



Airport Rehabilitation in Tanzania

Case Study in the Evaluation of ORET 2007-2012

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Table of Contents

| | |
|--------------------------------------------------------------|-----------|
| Executive Summary | 5 |
| 1. Introduction | 7 |
| 1.1 Sources..... | 7 |
| 1.2 Research Team..... | 7 |
| 1.3 Structure of the Report | 7 |
| 2. Project Overview | 8 |
| 2.1 The Country | 8 |
| 2.2 The Client..... | 8 |
| 2.3 The Transactions..... | 9 |
| 2.4 The Stakeholders | 11 |
| 2.5 Result Chain and Theory of Change..... | 12 |
| 3. Efficiency | 14 |
| 3.1 Realisation of Outputs..... | 14 |
| 3.2 Phase 1..... | 15 |
| 3.3 Phase 2..... | 16 |
| 3.4 Conclusions..... | 17 |
| 4. Effectiveness | 18 |
| 4.1 ICAO Certification | 18 |
| 4.2 Airport Growth..... | 18 |
| 4.3 Connectivity: Hub Development..... | 20 |
| 4.4 Economic Benefits for Tanzania | 21 |
| 4.5 Economic Benefits for the Netherlands..... | 21 |
| 4.6 Conclusions..... | 22 |
| 5. Sustainability | 23 |
| 5.1 Technical Sustainability | 23 |
| 5.2 Financial sustainability | 23 |
| 5.3 Institutional Sustainability..... | 24 |
| 6. Relevance, Additionality and Policy Coherence..... | 25 |
| 6.1 Relevance..... | 25 |
| 6.2 Additionality..... | 25 |
| 6.3 Policy Coherence..... | 26 |
| 7. Conclusions..... | 27 |
| Annex A: Interviewees | 28 |

Tables

| | |
|-------------------------------------------------------------------------------------------------|----|
| Table 1: Traffic Movement Statistics for the Three Largest International Airports of Tanzania.. | 9 |
| Table 2: Transactions Rehabilitating Julius Nyerere International Airport (JNIA) (in EUR) | 9 |
| Table 3: Results Chain for the Project..... | 13 |

Figures

| | |
|----------------------------------------------------------------------|----|
| Figure 1: Main Airports of Tanzania..... | 9 |
| Figure 2: Map of Julius Nyerere International Airport | 11 |
| Figure 3: Theory of Change | 13 |
| Figure 4: International Passenger Movements at Tanzania Airport..... | 19 |
| Figure 5: Passengers Movements in 2007-2013 | 19 |
| Figure 6: Cargo Tonnage in 2007-2013 | 20 |

Photos

| | |
|-----------------------------------------------------|----|
| Photo 1: Rehabilitation of the Runway at JNIA | 10 |
| Photo 2: Fire Truck at JNIA..... | 14 |
| Photo 3: Power Station at JNIA | 14 |
| Photo 4: Airfield Lighting System..... | 15 |
| Photo 5: Rehabilitated Apron | 15 |

Executive Summary

Introduction and Methodology

This case study evaluates the rehabilitation of the Julius Nyerere International Airport (JNIA) in Dar es Salaam, Tanzania, which was co-funded by a grant of the Dutch ORET programme. The project intended to fully rehabilitate the airport, aiming to meet the minimum safety requirements of the International Civil Aviation Organization (ICAO) and facilitate growth in passenger and cargo transport. The project consists of six related transactions, as listed in Table 2. The first transaction is not part of the evaluation case study since it falls outside the research period.

The ex-post evaluation of this project is based on desk research (the ORET archives but also additional reports and data provided by TAA and other stakeholders), interviews with stakeholders in Tanzania and site visits to the airport. The remainder of this summary is structured along six evaluation criteria: efficiency, effectiveness, sustainability, relevance, additionality and policy coherence.

The Client

The Tanzania Airport Authority (TAA) is a semi-autonomous government executive agency under the Ministry of Transport. It owns, operates, manages, develops and maintains all airports and airstrips on the mainland of Tanzania. TAA was mandated to represent the Government of Tanzania in the implementation of the ORET project.

