Environmental and Social Considerations	<ul style="list-style-type: none"> <li>▪ Upgrade roads for more safety</li> <li>▪ Design transport infrastructure to minimize negative effects</li> <li>▪ Better and effective border control with integrated border infrastructure to prevent social disruption (e.g. STDs, drugs, trafficking, crime)</li> <li>▪ Utilise better roads to promote tourism</li> <li>▪ Utilise truck stops for tourism services as well</li> <li>▪ Conduct EIA for all required development projects</li> <li>▪ Monitor implementation of the master plan (Strategic Environmental Management)</li> </ul>	(Continuation of the actions)	(Continuation of the actions)	Respective organizations of implementation of projects

Source: JICA Study Team

## 11.6 Critical Programmes and Projects

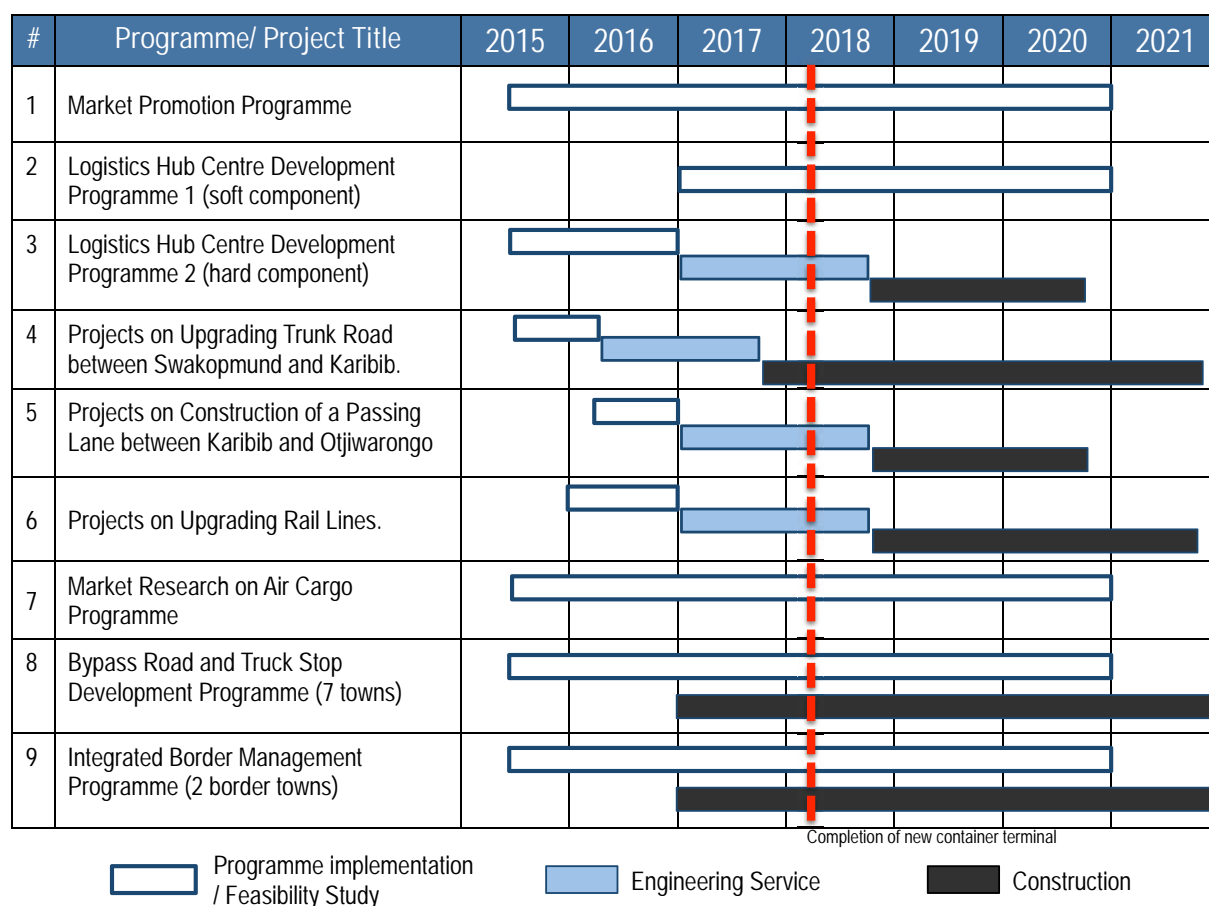
Among the actions listed above as a comprehensive list, most “Critical Programmes/Projects” are identified as summarized in Table 11.8. Criteria to identify critical actions are listed below. These criteria are not representing “importance” of actions but rather “sequence” of actions.

- Timeframe criteria: Short-term actions to be completed by 2020.
- Upstream criteria: Actions to be done at the initial stage in order to fulfil development requirements as essential conditions for the other critical actions to follow.
- Collective actions criteria: Actions required to build clear policy guidelines and consensus for implementation.

**Table 11.8: Summary of Critical Programmes and Projects (provisional)**

Key Elements	Programme/Project Title	Organisation	Schedule	N\$ million	#
(1) Strategic Marketing	Market Promotion Programme (1) Establishment of a National Coordinating Body (2) Market research and promotion program (3) Development of marketing promotion technique (4) Regular benchmarking of "State of Logistics" in Namibia	NPC/MTI/MOF/ MWT/Namport/ WBCG/NGCL	2015-2020	42.60	1
(2) Strong and Attractive Operation Base for International Logistics	Logistics Hub Centre Development Programme 1 (soft component) (5) Establishment of an operation and management body (6) Development of a business plan and incentive mechanisms for LHC (7) Reforms of laws and regulations for development of LHC	NPC/MTI/MWT/ Namport/WB Municipality/ WBCG	2015-2020	32.70	2
	Logistics Hub Centre Development Programme 2 (hard component) (8) Preparation of infrastructure development	MWT/MTI (NDC)	2015-2016 (FS) 2017-18 (ES) 2019-20 (Const.)	644.40	3
(3) Efficient Transport Network (Modes)	Project on Upgrading Trunk Road between Swakopmund and Karibib (9) Swakopmund – Arandis (10) Arandis – Karibib	MWT/RA	2015 (FS) 2016-18 (ES) 2018-22 (Const.)	2,503 (min) – 6,888 (max)	4
	Project on Construction of Passing Lanes between Karibib and Otjiwarongo (11) Passing lanes in 40 locations	MWT/RA	2016 (FS) 2017-18 (ES) 2018-20 (Const.)	324.47	5
	Project on Upgrading Rail Lines (12) Walvis Bay – Kranzberg (13) Kranzberg – Windhoek	MWT/ TransNamib	2015-16 (FS) 2017-18 (ES) 2019-21 (Const.)	1,968.62	6
	Market Research on Air Cargo Programme (14) Market research on air cargo demand at Walvis Bay Airport (15) Market research on air cargo demand at HKIA Airport	MWT/NAC	2015-2020	6.00	7
(4) Efficient Transport Network (Towns)	Bypass Road and Truck Stop Development Programme (16) Land use-planning program (17) Preparation of bypass road development projects (18) Preparation of truck stop development projects	NPC/MWT/RA/7 towns (Usakos, Karibib, Omaruru, Otjiwarongo, Ondangwa, Grootfontein, Rundu)	2015-2020	2,237.90	8
(5) Integrated Border Management	Integrated Border Management Programme (19) Preparation and commencement of border town development packages (Land use plan, Bypass, Truck stop, and border infrastructure) (20) Integration of ICT system relating border management (linkage between Asycuda and Navis, Single Window and Risk Management System (21) Install "Corridor Net" to provide information services to transporters (22) Implementation of OSBP at Mamuno	NPC/MOF/ MTI/MHAI/ MOHSS/MAWF/ WBCG 2 towns (Katima Mulilo, Helao Nafidi - Oshikango)	2015-2020	27.0 (excluding construction of border town development packages)	9

Source: JICA Study Team.



Source: JICA Study Team

**Figure 11.6: Schedule of Critical Programmes and Projects (provisional draft)**

### 11.7 Identified urgent need for establishing an entity for overall coordination of implementation of the Master Plan (“National Coordinating Body”).

As clearly seen in the table above, challenges found and respective actions proposed are not just a group of simple matters of “construction” and “financing”. Each and every action involves many kinds of stakeholders with different interests and priorities, which makes it challenging to reach much needed consensus on how to implement programmes and projects. Outcomes of actions are mutually supplemental and interactive in their nature.

For example, without an appropriate land use plan at a border town (a town council is in charge), it is impossible to decide on the location of border facilities (Customs & Excise Department is a leading organization) and a bypass road to connect them to a respective trunk road (Roads Authority is in charge). If a border town, a border post, the roads do not have a well-coordinated development plan and cannot accommodate the flow of trucks efficiently, this becomes a serious bottleneck limiting the

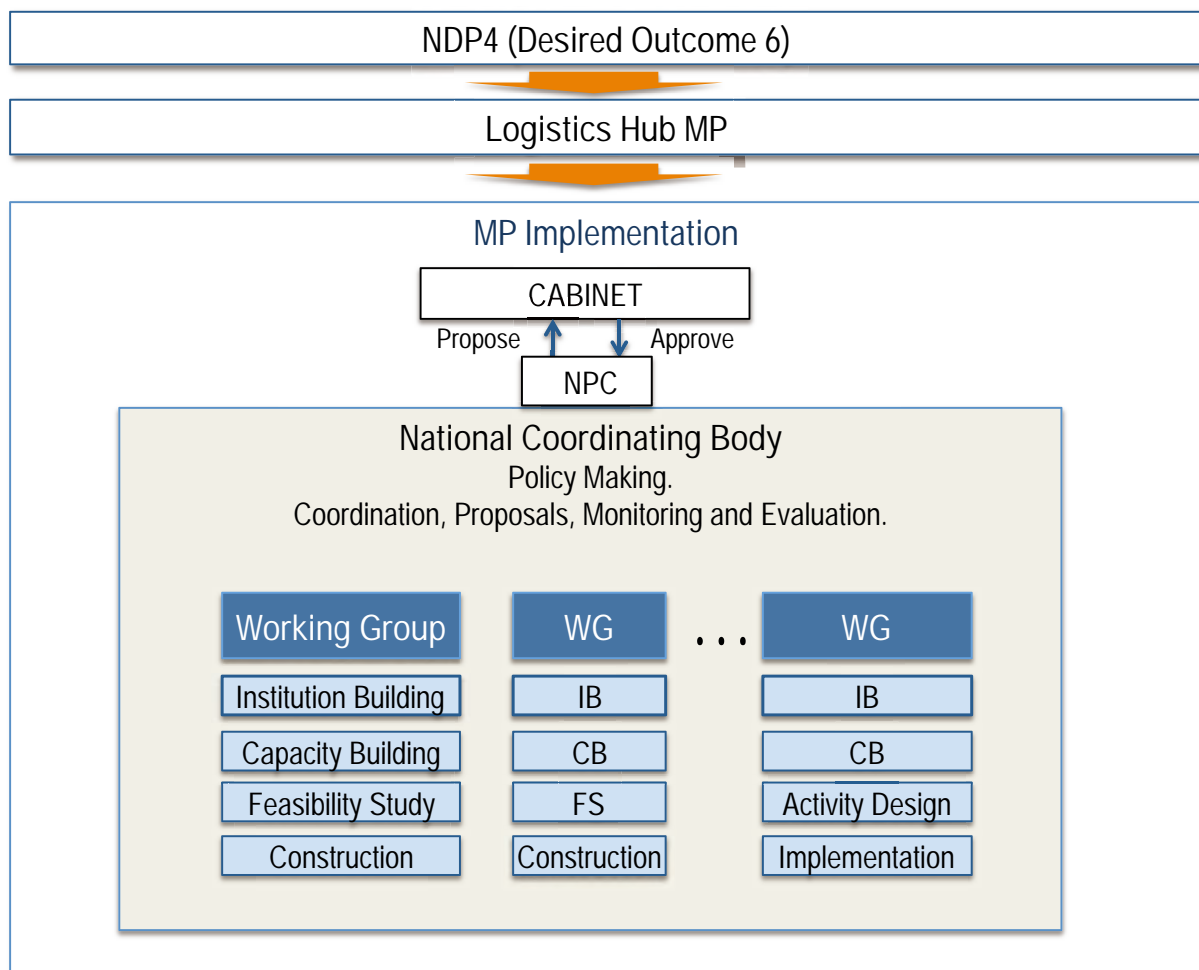
capacity of cargo flow as a whole. One failure could negate all the other good initiatives.

It is quite likely that piecemeal implementation of individual actions may result in inefficient and unsatisfactory results in the end. What the Logistics Master Plan Study revealed is the fact that these actions must be implemented with close coordination among a wide range of stakeholders, both from the public and private sectors in an integrated manner in order to keep consistency among actions to be taken and to realize synergy of these as intended in the Logistics Master Plan.

To achieve this, it is essential to have a new single coordinating body at national level that can propose clear policy directions supported with strong technical expertise for management of such a comprehensive and strategic development plan. This body form and coordinate implementing task forces such as “Working Groups” that should consist of members from implementing organizations in charge of respective actions (programmes and projects).

It is also proposed that such a body will function best if it is mandated to propose policy directions to the cabinet through NPC. The body should have an “Office” function that is capable of coordinating day-to-day operations with technical expertise and deliver policy decisions made by the cabinet to implementing organizations. Such “Office” should function similar to the level of National Planning Commission (under the Office of The President and in charge of National Development Plan) specifically focused on implementation of the Logistics Master Plan.

An organizational structure (provisional concept) for Logistics Master Plan implementation is as summarized in Figure 11.7.



Source: JICA Study team

**Figure 11.7: Schematic organizational structure for Logistics Master Plan implementation (provisional concept with generic names)**

Establishment of the coordinating body (the body and the Working Groups) and actual implementation should follow the step-wise sequence as presented below.

**Step 1: Establishment of the National Coordinating Body**

The National Coordinating Body is established for the following mandate and organizational arrangement (provisional concept and interim arrangement for inception, and a final structure will be determined as it progresses).

**Table 11.9: Structure of the National Coordinating Body (provisional)**

National Coordinating Body	
Mandate	<ul style="list-style-type: none"> <li>To propose policy guidelines and development plan to the Cabinet.</li> <li>To appoint, coordinate, approve, monitor, and evaluate implementation of Master Plan by Working Groups.</li> <li>To manage and coordinate overall operation of implementation of Logistics Hub Master Plan by Working Groups with policy decisions and priorities approved by the Cabinet.</li> </ul>

**Step 2: Formation of Working Groups (as part of the Body)**

Seven Working Groups are to be established for the following mandates and core activities as identified by the Logistics Master Plan Study (provisional concept and interim arrangement for inception, a final structure will be determined as it progresses). In particular, Working Groups of (1) Strategic Marketing/Overall Arrangement and (2) Logistics Hub Centre Development are important to carry out the Logistics Hub Master Plan, and these Working Groups should be formulated soon after establishment of the National Coordination Body.

**Table 11.10: Structure of Working Groups (provisional)**

Working Groups	Ministries/ Organisations	Mandate	Programmes/Projects
(1) Strategic Marketing/ Overall Arrangement	NPC/MTI/ MWT/Namport/ WBCG/NGCL	<ul style="list-style-type: none"> <li>Build common policy bases of marketing strategies.</li> <li>Overall management and institutional arrangement.</li> </ul>	<ul style="list-style-type: none"> <li>Market promotion programme (Promotion strategy and overall management of the master plan)</li> </ul>
(2) Logistics Hub Centre Development	NPC/MWT/ MTI/Namport/ Walvis Bay Municipality/ WBCG	<ul style="list-style-type: none"> <li>Establish Business and Operation Policy, Institution building, and Infrastructure development for LHC.</li> </ul>	<ul style="list-style-type: none"> <li>Logistics Hub Centre Development programme 1 (soft component)</li> <li>Logistics Hub Centre Development programme 2 (hard component)</li> </ul>
(3) Transport Network 1 (Road and Railway)	MWT/RA/ TransNamib	<ul style="list-style-type: none"> <li>Remove bottlenecks in all modes of transport network along the corridor.</li> </ul>	<ul style="list-style-type: none"> <li>Project on upgrading trunk road between Swakopmund and Karibib.</li> <li>Project on construction of passing lanes between Karibib and Otjiwarongo.</li> <li>Project on upgrading rail lines (2 sections).</li> </ul>
(4) Transport Network 2 (Bypass Roads and Truck Stops)	NPC/MWT/RA/M RLGHRD/7 Towns	<ul style="list-style-type: none"> <li>Remove bottlenecks in towns along the corridor (including town plans, bypass road, and truck stop development).</li> </ul>	<ul style="list-style-type: none"> <li>Bypass roads and truck stops development programme</li> </ul>
(5) Integrated Border Management	NPC/MOF/MTI/ MHAI/MOHSS/ MAWF/ MRLGHRD/ WBCG/2 towns	<ul style="list-style-type: none"> <li>Remove bottlenecks at the border points (including border infrastructure, town plans, bypass road, and truck stop development).</li> </ul>	<ul style="list-style-type: none"> <li>Integrated Border Management Programme</li> </ul>
(6) Cross-cutting elements	NPC/MOF/ MHAI/MTI/ MOE/NTA/ NGCL	<ul style="list-style-type: none"> <li>Finance, ICT, and Human Resources.</li> </ul>	(To be identified as an element of relevant programmes and projects.)
(7) Environment	NPC/MWT/ MET	<ul style="list-style-type: none"> <li>Mitigate negative environmental and social impacts of the MP.</li> </ul>	(To be identified as an element of relevant programmes and projects.)

Source: JICA Study Team

### **Step 3: Commencement of Programmes/ Projects**

Actions (programmes/projects) proposed in the Logistics Master Plan will start implementation by active collaboration among relevant stakeholders both from the public and private sectors.

#### **11.8 Transform the WBCG into the “National Coordinating Body”**

Regarding the establishment of a “National Coordinating Body”, it is highly recommended to transform and expand the mandate of the Walvis Bay Corridor Group to take on such role rather than to create a new organization.

In order to realize the “Vision” of the Logistics Master Plan to become the SADC Regional Logistics Hub, a number of critical factors need to be addressed, namely:

- Consolidation of the public and private sector efforts,
- Rapid infrastructure development (Air, Port, Rail & Road),
- Government Legislative Support,
- Private Sector support and participation (PPP),
- Human resource development,
- Appropriate ICT infrastructure and systems,
- Availing of land for creation of inland distribution centres,
- Creation of specific incentive schemes to attract Multi-National Freight Companies,
- Extensive regional and international marketing, promotion and benchmarking.

Given these factors, there are clear reasons for recommending the transformation of WBCG into the National Coordinating Body, including the following points.

(1) The Walvis Bay Corridor Group has already been identified within NDP4, with specific reference to the transformation of WBCG as a high level strategy within the next 5 years. NDP4 reads “The Walvis Bay Corridor Group can be transformed from an entity that focuses on the various Walvis Bay Corridors to one that will consolidate the coordinated public and private sector efforts to make Namibia a regional logistics hub. This will require equipping the Walvis Bay Corridor Group with the necessary skills and financial resources.”

(2) WBCG is one of the few success stories of PPP entities functioning effectively in Namibia & SADC. The WBCG’s unique compilation of Private and Public stakeholders provides it with a distinct advantage that is successfully illustrated in various Corridor management programs and

through its role as marketing and developing agency for Namibia's Transport Sector. As the Logistics Hub is also based on similar principles of public-private sector cooperation, this proven institutional efficiency will be of great benefit of the Logistics Hub development process.

(3) WBCG is the organization that has the most relevant experience to ensure the smooth transition from completion of the Logistics Master Plan into the implementation stage. A Logistics Hub unit had been established at the WBCG offices in Windhoek. The role of the unit is to coordinate and manage the Logistics Hub related projects with key focus areas being:

- Developing a framework for the Logistics Hub project,
- Coordinate & lead the development of a Namibia Logistics Master Plan,
- Local, Regional and International Marketing of the Namibia Logistics Hub.

The WBCG has been working on the formulation of the Logistics Master Plan throughout the whole process together with the Study Team, and thus fully understands the background analysis, development scenario, overall strategies, and proposed actions in the Logistics Master Plan.

### **11.9 Lack of technical expertise for establishment and management of “Coordinating Body” and “Working Groups” to implement the Logistics Master Plan**

While WBCG has good experience and the potential to be transformed to a “Coordinating Body”, in Namibia, there has been no such entity to make comprehensive coordination and collaborative work a reality yet. Thus, there is no experience and knowledge to establish this much needed “Coordinating Body” and “Working Groups” in an appropriate institutional arrangement.

Secondly, even if the National Coordinating Body is established, there is a lack of technical expertise to provide a good analytical and reasoning basis for decision-making and to guide respective “Working Groups” for well-coordinated implementation of actions proposed by the Master Plan. There are many skill gaps to be filled by international experts and still much to learn from them in order to make it possible for Namibia to manage comprehensive implementation in the medium to long-term perspectives.

According to the experiences of the Logistics Master Plan Study Project up to now, it is found to be very effective to build such coordination and collaboration through establishment of working relationships and building up a common knowledge base and vision among different stakeholders with facilitation by the Study Team with relevant international experiences, knowledge, and insights to draw up a roadmap to make Namibia a “Logistics Nation”. It became quite visible that a new



momentum of collective actions among the stakeholders is emerging through the process of the Logistics Master Plan Study Project. This new trend generated by this project should also be very effective and essential to keep this momentum alive and carry on to establish a “Coordinating Body” and “Working Groups” in the implementation stage.

#### **11.10 A success case of national level planning and implementation of integrated development - A case of “Eastern Seaboard Development Committee” in Thailand**

Regarding expertise needed for Namibia, the Logistics Master Plan Project proved that there are some successful cases of such national level planning and implementation of integrated development. For example, the Study Team, as part of their skill transfer activities, introduced an experience where Japan had supported “Office of Eastern Seaboard Development Committee” within “National Economic Social Development Board” in Thailand to develop the “Eastern Seaboard Region” as a new industrial base. Cooperation started from the Master Plan stage to its implementation, including two deep seaports, two industrial complexes, and associated infrastructure, during the period from the late 1970s to 1990s.

While it is not possible to directly apply experiences and formation of Japan-Thailand cooperation in the past to logistics development in Namibia, the Thai success case still gives quite insightful and practical references for Namibia in pursuing what the Logistics Master Plan proposed especially in terms of the role of a planning agency, frameworks for decision making, and institutional arrangements for implementation.

There are several success factors in case of Eastern Seaboard Development Programme.

(1) Master Plan first approach: One factor is that the whole programme had started with “Master Plan” providing a good common ground for a wide range of stakeholders to share the vision and whole image of development, which enabled them to discuss about issues on a same technical foundation. Technical Cooperation of Japan enabled formulation of the Master Plan, plans and feasibility studies for those projects proposed in the Master Plan.<sup>1</sup>

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<sup>1</sup> Japan also provided soft-loans for 16 projects (27 loans) during the period of 1985-2000. This financial cooperation was obviously one of the success factors. However, this may not applicable to the present Logistics Master Plan for Namibia, for such extensive provision of “yen loan” was made possible with given situation specific context that defined relationship between Japan and Thailand at the time: 2 countries are in “Asia” where “Japanese Yen” has been a key currency; Thailand had long been one of those primary destinations of FDIs from Japan during at the time; and the period of Eastern Seaboard Development Programme coincided with the period of rapid expansion of international cooperation budget of Japan in 1978-1997, which made it possible to provide large amount of loans.

(2) Given clear national level priority: Eastern Seaboard Development was regarded as a high priority in the 5th (1982-1986) and the 6th (1987-1991) National Economic and Social Development Plans. In case of Logistics Master Plan in Namibia, this has been already done through NDP4 stipulating it as a priority.

(3) National Coordinating Body: Thailand created special coordination and decision-making mechanisms exclusively for the plan. These were the following three level entities as indicated Table 11.11.

**Table 11.11: Organisations for implementation of Eastern Seaboard Development**

Level 1	Cabinet level national committee: Eastern Seaboard Development Committee (ESDC) chaired by Prime Minister (Prime Minister himself functioned as a "balancer").
Level 2	Sub-committees by major programmes
Level 3	Secretariat: Office of the Eastern Seaboard Development Committee (OESD) within the National Economic and Social Development Board (NESDB, agency similar to NPC in Namibia). OESD was assigned as the Secretariat for a number of major national committees and acted as influential liaison to get the plans and policies into action. It should be noted that Prime Minister of Thailand placed confidence in technocrats ("Secretariat") and delegated authority to them. He also placed great importance to pursue pragmatic economic outcomes by forcing back political pressures.

Source: Development Process and Aid: A Case study in the Eastern Seaboard Development (Thailand), GRIPS Development Forum June 2006

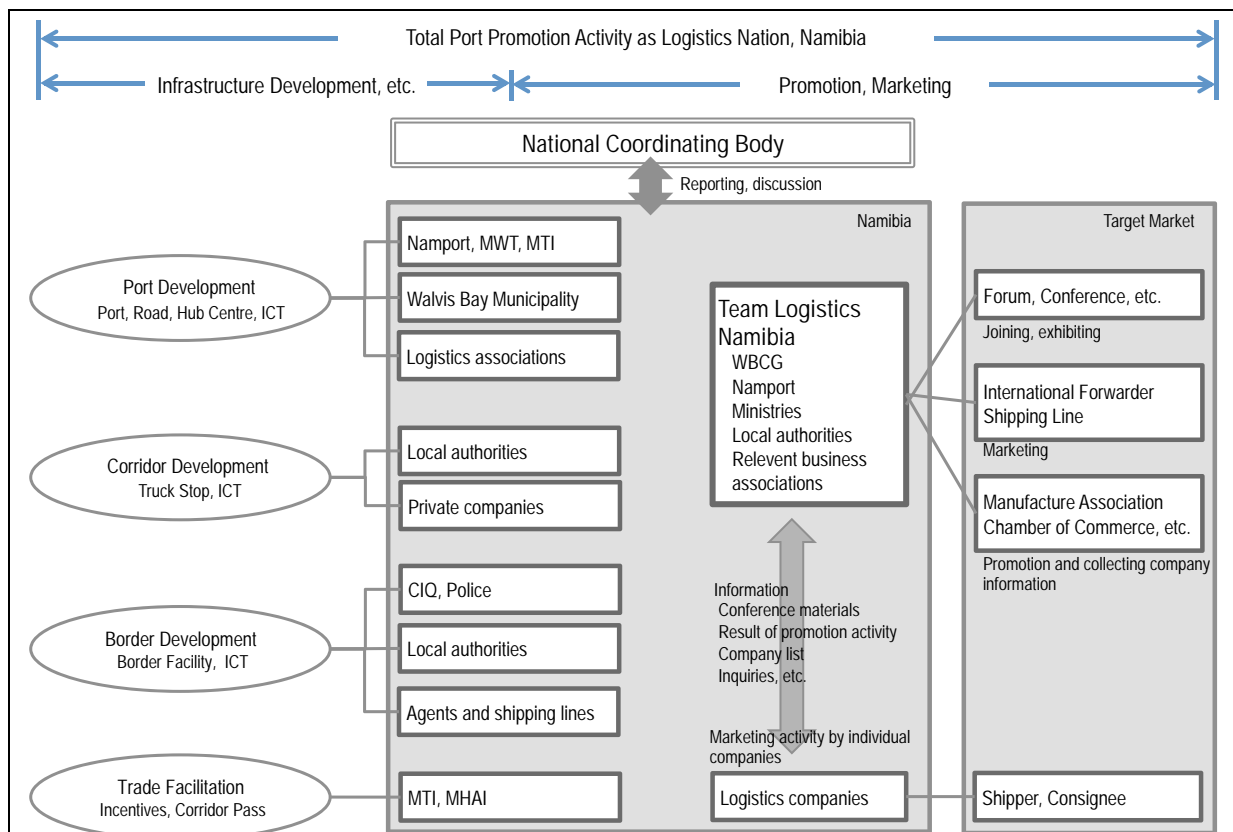
The above structure itself was a reflection of Thai specific context and may not necessarily be applicable to Namibia. Important point is to learn from their coordinating functions and mandates to propose policy options directly to the level of Cabinet.

(4) Pragmatic revisions and adjustment of implementation process: Given a strong national coordinating structure, it was made possible that Master Plan and other sub-plans were revised in their implementation stage (their timing and scale of development) in order to adjust them to volatile economic conditions and availability of financial sources including their own government budget, Development Finance Institutions, and private sector investments.

# **PROGRAMME/PROJECT PROFILES**

## PROGRAMME/PROJECT PROFILE 1

#	Title
1	<b>Market Promotion Programme</b>
<b><u>Implementing Agency</u></b> NPC, MTI, Namport and Walvis Bay Corridor Group will lead this market programme. Ministries, local authorities and business associations will be involved in this programme.	
<b><u>Location</u></b> Namibia and the neighbouring countries	
<b><u>Description</u></b> <p>Marketing, securing a demand base, is a necessary condition for Namibia to become an international logistics hub, likewise giving real significance to improvement of the logistics facility (Logistics Hub Centre) and transport network. Market promotion activities consist of 2 different levels.</p> <p>The first level is to put a focus on the provider's side (Namibia itself) calling for "sales point of Namibia's logistics service", and promotion activities will be conducted after identification of advantages and disadvantages of the Namibian logistics sector. Current activities of Namport and WBCG to participate in expositions, international conferences and seminars are included in this category. Activities to remove identified bottlenecks and to overcome weak points are also included in this category. It is important to develop a mechanism that identifies bottlenecks and weak points and ways to remove and overcome them.</p> <p>The second level of promotion activity focusing on the customers' side asking, "who are customers for Namibia's logistics service". Activities will be conducted after identification of customers and their characteristics based upon market study by questionnaire and interview surveys. Individual companies with support of WBCG and business associations mostly conduct this category of marketing.</p> <p>It is recommended that firstly to establish a national level coordinating body to oversee the whole implementation of the Logistics Master Plan. Secondly, an organisation for marketing is formed namely "Team Logistics Namibia". It should consist of WBCG, Namport, ministries and parastatals, municipalities and towns and business associations. The "Team Logistics Namibia" should participate international forums and conferences. It should also collect information from business associations of target markets, and conduct market promotion to international forwarders and shipping lines of the target market.</p> <p>When the Namibian logistics sector promotes Namibian routes, it is essential to promote Namibia together with all relevant players including the fields of infrastructure, trade procedure, and actual transportation. For example, Dubai established a company titled "Ports Customs and Free Zone Corporation" (PCFZC) through consolidation of Dubai Customs, Dubai Ports Authority and Jebel Ali Free Zone Authority. They are promoting Dubai Port and free zone together as "one team" under "one brand" of PCFZC.</p> <p>A National Coordinating Body proposed as an entity for overall coordination of implementation of the Master Plan could coordinate promotion activities including infrastructure development and marketing activities both by the public and private sector in the coordination meeting. The figure below illustrates a conceptual idea of an implementation structure for the promoting activities in the future.</p>	



Source: JICA Study Team

**Figure: Implementation structure for marketing**

This programme intends to create the “Team Logistics Namibia”, and form relationships among the “Team Logistics Namibia” and ministries, local authorities, logistics companies and target markets through trial marketing activities.

**Component**

- (1) Establishment of a National Coordinating Body
- (2) Market research and promotion program
- (3) Development of marketing promotion technique
- (4) Regular benchmarking of “State of Logistics” in Namibia

**Schedule**

- (1) Establishment of the National Coordinating Body: 2015 to 2016
- (2) Market research and promotion program: 2016 to 2020
- (3) Development of marketing promotion technique: 2016 to 2018
- (4) Regular benchmarking of “State of Logistics” in Namibia: 2015 to 2020

**Benefit**

- Attract transit cargo of shippers/consignees in neighbouring SADC countries, in particular, Zambia, DRC, Botswana, South Africa Zimbabwe and Malawi.
- Invite international logistics companies, including world-class logistics companies to Walvis Bay, in particular, the Logistics Hub Centre.

- Create a process of improvement of logistics infrastructure and logistics service by collecting opinions of users (logistics companies and shippers/consignees).
- Understand the situation of the logistics sector in Namibia from results of research and development activities including the “State of Logistics Report”

**Cost estimate**

**Total of Market Promotion Programme: N\$42.6 million**

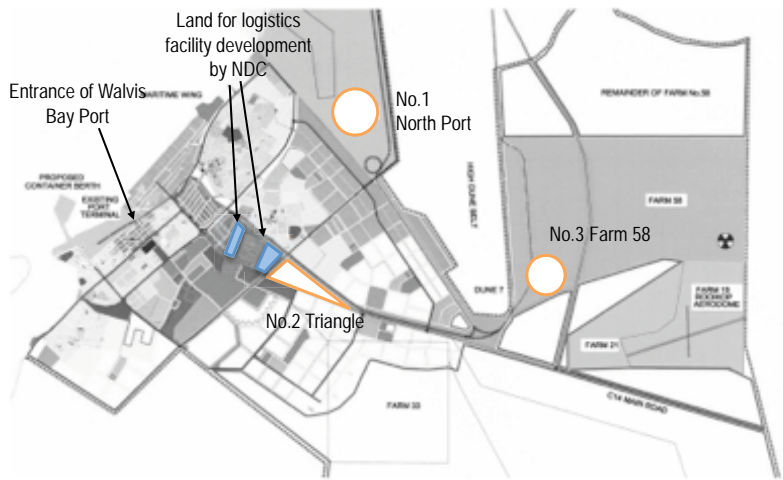
- (1) Establishment of the National Coordinating Body: N\$5.4 million
- (2) Organizing regular meetings with relevant government organizations: N\$24.0 million
- (3) Development of marketing promotion technique: N\$7.2 million
- (4) Regular benchmarking of “State of Logistics” in Namibia: 2015 to 2020: N\$6.0 million

**PROGRAMME/PROJECT PROFILE 2**

#	Title
2	Logistics Hub Centre Development Programme 1 (soft component)

**Implementing Agency**  
 NPC, MWT, MTI, Namport, WB Municipality and WBCG

**Location**  
 Logistics Hub Centre will be developed within Walvis Bay Municipal area (4.2km from Walvis bay Port). In the master plan study, the triangle area (No. 2 of the figure below) is proposed as a preferred location from the viewpoints of distance from Walvis Bay port, accessibility with transport infrastructure (trunk road and rail) and consistency with the land use plan of Walvis Bay Municipality.  
 The location of the Logistics Hub Centre will be assessed and determined in this programme.



**Figure: Location of Logistics Hub Centre**

**Description**  
 The Logistics Hub Centre which will be developed at Walvis Bay is a key logistics facility to promote Logistics Hub Development Master Plan. Currently, around 60% of cargo handled at Walvis Bay Port is for transshipment, and the percentages of domestic cargo and transit cargo are both 20%, respectively. The Logistics Hub Centre will be a “Pull Factor” to change the situation. Transit cargo volume is expected to increase from 0.8 million tons in 2013 to 3.6 million tons in 2025.  
 In order to develop the Logistics Hub Centre, many preparatory arrangements are needed because many stakeholders will be involved in preparation and operation of the Logistics Hub Centre. It is also necessary to clarify the concept of the Logistics Hub Centre such as roles and function, facilities required and the layout of these, incentives, necessary law and regulation system, and organization for operation of the Logistics Hub Centre.  
 The objective of the programme is to develop a business policy, operational structure, and institution building for the Logistics Hub Centre.

- Component**
- (5) Establishment of an operating body of the LHC
  - (6) Development of a business plan and incentive mechanisms for LHC
  - (7) Reforms of laws and regulations for development of LHC

**Schedule**

- (5) Establishment of operating body of the LHC: 2017 to 2018
- (6) Development of a business plan and incentive mechanisms for LHC: 2015 to 2020
- (7) Reforms of laws and regulations for development of LHC: 2015 to 2016

**Benefit**

- Logistics companies including global logistics players will invest in the Logistics Hub Centre, and the development of LHC will enhance intermodal function (from sea transport to land transport) of Walvis Bay Port.
- Promote transit cargo transport from/to the neighbouring SADC countries such as Zambia, DRC, Zimbabwe, Malawi, Botswana and South Africa.
- Storage, consolidation function of the Logistics Hub Centre will mitigate congestion at Walvis Bay Port.
- Logistics Hub Centre increase logistics demand that eventually induces demand for satellite hubs in inland areas.

**Cost estimate****Total of Logistics Hub Centre Development Programme 1 (soft component): N\$32.7 million**

- (5) Establishment of operating body of the LHC: N\$8.4 million
- (6) Development of a business plan and incentive mechanisms for LHC: 19.5 million
- (7) Reforms of laws and regulations for development of LHC: N\$4.8 million



**PROGRAMME/PROJECT PROFILE 3**

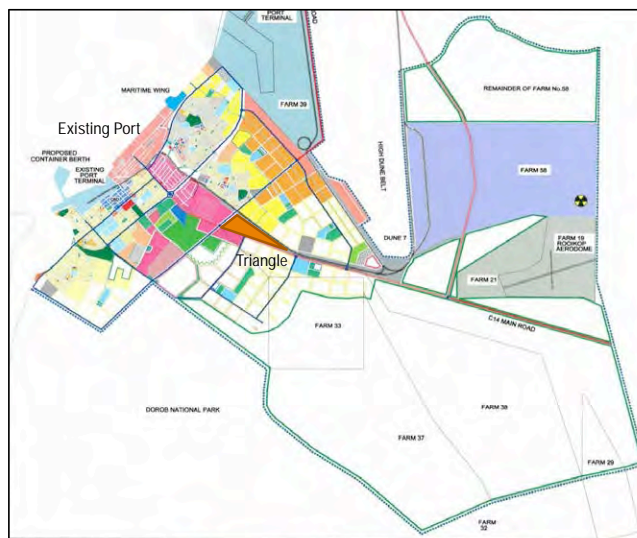
<b>#</b>	<b>Title</b>
<b>3</b>	<b>Logistic Hub Centre Development Programme 2 (hard component)</b>

**Implementing Agency**

Implementation body for designing and establishment of the LHC will be decided through the conclusions of the Logistic Hub Centre Development Programme 1 (soft component). At present MWT or MTI (NDC) are candidate implementation bodies. Operation of the Logistics Hub Centre will be conducted by an operating company, details of which are to be defined and established in the Logistic Hub Centre Development Programme 1 (soft component).

**Location**

Currently the project site is proposed at the location shown in the figure below. The site is a light industrial area, located 4.2km east from the existing port. The size of the available land is 89 ha.



**Figure: Location of Logistics Hub Centre**

**Description**

The Logistics Hub Centre that will be developed at Walvis Bay is a key logistics facility to promote the Logistics Hub Development Master Plan. Currently, around 60% of cargo handled at Walvis Bay Port is for transshipment, and the percentages of domestic cargo and transit cargo are 20%, respectively. The Logistics Hub Centre will change the situation. Transit cargo volume is expected to increase from 0.8 million tons in 2013 to 3.6 million tons in 2025.

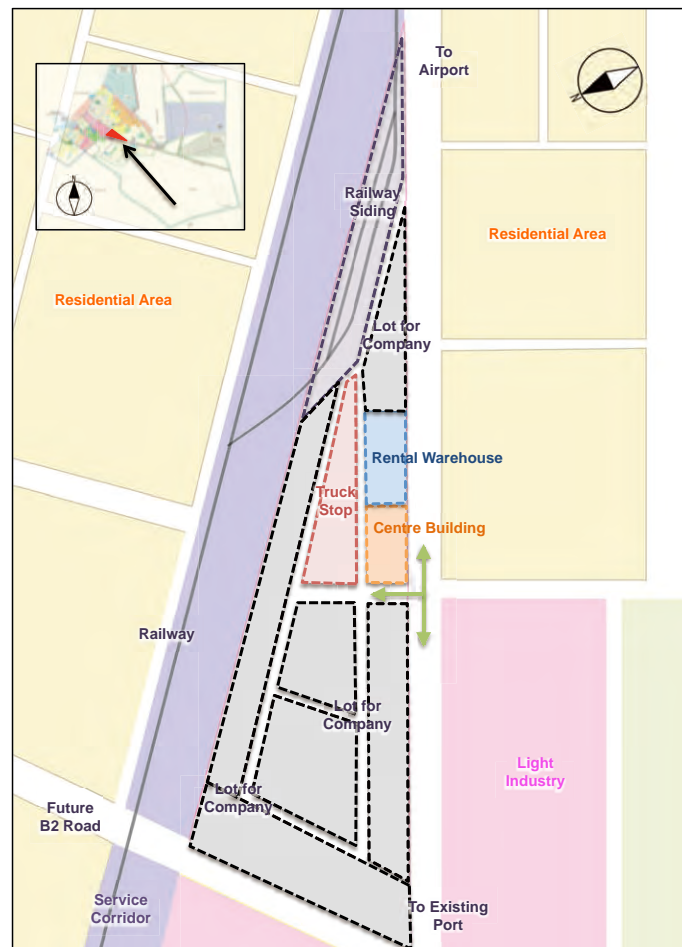
**Table: Functions and facilities in Logistics Hub Centre**

Functions	Facilities	Buildings/ equipment
Storage/consolidation	Logistics Park	Warehouse; rental warehouse; refrigerated storage
Distribution processing		Workshop
Intermodal service		Siding, truck terminal
CIQ service/ trade control		Offices for customs, Immigration, quarantine and trade control (MTI); Forwarders' office
Storage, washing and repairing container	Inland Container Depot	-
Services for truck drivers	Truck stop	Truck parking with power supply facility for reefer container; maintenance garage; information provision board
Access control/security	Common facility	Gate; fence, Police station; CCTV
Other services		Offices of logistics companies; banking services; shops, restaurants; accommodation; petrol station; public toilet; wellness centre; ICT infrastructure
Administration		Administration office

The functions of the Logistics Hub Centre are described in the 1<sup>st</sup> column of the table. Facilities that

are indicated in the 2<sup>nd</sup> column are needed to fulfil the function, and the facilities have the buildings and equipment tabulated in the 3<sup>rd</sup> column.

The figure below shows a proposed layout plan of Logistics Hub Centre. The Centre has a triangular shape and has good access to the railway and trunk road.



**Figure: Layout of logistic Hub Centre**

The objective of the programme is to develop land, install infrastructure (road, drainage, water supply, power distribution line) and construct buildings at Logistics Hub Centre.

**Component**

(8) Preparation of infrastructure development

**Schedule**

- Final selection of the LHC site and necessary coordination: 2015
- Feasibility study based on the business plan prepared by Logistic Hub Centre Development Programme 1(soft component): 2016 to 2017
- Environmental Impact assessment: 2016 to 2017
- Natural condition surveys and detailed design: 2018
- Tender and construction: 2018 to 2020

**Benefit**

- Logistics companies including global logistics players will invest in the Logistics Hub Centre, and the

changeover from transshipment from sea transport to land transport will be enhanced.

- Promote transit cargo transport from/to the neighbouring SADC countries such as Zambia, DRC, Zimbabwe, Malawi, Botswana and South Africa.
- The storage, consolidation function of the Logistics Hub Centre will mitigate congestion at Walvis Bay Port.

### **Cost estimate**

#### **Logistic Hub Centre Development Programme 2 (hard component): N\$644.4 million**

Total cost of Logistic Hub Centre (Land acquisition cost is not included)		N\$644.4 million
Land development with infrastructure (roads, drainage, water supply, power distribution, etc.)		N\$311.5 million
Unit cost*: N\$350 per m <sup>2</sup>	89ha	
<b>Buildings</b>		<b>N\$204.0 million</b>
Centre building (common facility, 2ha)		102.0 million
Unit cost**: N\$8,500 per m <sup>2</sup> ; building area is 60% of land	2ha	
Rental warehouse (4ha)		102.0 million
Unit cost**: N\$425 per m <sup>2</sup> ; building area is 60% of land	4ha	
Engineering services (study and design: 10% of construction works)		N\$51.6 million
Contingency & tax (15% of upgrading and engineering services)		N\$77.3 million

Note: \* Detailed design of NARA Namib logistics facility (34ha); \*\*NARA Namib Free Economic Zone (400ha)

**PROGRAMME/PROJECT PROFILE 4**

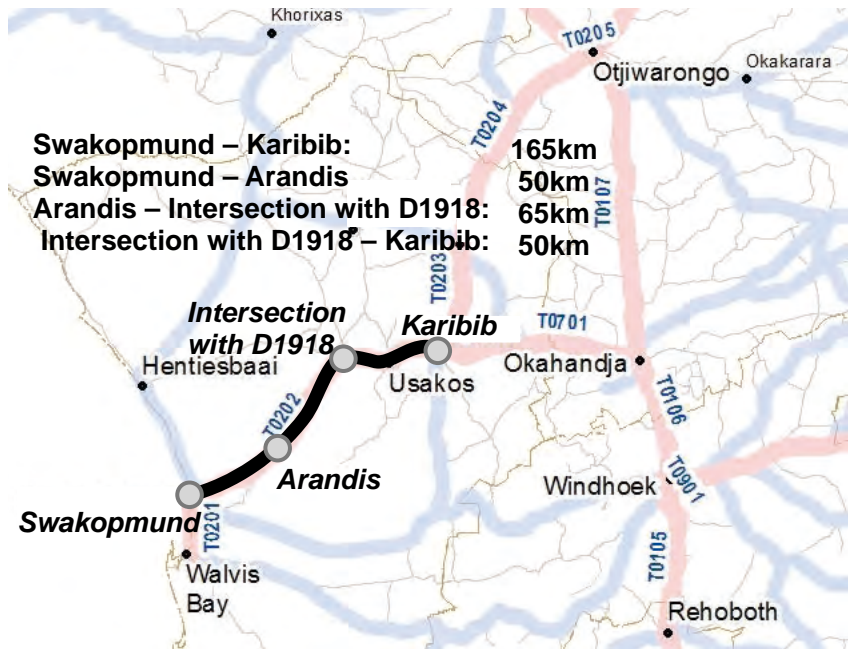
#	Title
4	Project on Upgrading the Trunk Road between Swakopmund and Karibib

**Implementing Agency**

Roads Authority

**Location**

B2 Road between Swakopmund and Karibib. It is divided into 3 sections: Swakopmund – Arandis, Arandis – the intersection with D1918 from Hentiesbaai, and the intersection with D1918 – Karibib as shown the figure below.



**Figure: Location of the project**

**Description**

GRN as a country aims to be the logistics hub of the SADC region, and the logistics industry was designated as one of priority areas for economic development in NDP4. NamPort is now constructing a new container terminal with a throughput capacity of 750,000 TEUs per year at the existing Walvis Bay Port, and operation of the new container terminal is expected to be started in 2018. After completion of the terminal, a significant increase of cargo volume is expected.

The Logistics Hub Master Plan set a target that the cargo volume from Walvis Bay to Namibia and the neighbouring countries will increase from 1.5 million tons in 2013 to 3.1 million tons by 2020 and 6.6 million tons by 2025 (total of domestic demand of Namibia and transit cargo to the surrounding countries).

In accordance with the increase of cargo volume, the number of trucks is also expected to increase. Furthermore, other types of vehicles such as passenger cars and buses will also increase along with the increase in population and GDP.

In 2013, AADT of the section between Swakopmund and Arandis was 5,080 and that of the section between Arandis and Karibib were 5,410 respectively. The capacity of these two sections is sufficient compared to the traffic volume. However, according to forecasts by the Integrated Transport Master Plan, AADT of these sections will reach the limits of the capacity of the roads by 2025. The traffic volumes on these sections will increase, and AADT of the same sections is estimated to be 9,650 and

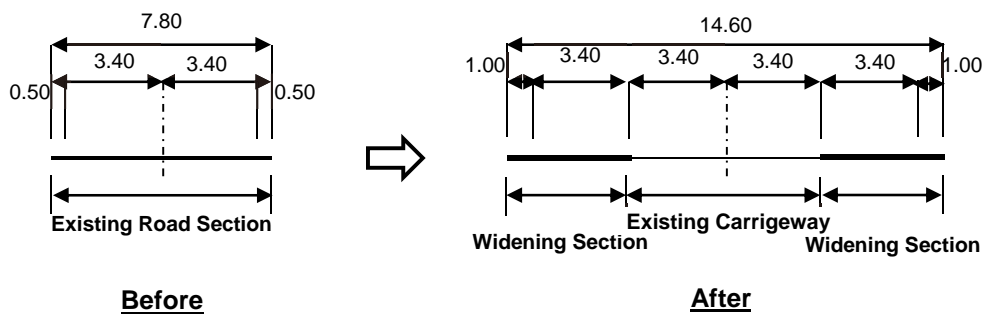
10,290 by 2025.

**Table: Traffic volume in 2013 and 2025**

Section	No of lanes	Annual Average Daily Traffic volume (Vehicle/day)							Total (vehicle/day)	No of large cargo trucks	% of Large cargo trucks
		Passenger cars	Medium bus	Large buses	Light trucks	2 axle trucks	3 axle trucks	Multi axles trucks			
2013											
Arandis - Swakopmund	2	3,010	210	80	320	450	280	730	5,080	1,460	29%
Karibib - Arandis	2	3,320	220	90	320	460	280	740	5,410	1,480	27%
2025											
Arandis - Swakopmund	2	6,020	410	160	580	780	440	1,260	9,650	2,480	26%
Karibib - Arandis	2	6,600	440	170	590	790	440	1,260	10,290	2,490	24%

Source: JICA Study Team (volumes of passenger car, all types of bus, light truck are extracted from Integrated Transport Master Plan).

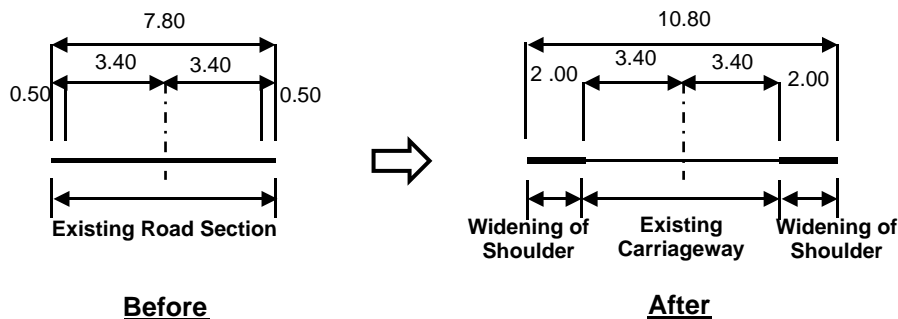
Therefore, the section between Swakopmund and Arandis and the section between Arandis and Karibib should be upgraded from 2 lanes 2 directions to 4 lanes 2 directions in order to decrease traffic jams. The figure below shows the existing and future road sections.



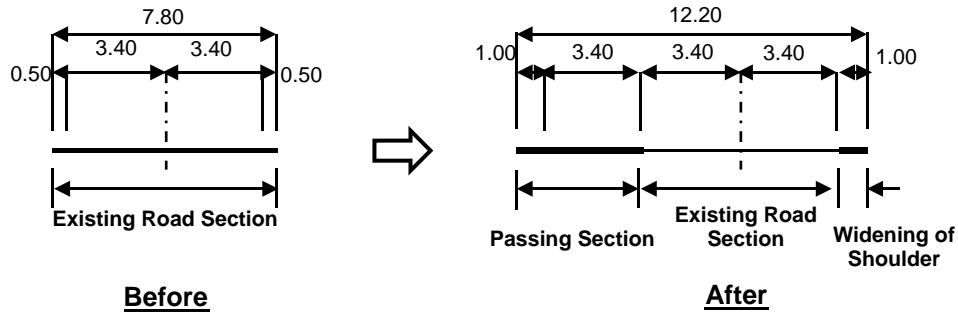
**Figure: Existing and future road sections**

The total length of the 2 sections is 165 km (Swakopmund – Arandis: 50km and Arandis – Karibib: 115km). Therefore, the section between Arandis and Karibib should be divided into 2 at intersection of D1918 (Arandis – D1918: 65km, and D1918 – Karibib: 50km) for phased development.

- Section 1: Swakopmund – Arandis (50km)
- Section 2: Arandis – D1918 (65km)
- Section 3: D1918 – Karibib (50km)



**Figure: Widening of shoulder sections**



**Figure: Passing lane section**

However, as mentioned in 6.1.1.2 of Chapter 6, it is necessary to re-examine the traffic demand forecast prepared by the Integrated Transport Master Plan, and to forecast traffic volume again with a new set of traffic data by 3 sections before designing and constructing the road. Should the estimated future traffic volume will be less than 10,000, construction of a passing lane at upgrade sections and widening of shoulders should be sufficient and should be implemented to smooth the flow and improve the safety of traffic. The figures show road sections for the case of minimum upgrading of the road.

**Component**

- (9) Swakopmund – Arandis
- (10) Arandis – Karibib

**Schedule**

- Study, survey and detail design, EIA, tender preparation, bidding: 2015 to 2017 (2.5 years)
- Upgrading of the road: 2018 to 2022 (4 years)

**Benefit**

- Mitigate future traffic congestion
- Decrease traffic accidents and improve traffic safety
- Decrease travel time
- Improve environmental conditions

**Cost estimate**

**Maximum Case: Cost of Upgrading (from 2 to 4 lanes): N\$ 6,888 million**

Section	Swakopmund – Arandis	Arandis – D1918	D1918 – Karibib	Total
Length (km)	50	65	50	
Widening (N\$ million) (1) + (2) + (3)	1,898	2,713	2,277	6,888
Unit Cost (N\$ million/km)	30	33	36	
Construction (N\$ million) (1)	1,500	2,145	1,800	
Eng. Service (10% of (1)) (2)	150	215	180	
Contingency & Tax (15 % of (1) + (2)) (3)	248	354	297	

Note: \* Refer to construction cost of "Swakopmund – Walvis Bay road rehabilitation" in Roads Authority: Five-Year Budget for the period 2014/15 to 2018/19

**Minimum Case: Cost of Upgrading (Widening of shoulders and passing lane): N\$ 2,503 million**

Section	Swakopmund - Arandis	Arandis - D1918	D1918 - Karibib	Total
Upgrading (I+II)	688.88	988.27	826.65	2,503.79
Widening of Shoulders (I, (1) + (2) + (3))	594.00	842.16	712.80	2,148.96
Length (km)	45	58	45	
Unit Cost (N\$ million/km)	6.0	6.6	7.2	
Construction (N\$ million) (1)	270.00	382.80	324.00	
Eng. Service (10% of (1)) (2)	27.00	38.28	32.40	
Contingency & Tax (15 % of (1) + (2)) (3)	297.00	421.08	356.40	
Passing Lane Construction (II, (4) + (5) + (6))	94.88	146.11	113.85	354.83
Length (km)	5	7	5	
Unit Cost (N\$ million/km)	15.00	16.50	18.00	
Construction (N\$ million) (4)	75.00	115.50	90.00	
Eng. Service (10% of (4)) (5)	7.50	11.55	9.00	
Contingency & Tax (15 % of (4) + (5)) (6)	12.38	19.06	14.85	

Note: \* Refer to construction cost of "Swakopmund – Walvis Bay road rehabilitation" in Roads Authority: Five-Year Budget for the period 2014/15 to 2018/19

**Preliminary scoping for EIA**

Category	Environmental Item		Rating		Details
			Construction	Operation	
Pollution Control	1	Air Quality	B-	B+	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Exhaust gas from construction equipment and vehicles, and the dust caused by construction works will increase.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>Reduction of traffic congestion due to road improvement will contribute to mitigate exhaust gas.</li> </ul>
	2	Water Quality	C	D	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Mud, oil and turbid water from the construction site and domestic wastewater from workers' camp will be discharged.</li> <li>They would cause water pollution but it depends on the situation of surface water and groundwater aquifer around the target road.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	3	Wastes	B-	D	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Solid waste, construction waste soil from the construction site and domestic waste from worker's camp will be generated.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	4	Soil Contamination	B-	D	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Asphalt emulsion for paving work, oils and fuels will leak from the construction site and possibly contaminate soil.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	5	Noise and Vibration	B-	B-	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Noise and vibration from construction equipment and vehicles will occur.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>Growth in traffic volume might generate more noise and vibration</li> </ul>
	6	Subsidence	D	D	No impact is predicted.

	7	Odour	B-	D	<u>Operation phase</u> <ul style="list-style-type: none"> <li>Offensive odour due to asphalt emulsion for paving work and to exhaust gas of construction vehicles and machine will be produced.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	8	Sediment	D	D	No impact is predicted.
Natural Environment	9	Protected Areas	C	C	A part of the target road traverses the area of Dorob-National Park. It is about 40km long from Swakopmund. Although upgrade of existing road might not have a significant impact on the area, it is unknown.
	10	Ecosystem	B-	B-	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Exhaust gas and noise from construction equipment and vehicles will disturb wildlife.</li> <li>Movement of construction equipment and vehicles will disturb wildlife.</li> <li>Construction team will commit illegal wood cutting and wildlife poaching.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>The road widened by the project will have more barrier effect against wildlife movement.</li> <li>Growth in traffic volume will increase collision with wildlife and result to road kills.</li> <li>Incident of illegal wood cutting and wildlife poaching might increase.</li> </ul>
	11	Hydrology	D	D	No impact is predicted.
	12	Topography and Geology	C	D	No impact is predicted.
	13	Resettlement	D	D	No resettlement will be involved.
Social Environment	14	The poor	C	C	Unknown
	15	Ethnic Minorities, Indigenous People	D	D	There are no ethnic minorities or indigenous people living around the target road.
	16	Local economy, employment	B+	B+	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Job opportunities, demand for goods and services related to construction work will be generated.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>Improved road transport will stimulate local economic activities such as agriculture and tourism business.</li> </ul>
	17	Land use, utilization of local resources	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Temporary facilities, such as borrow pit and quarry would be located for construction work.</li> <li>Construction work will be done within ROW so existing land use will not be altered.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	18	Water resources, water use	C	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Unknown. Water use for construction use and workers' camp might affect the existing water supply system.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	19	Public infrastructure, social services	D	D	No impact is predicted.
	20	Social institutions, local decision making	D	D	No impact is predicted
	21	Misdistribution of benefit and damage	D	D	No impact is predicted.
	22	Local conflict of interests	D	D	No impact is predicted.
	23	Heritage	D	D	There is no cultural or natural heritage around the target road.
	24	Landscape	D	D	No impact is predicted.
	25	Gender equity	C	C	Unknown
	26	Children's right	C	C	Unknown



	27	Infectious diseases such as HIV/AIDS	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Influx of construction workers might induce spread of infectious diseases.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	28	Working conditions	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Operation of construction machines and vehicles will have a risk of accident.</li> <li>Workers will damage their health if safety and hygiene is not maintained at construction site and workers' camp.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
Others	29	Traffic accidents	B-	A+	<u>Construction phase</u> <ul style="list-style-type: none"> <li>A risk of traffic accident will be higher than usual.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>Reduction of traffic congestion and dangerous overtaking due to road improvement will greatly contribute to decrease in traffic accident, especially fatal ones.</li> </ul>

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)

D: No impact is expected.

**PROGRAMME/PROJECT PROFILE 5**

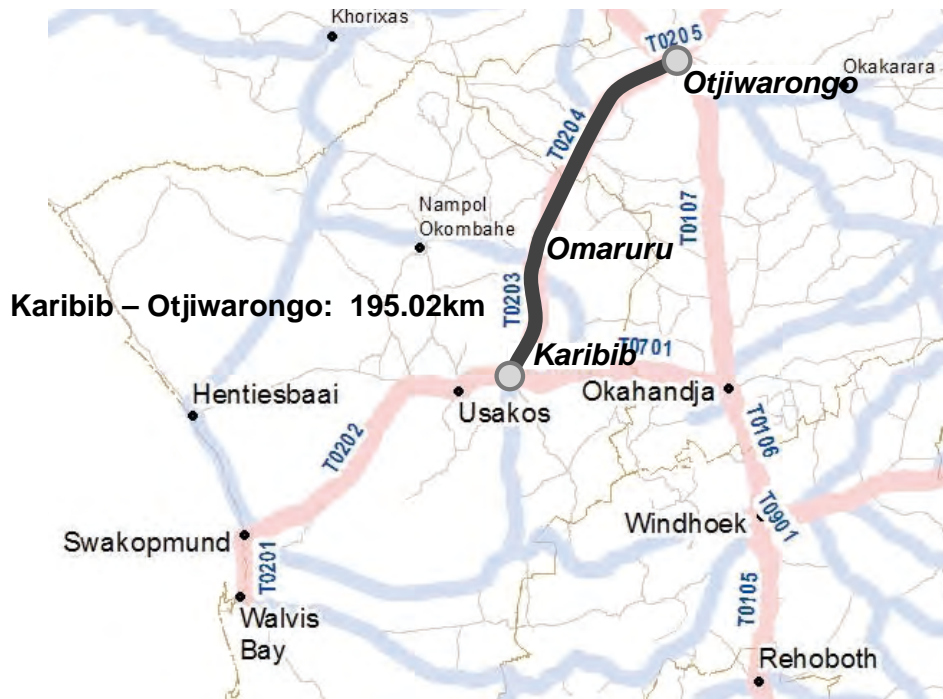
#	Title
5	Project on Construction of Passing Lanes between Karibib and Otjiwarongo

**Implementing Agency**

Roads Authority

**Location**

C33 Road between Karibibi and Otjiwarongo. The figure below shows the location of the project.



**Figure location of the project**

**Description**

GRN aimed to be the country logistics hub of SADC region, and logistics industry was designated as one of priority areas for economic development in NDP4. NamPort is now constructing a new container terminal with throughput capacity of 750,000 TEUs per year at the existing Walvis Bay Port. Construction is expected to be finished in 2018. After completion of the terminal, increase of cargo volume is expected.

The Logistics Hub Master Plan set a target that cargo volume from Walvis Bay to Namibia and the neighboring countries will increase from 1.5 million tons in 2013 to 3.1 million tons in 2020 and 6.6 million tons in 2025 (total of domestic demand of Namibia and transit cargo to the surrounding countries).

Along with the increase in cargo volume, the number of heavy vehicles transporting cargo will increase. Furthermore, other types of vehicle such as a passenger cars and buses will also increase along with increase in population and GDP.

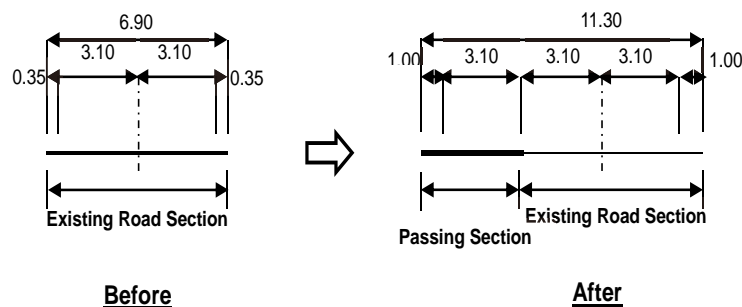
In 2013, the AADT volume in the section between Karibib and Otjiwarongo was 1,790. The traffic volume in the same section will increase in 2025 with the increasing population, GDP and cargo volume. AADT volume in the section in 2025 is estimated to be 3,010. This section will still have sufficient capacity in 2025. However, this section is located in an area with hilly topography and the proportion of heavy vehicles will be high (37%) compared to other sections where the topography is

relatively flat. Securing road safety is a major issue in this section.

**Table: Traffic volume in 2013 and 2025**

Section	No of lanes	Annual Average Daily Traffic Volume (Vehicle/day)							Total (vehicle / day)	No of large cargo trucks	% of large cargo trucks	Geography
		Passenger car	Medium bus	Large bus	Light truck	2 axles truck	3 axles truck	Multi axles truck				
Karibib - Otjiwarongo	2	870	50	20	120	230	140	360	1,790	730	41%	Hill area
Otjiwarongo - Otavi	2	2,750	180	70	250	380	260	680	4,570	1,320	29%	Flat area
Otavi - Grootfontein	2	770	50	20	80	90	60	120	1,190	270	23%	Flat area
Karibib - Otjiwarongo	2	1,550	80	40	240	370	190	540	3,010	1,100	37%	Hill area
Otjiwarongo - Otavi	2	4,630	280	110	530	720	430	1230	7,930	2,380	30%	Flat area
Otavi - Grootfontein	2	1,280	70	30	250	250	130	320	2,330	700	30%	Flat area

Passing lanes should be constructed at the between Karibib and Otjiwarongo, in order to avoid traffic congestion and to decrease traffic accidents. The figure below shows the existing and future road section.



**Figure: Existing and future road section**

**Component**

(11) Passing lanes in 40 locations

**Schedule**

- Study, survey and detail design, EIA, tender preparation and bidding: 2016 to 2018 (2.5 years)
- Construction of passing lanes: 2018 to 2020 (2 years)

**Benefit**

- Decrease in traffic congestion
- Reduce traffic accidents and improve traffic safety
- Reduce travel time
- Improve environmental conditions

**Cost estimate**

**Construction of passing lanes: N\$324.47 million**

Construction of passing lanes		N\$324.47 million
Unit price*	N\$17.1 million/km No of construction sites of passing lanes: 40 (20 each direction) Average length of a passing lane: 0.5km	
Construction of 40 passing lanes		N\$256.50 million
Engineering services (study and design: 10% of widening works)		N\$25.65 million
Contingency & Tax (15% of upgrading and engineering services)		N\$42.32 million

Note: \* Refer to construction cost of "TR1/5 Windhoek – Rehoboth" in Roads Authority: Five-Year Budget for the period 2014/15 to 2018/19

### Preliminary scoping for EIA

Category	Environmental Item		Rating		Details
			Construction	Operation	
Pollution Control	1	Air Quality	B-	B+	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Exhaust gas from construction equipment and vehicles, and the dust caused by construction works will increase.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>Reduction of traffic congestion due to road improvement will contribute to mitigate exhaust gas.</li> </ul>
	2	Water Quality	C	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Mud, oil and turbid water from the construction site and domestic wastewater from workers' camp will be discharged.</li> <li>They would cause water pollution but it depends on the situation of surface water and groundwater aquifer around the target road.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	3	Wastes	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Solid waste, construction waste soil from the construction site and domestic waste from worker's camp will be generated.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	4	Soil Contamination	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Asphalt emulsion for paving work, oils and fuels will leak from the construction site and possibly contaminate soil.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	5	Noise and Vibration	B-	B-	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Noise and vibration from construction equipment and vehicles will occur.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>Growth in traffic volume might generate more noise and vibration</li> </ul>
	6	Subsidence	D	D	No impact is predicted.
	7	Odour	B-	D	<u>Operation phase</u> <ul style="list-style-type: none"> <li>Offensive odour due to asphalt emulsion for paving work and to exhaust gas of construction vehicles and machine will be produced.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	8	Sediment	D	D	No impact is predicted.
Natural Environment	9	Protected Areas	D	D	There is no protected area nearby the project site.

	10	Ecosystem	B-	B-	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Exhaust gas and noise from construction equipment and vehicles will disturb wildlife.</li> <li>Movement of construction equipment and vehicles will disturb wildlife.</li> <li>Construction team will commit illegal wood cutting and wildlife poaching.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>The road widened by the project will have more barrier effect against wildlife movement.</li> <li>Growth in traffic volume will increase collision with wildlife and result to road kills.</li> <li>Incident of illegal wood cutting and wildlife poaching might increase.</li> </ul>
	11	Hydrology	D	D	No impact is predicted.
	12	Topography and Geology	C	D	No impact is predicted.
Social Environment	13	Resettlement	D	D	No resettlement will be involved.
	14	The poor	C	C	Unknown
	15	Ethnic Minorities, Indigenous People	D	D	There are no ethnic minorities or indigenous people living around the target road.
	16	Local economy, employment	B+	B+	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Job opportunities, demand for goods and services related to construction work will be generated.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>Improved road transport will stimulate local economic activities such as agriculture and tourism business.</li> </ul>
	17	Land use, utilization of local resources	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Temporary facilities, such as borrow pit and quarry would be located for construction work.</li> <li>Construction work will be done within ROW so existing land use will not be altered.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	18	Water resources, water use	C	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>Unknown. Water use for construction use and workers' camp might affect the existing water supply system.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	19	Public infrastructure, social services	D	D	No impact is predicted.
	20	Social institutions, local decision making	D	D	No impact is predicted
	21	Misdistribution of benefit and damage	D	D	No impact is predicted.
	22	Local conflict of interests	D	D	No impact is predicted.
	23	Heritage	D	D	There is no cultural or natural heritage around the target road.
	24	Landscape	D	D	No impact is predicted.
	25	Gender equity	C	C	Unknown
	26	Children's right	C	C	Unknown
		27	Infectious diseases such as HIV/AIDS	B-	D

	28	Working conditions	B-	D	<u>Construction phase</u> <ul style="list-style-type: none"> <li>• Operation of construction machines and vehicles will have a risk of accident.</li> <li>• Workers will damage their health if safety and hygiene is not maintained at construction site and workers' camp.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>• No impact is predicted.</li> </ul>
Others	29	Traffic accidents	B-	A+	<u>Construction phase</u> <ul style="list-style-type: none"> <li>• A risk of traffic accident will be higher than usual.</li> </ul> <u>Operation phase</u> <ul style="list-style-type: none"> <li>• Reduction of traffic congestion and dangerous overtaking due to road improvement will greatly contribute to decrease in traffic accident, especially fatal ones.</li> </ul>

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)

D: No impact is expected.

**PROGRAMME/PROJECT PROFILE 6**

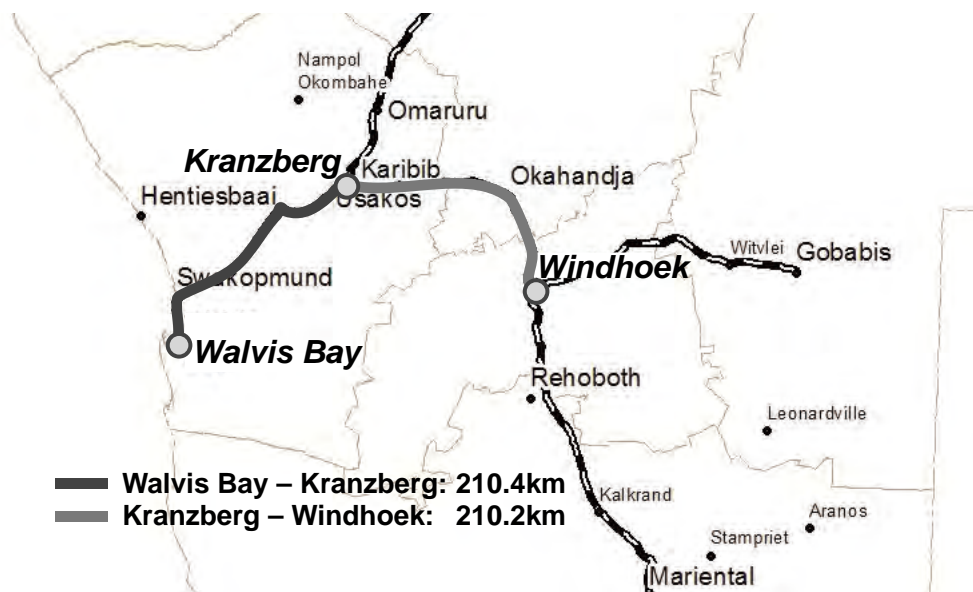
#	Title
6	Project on Upgrading Railway Lines

**Implementing Agency**

MWT (construction) and TransNamib (operation)

**Location**

Section between Walvis Bay and Kranzberg (211.8km) and Kranzberg and Windhoek (212.6km) of the existing Railway Network in Namibia. The figure below shows the location of the project.



**Figure: Location of the project**

**Description**

GRN as a country aims to be the logistics hub of the SADC region, and the logistics industry was designated as one of priority areas for economic development in NDP4. Responding to NDP4, TransNamib set a goal to double the cargo volume transported by 2017 compared to the volume transported in 2011.

The new container terminal with handling capacity of 750,000 TEUs per year is now under construction at Walvis Bay Port to increase transit cargo to landlocked countries. In 2025, the cargo volume transported by rail at 3 lines (Walvis Bay – Kranzberg, Kranzberg – Tsumeb and Kranzberg – Windhoek) is estimated to increase 2.5 fold compared to the volume in 2013.

At present, MWT is rehabilitating the track between Kranzberg and Tsumeb with its length of 391.63km. It is expected to be completed by 2016. After the rehabilitation, trains will be able to run at about 40km/h on this section. The section between Tsumeb and Oshikango had been newly developed during 2004 to 2011 and trains are operated there at about 100km/h at present. Some bottlenecks still exist at sections between Walvis Bay and Windhoek (total 420km) because updating works have not been conducted since 1995. 30kg/m rail and 30 kg steel sleepers that do not meet SADC standards are still used on these the two lines.

According to TransNamib’s 180-days turn around plan, these two lines are positioned as its core lines, together with the Kranzberg – Tsumeb line. These three existing lines are vital in order to re-establish a rail network connecting the 3 most populated regions and to serve the immediate existing demand for bulk cargo transportation.

Therefore, these 2 lines should be upgraded as soon as possible after the rehabilitation of the track

between Kranzberg and Tsumeb.

**Table: Present track condition**

Section	Distance (km)	Year of re-laid or built	Rail (kg/m)	Sleeper	Ballast	Maximum speed of train
Walvis Bay – Windhoek: 420.557km						
Walvis Bay	199.080	1980 – 1993	48	STS & CS	Ballast	15km/h: 3km 40km/h: 35km 60km/h: 382km (Total 420.557km)
Usakos		1958 – 1994	30 & 40	STS=30kg	Ballast	
Albrechts	134.339	1969 – 1995	48	STS=30kg	Ballast	
Otjihajavera		1966 – 1995	30 & 40	STS= 30 & 40kg	Ballast	
Windhoek	30.345	1966 – 1995	30 & 40	STS= 30 & 40kg	Ballast	
Kranzberg – Tsumeb: 391.627km (under rehabilitation; the section will be completed in 2015.)						
Kranzberg	391.627	1960 – 1986	30	STS=30kg	Ballast	15km/h: 31km 20km/h: 56km 40km/h: 304km
Tsumeb						
Tsumeb – Oshikango: 310.48km						
Tsumeb	252.500	2004 – 2006	48	CS	Ballast	100km/h (Total 310.48km)
King Nehale		57.980	2011	48	CS	
Oshikango						

Note: STS means Steel tiled sleeper; CS means concrete sleeper

Source: TransNamib

**Table: Present and future cargo volume of 3 lines**

Section (Station)	Distance (km)	Cargo Volume (ton/day)		Increase (%)
		2013	2025	
Walvis Bay – Kranzberg	211.8			
Walvis Bay – Swakopmund	50.3	5,230	13,080	250%
Swakopmund – Kranzberg	161.5	4,700	11,510	245%
Kranzberg – Tsumeb	388.9			
Kranzberg – Otavi	327.6	2,530	6,240	247%
Otavi – Tsumeb	61.3	2,000	5,150	258%
Kranzberg – Windhoek	212.6			
Kranzberg – Okahandja	139.9	2,170	5,280	243%
Okahandja – Windhoek	72.7	2,190	5,300	242%

Source: TransNamib (2013); forecast by JICA Study Team (2025)

### **Component**

(12) Walvis Bay – Kranzberg

(13) Kranzberg – Windhoek

### **Schedule**

- Study, survey and detail design, EIA, tender preparation, bidding: 2016 to 2018 (3 years)
- Upgrading of the 2 lines: 2019 to 2021 (3 years)

### **Benefit**

- Promote modal shift from truck transport to rail transport. The Logistics Hub Master Plan estimates the economic benefit of the modal shift amount to N\$534 million if TransNamib raise its modal share from current 12% to 15%
- Increase TransNamib's revenue and improve its business environment
- Reduce maintenance cost of roads
- Improve environmental conditions



### Cost estimate

**Total cost of upgrading for the sections between Walvis Bay –Kranzberg and Kranzberg – Windhoek: N\$1,968.62 million**

Total cost		N\$1,968.62 million
Upgrading of track		
Unit cost*: N\$3.7million/km		
Section between Walvis Bay and Kranzberg (210.4km)		N\$984.78 million
Upgrading works	210.4km	N\$778.48 million
Engineering services (study and design: 10% of upgrading works)		N\$77.85 million
Contingency & Tax (15% of upgrading and engineering services)		N\$128.45 million
Section between Kranzberg and Windhoek (210.2km)		N\$983.84 million
Upgrading works	210.2km	N\$777.74 million
Engineering services (study and design: 10% of upgrading works)		N\$77.77 million
Contingency & Tax (15% of upgrading and engineering services)		N\$128.33 million

Note: \* Estimated by the study team based on the data obtained from TransNamib (Rail – Sub Sector Bi-Annual Progress Report 2013/2014)

### Preliminary scoping for EIA

Category	Environmental Item		Rating		Details
			Construction	Operation	
Pollution Control	1	Air Quality	B-	B-	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Exhaust gas from construction equipment and vehicles, and the dust caused by construction works will increase.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>Increase in the number of train operation will generate more exhaust gas.</li> </ul>
	2	Water Quality	C	D	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Mud, oil and turbid water from the construction site and domestic wastewater from workers' camp will be discharged.</li> <li>They would cause water pollution but it depends on the situation of surface water and groundwater aquifer around the target line.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	3	Wastes	B-	D	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Solid waste, construction waste soil from the construction site and domestic waste from worker's camp will be generated.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>No impact is predicted.</li> </ul>
	4	Soil Contamination	D	D	No impact is predicted.
	5	Noise and Vibration	B-	B-	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Noise and vibration from construction equipment and vehicles will occur.</li> </ul> <p><u>Operation phase</u></p> <ul style="list-style-type: none"> <li>Increase in the number of train operation will generate more noise and vibration.</li> </ul>
	6	Subsidence	D	D	No impact is predicted.
	7	Odour	D	D	No impact is predicted.
	8	Sediment	D	D	No impact is predicted.
Natural Environment	9	Protected Areas	C	C	The section from Walvis Bay to Rossing traverses the area of Dorob-National Park. Although upgrade of existing line might not have significant impact on the area, it is unknown.
	10	Ecosystem	B-	B-	<p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Exhaust gas and noise from construction equipment and vehicles will disturb wildlife.</li> <li>Movement of construction equipment and vehicles will disturb wildlife.</li> <li>Construction team will commit Illegal wood cutting and</li> </ul>

					wildlife poaching. <u>Operation phase</u> • Increase in the number of train operation will have more barrier effect against wildlife movement, and increase collision with wildlife to death.	
	11	Hydrology	D	D	No impact is predicted.	
	12	Topography and Geology	D or C	D or C	No impact is predicted.	
Social Environment	13	Resettlement	D	D	No resettlement will be involved.	
	14	The poor	C	C	Unknown	
	15	Ethnic Minorities, Indigenous People	D	D	There are no ethnic minorities or indigenous people living around the target line.	
	16	Local economy, employment	B+	D	<u>Construction phase</u> • Job opportunities, demand for goods and services related to construction work will be generated. <u>Operation phase</u> • No impact is predicted.	
	17	Land use, utilization of local resources	B-	D	<u>Construction phase</u> • Temporary facilities, such as borrow pit and quarry would be located for construction work. • Construction work will be done on the existing line so land use will not be altered. <u>Operation phase</u> • No impact is predicted.	
	18	Water resources, water use	C	D	<u>Construction phase</u> • Unknown. Water use for construction use and workers' camp might affect the existing water supply system. <u>Operation phase</u> • No impact is predicted.	
	19	Public infrastructure, social services	D	D	No impact is predicted.	
	20	Social institutions, local decision making	D	D	No impact is predicted	
	21	Misdistribution of benefit and damage	D	D	No impact is predicted.	
	22	Local conflict of interests	D	D	No impact is predicted.	
	23	Heritage	D	D	There is no cultural or natural heritage around the target road.	
	24	Landscape	D	D	No impact is predicted.	
	25	Gender equity	C	C	Unknown	
	26	Children's right	C	C	Unknown	
		27	Infectious diseases such as HIV/AIDS	B-	D	<u>Construction phase</u> • Influx of construction workers might induce spread of infectious diseases. <u>Operation phase</u> • No impact is predicted.
		28	Working conditions	B-	D	<u>Construction phase</u> • Operation of construction machines and vehicles has a risk of accident. • Workers will damage their health if safety and hygiene is not maintained at construction site and workers' camp. <u>Operation phase</u> • No impact is predicted.
Others	29	Rail Accidents	D	A+	<u>Construction phase</u> • An accident will not happen. <u>Operation phase</u> • Rail improvement will greatly contribute to reduction of accidents such as derailment.	

A+/-: Significant positive/negative impact is expected.

B+/-: Positive/negative impact is expected to some extent.

C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses)

D: No impact is expected.

## PROGRAMME/PROJECT PROFILE 7

<b>#</b>	<b>Title</b>																																																																																				
<b>7</b>	<b>Market Research on Air Cargo Demand</b>																																																																																				
<b>Implementing Agency</b>																																																																																					
MWT, NAC																																																																																					
<b>Location</b>																																																																																					
Hosea Kutako International Airport (HKIA) Walvis Bay Airport																																																																																					
<b>Description</b>																																																																																					
<p>Current cargo handling volume at airports in Namibia is limited. According to "World Airport Traffic Report 2009", 4 airports (HKIA, Eros, Walvis Bay and Lüderitz) handled air cargo in Namibia, and the cargo volume handled at the 4 airports was 8,611 tons in 2008 and 7,315 tons in 2009 respectively (Table 1). HKIA handled about 87% of the total cargo in 2009.</p> <p>While Walvis Bay Port handled around 5 million tons in 2008 and 2009. Compared to the port handling volume, the cargo volume handled at the airports is very small.</p>																																																																																					
<p><b>Table 1: Cargo handling volume at airports in Namibia</b></p> <p style="text-align: right;">Unit: tons</p> <table border="1"> <thead> <tr> <th>Airport</th> <th>2008</th> <th>2009</th> </tr> </thead> <tbody> <tr> <td>HKIA</td> <td style="text-align: right;">7,464</td> <td style="text-align: right;">6,362</td> </tr> <tr> <td>Walvis Bay</td> <td style="text-align: right;">110</td> <td style="text-align: right;">14</td> </tr> <tr> <td>Eros</td> <td style="text-align: right;">1,028</td> <td style="text-align: right;">934</td> </tr> <tr> <td>Lüderitz</td> <td style="text-align: right;">9</td> <td style="text-align: right;">5</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">8,611</td> <td style="text-align: right;">7,315</td> </tr> </tbody> </table> <p>Source: World Airport Traffic Report 2009</p>		Airport	2008	2009	HKIA	7,464	6,362	Walvis Bay	110	14	Eros	1,028	934	Lüderitz	9	5	Total	8,611	7,315																																																																		
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<p>In SADC countries, the air cargo volume amounted to 481,000 tons in 2009. 55% of the cargo in SADC was handled in South Africa, and of which 94% (52% in SADC) was handled at OR Tambo Airport, Johannesburg. The percentage of HKIA in SADC was only 1.3%.</p>																																																																																					
<p><b>Table 2: Air cargo volume in SADC countries in 2009</b></p> <p style="text-align: right;">Unit: ton</p> <table border="1"> <thead> <tr> <th>Countries</th> <th>Air cargo volume (A)</th> <th>Share</th> <th>Major airport</th> <th>Air cargo volume (B)</th> <th>Share (B/A)</th> </tr> </thead> <tbody> <tr> <td>Angola</td> <td style="text-align: right;">53,339</td> <td style="text-align: right;">11%</td> <td>Luanda</td> <td style="text-align: right;">53,339</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>Botswana</td> <td></td> <td style="text-align: right;">0%</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Congo, Dem. Rep.</td> <td style="text-align: right;">88,183</td> <td style="text-align: right;">18%</td> <td>Kinshasa</td> <td style="text-align: right;">67,544</td> <td style="text-align: right;">77%</td> </tr> <tr> <td>Lesotho</td> <td></td> <td style="text-align: right;">0%</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Malawi</td> <td style="text-align: right;">4,303</td> <td style="text-align: right;">1%</td> <td>Lilongwe</td> <td style="text-align: right;">4,303</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>Mozambique</td> <td style="text-align: right;">10,462</td> <td style="text-align: right;">2%</td> <td>Maputo</td> <td style="text-align: right;">7,373</td> <td style="text-align: right;">70%</td> </tr> <tr> <td>Namibia</td> <td style="text-align: right;">7,315</td> <td style="text-align: right;">2%</td> <td>Hosea Kutako</td> <td style="text-align: right;">6,362</td> <td style="text-align: right;">87%</td> </tr> <tr> <td>South Africa</td> <td style="text-align: right;">266,989</td> <td style="text-align: right;">55%</td> <td>OR Tambo</td> <td style="text-align: right;">252,063</td> <td style="text-align: right;">94%</td> </tr> <tr> <td>Swaziland</td> <td></td> <td style="text-align: right;">0%</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Tanzania</td> <td style="text-align: right;">25,868</td> <td style="text-align: right;">5%</td> <td>Julius Nyerere</td> <td style="text-align: right;">18,844</td> <td style="text-align: right;">73%</td> </tr> <tr> <td>Zambia</td> <td style="text-align: right;">4,756</td> <td style="text-align: right;">1%</td> <td>Lusaka</td> <td style="text-align: right;">4,756</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>Zimbabwe</td> <td style="text-align: right;">20,155</td> <td style="text-align: right;">4%</td> <td>Harare</td> <td style="text-align: right;">20,155</td> <td style="text-align: right;">100%</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">481,370</td> <td style="text-align: right;">100%</td> <td>Total</td> <td style="text-align: right;">434,739</td> <td style="text-align: right;">90%</td> </tr> </tbody> </table> <p>Source: World Airport Traffic Report, ACI, 2009</p>		Countries	Air cargo volume (A)	Share	Major airport	Air cargo volume (B)	Share (B/A)	Angola	53,339	11%	Luanda	53,339	100%	Botswana		0%				Congo, Dem. Rep.	88,183	18%	Kinshasa	67,544	77%	Lesotho		0%				Malawi	4,303	1%	Lilongwe	4,303	100%	Mozambique	10,462	2%	Maputo	7,373	70%	Namibia	7,315	2%	Hosea Kutako	6,362	87%	South Africa	266,989	55%	OR Tambo	252,063	94%	Swaziland		0%				Tanzania	25,868	5%	Julius Nyerere	18,844	73%	Zambia	4,756	1%	Lusaka	4,756	100%	Zimbabwe	20,155	4%	Harare	20,155	100%	Total	481,370	100%	Total	434,739	90%
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<p>NAC recognises that HKIA and Walvis Bay Airport have a potential to handle more cargo. Regarding HKIA, the potential cargo is grapes to European countries and dates to Middle East countries which are produced in the southern part of Namibia. Currently, grapes are transported to Walvis Bay Port and exported by container vessel.</p> <p>Potential cargo for Walvis Bay Airport is fresh fish to Europe and import of mining machines/equipment. Currently, fresh fish is transported to HKIA, and transported to Spain via OR Tambo Airport. NAC receives some requests from mining companies to transport mining equipment/machines but it cannot</p>																																																																																					

transport them now. As a result the mining equipment/machines are transported by ship and land.

NAC intends to enhance cargo handling facilities at HKIA and Walvis Bay Airport, however, potential volumes of the cargo mentioned above is not yet clearly assessed. It is also necessary to investigate other potential cargo to invite cargo flights. Therefore, market research on air cargo demand is needed.

**Component**

(14) Market research on air cargo demand at Hosea Kutako International Airport

(15) Market research on air cargo demand at Walvis Bay Airport

**Schedule**

(14) Market research on air cargo demand at Hosea Kutako International Airport: 2015 to 2020

(15) Market research on air cargo demand at Walvis Bay Airport: 2015 to 2020

If a certain level of cargo demand is identified, a feasibility study and implementation on an air cargo project (development of cargo handling facility) will be conducted in the next stage

**Benefit**

- Namibia's function as an International Logistics Hub will be enhanced if aviation cargos are handled at HKIA and Walvis Bay Airport.
- Handling of air cargos is a new revenue source for NAC and airlines.
- Rapid transport of cargos (grapes, dates, fresh fish and mining equipment/machines) will support development of each industrial activity.

**Cost estimate**

**Total of market research on air cargo demand: N\$6.0 million**

(14) Market research on air cargo demand at Hosea Kutako International Airport: N\$3.0 million

(15) Market research on air cargo demand at Walvis Bay Airport: N\$3.0 million

**PROGRAMME/PROJECT PROFILE 8**

#	Title
8	<b>Bypass Roads and Truck Stops Development Programme</b>

**Implementing Agency**

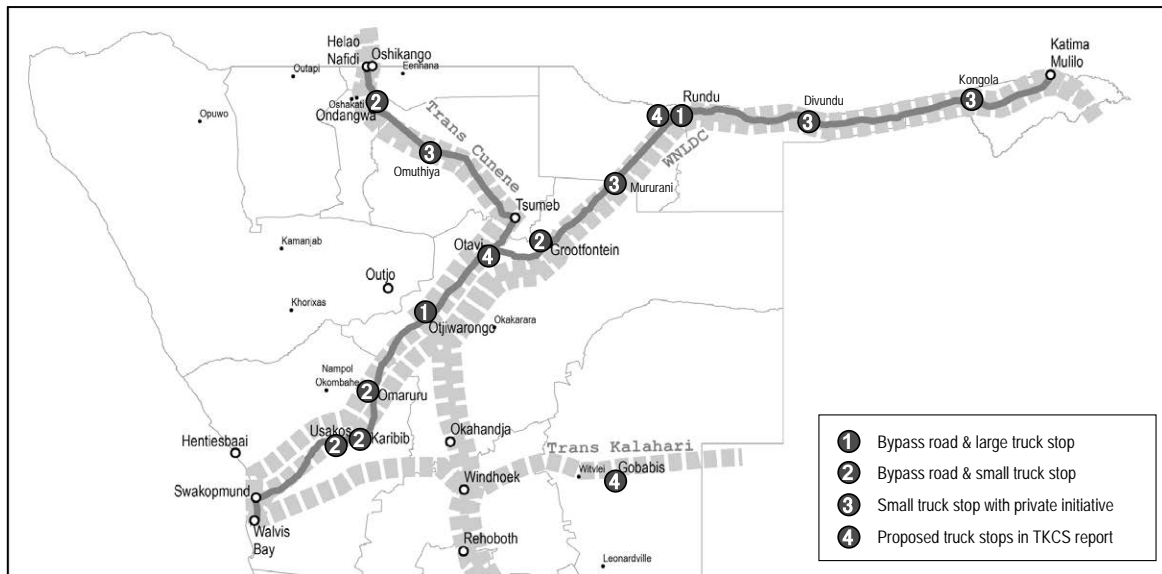
Roads Authority, MRLGHRD, local authorities (Usakos, Karibib, Omaruru, Otjiwarongo, Ondangwa, Grootfontein, Rundu)

The National Coordinating Body of the Logistics Hub Master Plan will support town development planning, and coordinate between Roads Authority, MRLGHRD and local authorities.

**Location**

The combination of a bypass road & a truck stop is to be constructed at Usakos, Karibib, Omaruru, Otjiwarongo, Ondangwa, Grootfontein and Rundu. These towns are selected from the following criteria: (1) traffic volume, (2) traffic safety and (3) vehicle speed in towns from all towns along the corridors.

Construction of truck stops is proposed at Omuthiya, Mururani, Divundu and Kongola. These towns are selected due to the distance to the neighbouring towns. The figure below shows the location of the towns.



**Figure: Location of bypass and truck stop projects**

**Description**

The development of bypass roads is necessary for the following reasons: (1) Bypass restricted right of way for road in towns, (2) Reduction of travel time in corridors, and (3) Securing safety in towns. Some people may worry about the decrease of economic benefit to these towns if trucks would not pass built-up areas. In order to minimize economic loss, truck stops should be planned as well to promote economic activities of the residents of these towns.

A truck stop is a place where cargo trucks and passenger vehicles travelling along corridors can stop and the drivers and passengers take a rest. The drivers and passengers also buy goods and services. The truck stop will also have facilities such as a fuel station and a maintenance workshop, etc.

According to a study conducted by WBCG, if the distance between truck stops exceeds 75 to 80 miles (around 120km to 130km), the rate of traffic accidents increases. One of the important purposes to develop truck stops is to decrease traffic accidents.

In general, a truck stop has the following facilities as indicated in the table below. However, not all truck stops will be furnished with these functions. Large-scale truck stops (Otjiwarongo and Rundu), which would be far from other truck stops, should have all facilities. However, small-scale trucks stops (Usakos, Karibib, Omaruru, Ondangwa and Grootfontein), which would be near from other truck stops, should have minimum facilities such as parking lot, fuel station, toilets and showers and shops.

**Table: Facilities of truck stops**

No	Facilities	Description
1	Parking lot	Most basic function of the truck stop is to provide safe parking lot to users. The lot should be allocated separately for large vehicles and passenger cars.
2	Fuel station	A Fuel station is an important facility for truck stops.
3	Maintenance garage	In general, simple maintenance services such as replacement of tires, engine oil and transmission oil, bulbs and etc. should be available. If this facility is located inside the truck port, fewer trucks go inside the town to find a reliable garage. An example of such a facility is the Engen petrol station at Swakopmund.
4	Information services	An Information Board will provide drivers with traffic information and Customs and Immigration information related to congestion so that they can adjust their operation plan easily. Communication facilities are also important to be available: mobile phone service as well as fixed phone services to make international calls for foreign drivers, Internet Wi-Fi service to acquire information and communicate with truck companies. Mobile Phone coverage should be available for the truck stops.
5	Toilets and showers	Well-maintained tidy toilets should be provided to drivers. In some toilets, shower facilities are also to be supplied for drivers. Laundry facilities can be installed at the same place.
6	Accommodation	In most cases, drivers sleep in truck cabins, but there are certain needs for lodging facilities.
7	Restaurant	Food and drink supply is one of the most important needs for drivers. According to the study, drivers prefer take a ways, which can save time compared with hot meals. However some prefer to take a meal in restaurants. A variety/combination of take away shops and restaurants might be needed in truck stops.
8	Leisure facilities	Some drivers must stay overnight at the truck stop. Leisure facilities might include game centres where drivers can spend time to release stress. The facilities also may contribute to reduce HIV/AIDS infection.
9	Shops	Truck stop is the facility to support daily life of drivers. A convenience store can offer common goods necessary for drivers
10	Bank	Drivers need money to do anything, which cost even though inside the truck terminal. So ATMs are necessary.
11	Wellness Centre	According to the questionnaire survey conducted by the WBCG study, a wellness centre is one of the popular requests from drivers. This centre is basically required having two functions. The first one is health counselling and to provide medicine upon request of drivers. The second one is to promote preventative measures against HIV/AIDS.

Source: JICA Study Team

Public private partnership (PPP) could be introduced in construction and operation of the truck stops which are jointly developed with bypass roads. The operating company is a joint venture company consisting of local authorities and private companies or purely private company. Operating companies of petrol stations are one of the prospective investors. Involvement of the local authority is important from the point of smooth coordination for town planning, bypass road development and land preparation for truck stops.

The existing petrol stations could be upgraded to the truck stops at Omuthiya, Mururani, Divundu and Kongola. The local authorities may prepare land use plan for expansion of the existing facility, and support the upgrade if necessary.

The National Coordinating Body will prepare guidelines of bypass road development and truck stops development (A private company can develop and operate a truck stops but it is necessary to follow the guideline.), and monitor compliance of the truck stops in terms of customer satisfaction and safety guidelines.

#### **Component**

- (16) Land use-planning program
- (17) Preparation of bypass road development projects
- (18) Preparation of truck stop development projects

## Schedule

- Preparing a guideline for development of bypass roads and truck stops: 2015 to 2016
- Supporting the National Coordination Body to establish and update the policy on “Bypass Road and Truck Stop Development”: 2015 to 2020
- Supporting land use planning, and bypass road and truck stop development projects prepared by local authorities: 2016 to 2018
- Construction of bypass roads and truck stops: 2017 to 2020
- Supporting organizations of operation bodies operating truck stops: 2018 to 2020

## Benefit

- Travel time for corridors is reduced (less traffic congestions in towns)
- Traffic safety is improved in towns
- Number of traffic accident caused by trucks may reduce
- Trucking companies can operate trucks stably under safer conditions
- Generation of employment at truck stops

## Cost estimate

### **Total of Bypass Roads and Truck Stops Development Programme: 2,237.90 million**

- Preparing a guideline for development of bypass roads and truck stops: N\$3.6 million
- Supporting the National Coordination Body to establish and update the policy on “Bypass Road and Truck Stop Development”: N\$3.6 million
- Supporting land use planning, and bypass road and truck stop development projects prepared by local authorities: N\$3.6 million
- Construction of bypass roads and truck stops: N\$2,223.50 million (refer to the table below)
- Supporting organizations of operation bodies operating truck stops: N\$3.6 million

Town	Bypass						Total	Unit cost (N\$ mil/h a) <sup>2</sup>	Truck Stop				Total	
	Road			Bridge					Large		Small			
	Length (km)	Unit (N\$ mil/ km) <sup>1</sup>	Cost (N\$ mil)	Length (m)	Unit (N\$ mil/ k) <sup>1</sup>	Cost (NS mil)			Area (ha) <sup>3</sup>	Cost (NS mil)	Area (ha) <sup>3</sup>	Cost (N\$ mil)		
Usakos	4.00	33.00	132.00	200.00	1.20	240.00	372.00	3.50			2.00	7.00	379.00	
Karibib	4.50	36.00	162.00	0.00			162.00				2.00	7.00	169.00	
Omaruru	5.00	36.00	180.00	200.00	1.20	240.00	420.00				2.00	7.00	427.00	
Otiwarongo	20.00	36.00	720.00	0.00			720.00		3.00	10.50			730.50	
Grooifontein	3.50	36.00	126.00	0.00			126.00		3.00	10.50			136.50	
Ondangwa	5.50	30.00	165.00	30.00	1.20	36.00	201.00				2.00	7.00	208.00	
Rundu	4.50	30.00	135.00	0.00			135.00		3.00	10.50			145.50	
Omuthiya											2.00	7.00	7.00	
Mururani											2.00	7.00	7.00	
Divundu											2.00	7.00	7.00	
Kongola											2.00	7.00	7.00	
<b>Total</b>							2,136.00				31.50		56.00	2,223.50

Note: <sup>1</sup> Refer to construction cost of “TR1/5 Windhoek – Rehoboth” in Roads Authority: Five-Year Budget for the period 2014/15 to 2018/19; <sup>2</sup> unit cost of Nara Namib logistic facility (information from NDC); <sup>3</sup> Estimation by JICA study team

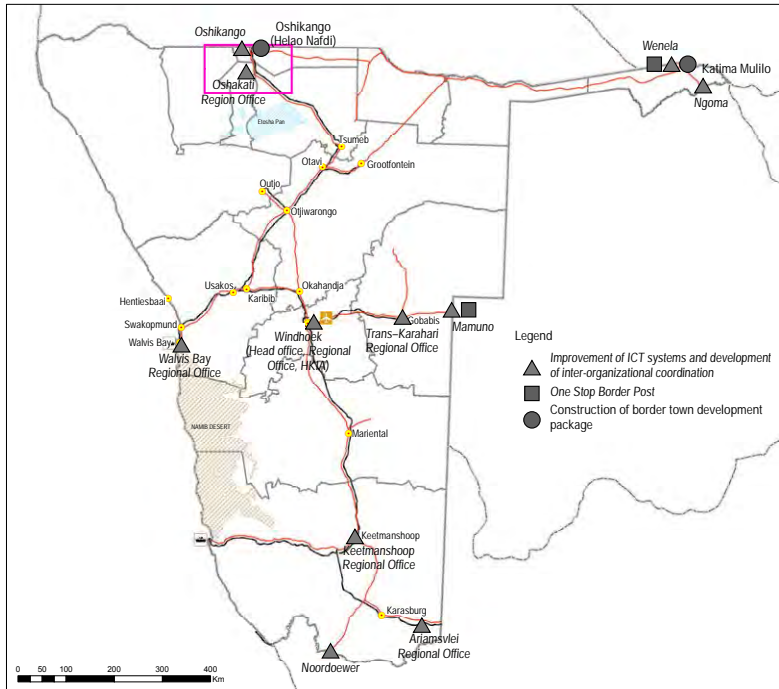
**PROGRAMME/PROJECT PROFILE 9**

#	Title
9	<b>Integrated Border Management Programme</b>

**Implementing Agency**  
 MOF (Customs & Excise Department), MHAI (Immigration), MWT, RA, MAWF, MOH, MRLGRD, Local authorities (Katima Mulilo Town Council and Helao Nafidi Town Council)

- Location**
- Improvement of ICT systems and development of inter-organizational coordination: Windhoek, custom’s regional offices and major border points (HKIA, Walvis Bay, Oshikango, Oshakati, Wenela, Ngoma, Katima Mulilo, Mamuno, Trans–Karahari, Noordoewer, Ariamsvlei, etc.)
  - OSBP Projects: Mamuno Border Office and Wenela Border Office
  - Construction of border town development packages: Katima Mulilo and Oshikango (Helao Nafidi).

The figure below shows target towns, regional offices and border offices in the Integrated Border Management Programme.



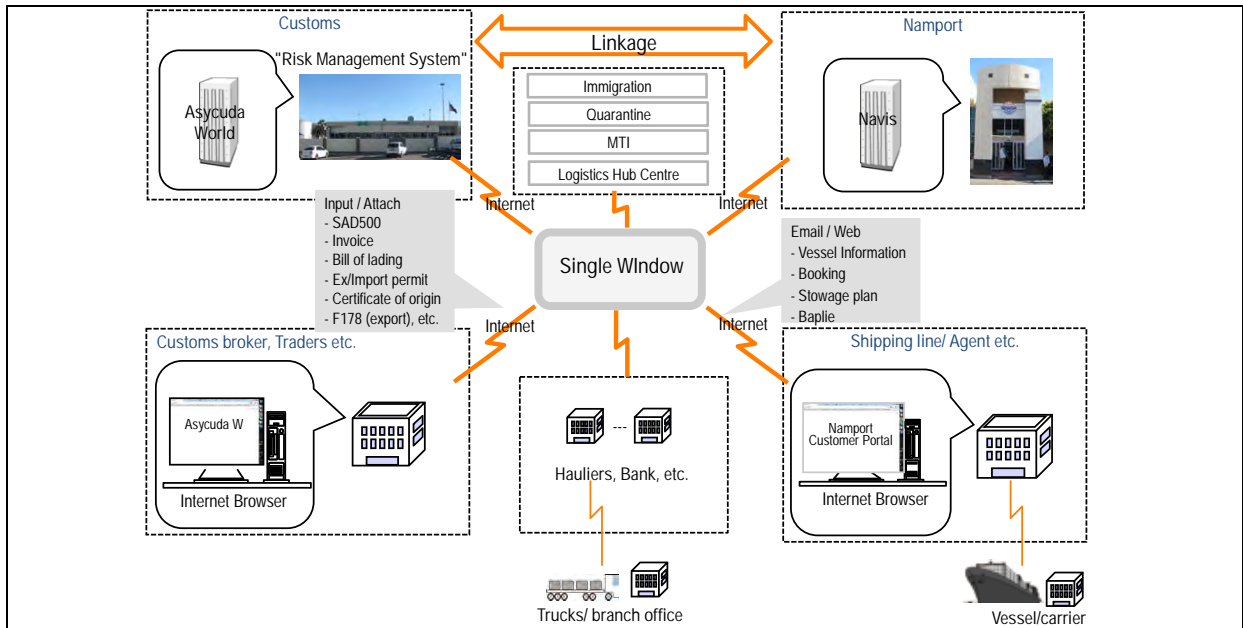
**Figure: Location of Integrated Border Management Programme**

**Description**

Currently, Namibian routes (port, road and border facilities) are not congested because of relatively good infrastructure and the small amount of cargo. However, the expected increase in the cargo volume would cause serious congestion at various places in the future unless throughput capacity is dramatically expanded. Even at present, it is pointed out that some border posts are already congested due to a shortage of staff.

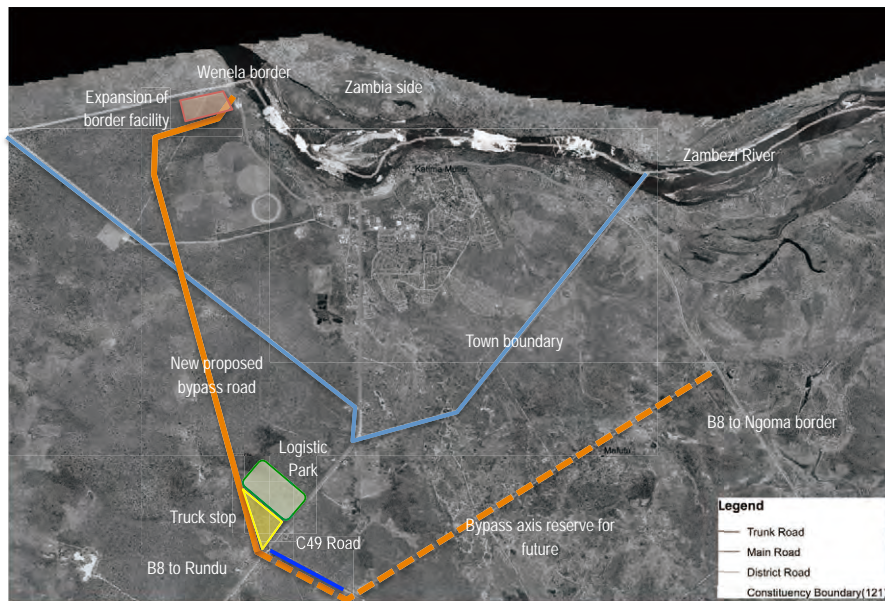
In order to achieve efficient and secure border management, integration of ICT systems, efforts for development of a Risk Management System and development of a protocol for inter-organizational coordination, introduction of One Stop Border Posts are needed. The figure bellow shows a concept of “integration of systems”.





**Figure: Concept of “Integration of systems”**

Congestion at Oshikango is also a major issue regarding border management. Since the town has seen rapid development in a disorderly way, it is difficult to expand the border facility and infrastructure for transport and logistics now. Katima Mulilo, at which rapid growth of cargo transport is expected, is facing the same problem. Therefore, coordination between the Town Council and Customs is needed in preparing and implementing a town development plan. The figure below shows a conceptual plan for border infrastructure at Katima Mulilo Town.



**Figure: Conceptual plan for border infrastructure at Katima Mulilo Town**

**Component**

- (19) Preparation and commencement of border town development packages (Land use plan, Bypass, Truck stop, and border infrastructure)
- (20) Integration of ICT system relating border management (linkage between Asycuda and Navis, Single Window and Risk Management System)

(21) Install "Corridor Net" to provide information services to transporters

(22) Implementation of OSBP at Mamuno

**Schedule**

(19) Preparation and commencement of border town development packages (Land use plan, Bypass, Truck stop, and border infrastructure): 2015 to 2020

(20) Integration of ICT system relating border management (linkage between Asycuda and Navis, Single Window and Risk Management System: 2015 to 2020

(21) Install "Corridor Net" to provide information services to transporters: 2018 to 2020

(22) Implementation of OSBP at Mamuno: 2015 to 2020

**Benefit**

- Waiting time at national border will not be increased from the present level.
- Securing safety and efficiency at national border offices by introducing a Risk Management System
- Procedures for transporting cargo are simplified by introducing a Single Window System
- Town development plans coordinated with border management infrastructure such as bypass roads truck stops will mitigate congestion at Oshikango and Katima Mulilo and improve town environment.

**Cost estimate**

**Total of Integrated Border Management Programme: N\$27.0 million (excluding (19) border town development packages)**

(20) Integration of ICT system relating border management (linkage between Asycuda and Navis, Single Window and Risk Management System: N\$13.0 million

(21) Install "Corridor Net" to provide information services to transporters: N\$5.0 million

(22) Implementation of OSBP at Mamuno: N\$9.0 million