Efficiency

All outputs (pavement of runways, taxiways and aprons; airfield ground lighting system, artificial wetland, sewerage system, power station) were realised as agreed, with only minor changes. The airport was rehabilitated with safe and reliable infrastructure and systems. At transaction level, outputs were realised within the time specified and budget allocated, but at project level efficiency was suboptimal due to adjustments in scope and design and postponements of investments that led to delays and increases in costs.

The closure of ORET for LDCs in 2001 also caused delays because no budget could be made available for the resident engineer until 2005 after the programme reopened for LDCs.

Effectiveness

The project's theory of change assumes the transactions would contribute to ICAO certification, airport growth and enhanced connectivity, and ultimately to income and employment, in Tanzania and the Netherlands. JNIA now meets ICAO 4E requirements, which is essential for an international airport and the connectivity of Tanzania.

Improved infrastructure and systems facilitated a significant growth in passengers (+61% between 2007 and 2013) and a modest growth in cargo (+17.6%). JNIA grew faster than many other airports in Africa. Connectivity improved, with several new airlines opening offices in Dar es Salaam and more frequent flights between JNIA and other airports. Stakeholders observed an increase in local income and employment, with more business at the airport and very likely also in Dar es Salaam. The project has been a success for the Dutch applicant (BAM/Interbeton) which was responsible for the rehabilitation: it has since had three new projects in Tanzania.

Sustainability

The technical sustainability of the project is assured by the transfer of knowledge on how to maintain civil aviation systems and the possibility of ordering spare parts. To assure the future use of the systems, it is vital that suppliers and the customer (TAA) continue to invest in maintenance.

The financial sustainability of the project is relatively good, due to good development prospects for the airport and the strong commitment of the national government to allocate funds for recurrent cost financing. The strong involvement of the government in the development and management of JNIA adds to the financial and institutional sustainability of the project but also limits the freedom of movement for TAA.

Relevance

The project was highly relevant not only for JNIA, in view of the airport's problems at the beginning of the project and its development potential, but also for Tanzania's aviation industry, with JNIA as the main source of income and important hub for international flights.

Additionality

The additionality of the ORET funds in this project is substantial, despite the fact that the government or another investor would have been willing to invest in the airport and despite some displacement of jobs due to the 60% Dutch input requirement.

Policy Coherence

The coherence with Tanzania's policy is high. The government supports investments in airports and the position of JNIA as domestic and international hub is indisputable.

1. Introduction

This case study evaluates the rehabilitation of the Julius Nyerere International Airport (JNIA) in Dar es Salaam, Tanzania, which was co-funded by a grant of the Dutch ORET¹ programme. This programme is a facility funded by the Dutch Ministry of Foreign Affairs and aims "to promote sustainable economic development and to improve the business climate in developing countries by facilitating investments in their economic and social infrastructure"². The current report provides input for the overall evaluation of the ORET programme 2007-2012.

1.1 Sources

The following sources of information have been used as inputs for the evaluation of the airport's rehabilitation:

- Documents in the ORET archives administered by ORET.nl such as progress reports, feasibility studies, technical reports and evaluations
- Documents and data provided by the client Tanzania Airport Authority (TAA) and other stakeholders
- Several academic papers and reports on the development of infrastructure and (air) transport in Tanzania
- Interviews with stakeholders in Tanzania
- Site visits to the airport

1.2 Research Team

The airport rehabilitation project was evaluated by a team with two consultants from Tanzania (Dr Adalbert Kamanzi and Dr Victor George) and two researchers from the Netherlands (Dr Alexander Otgaar and Jan-Jelle Witte, both from Erasmus University Rotterdam).

1.3 Structure of the Report

After this introduction (chapter one), an overview of the project and the transactions of which it is composed is presented in chapter two. Chapters three, four, five and six evaluate the results of the project in terms of efficiency, effectiveness, sustainability, relevance, additionality, and policy coherence. The report winds up with conclusions in chapter seven.

¹ ORET is an abbreviation of the programme's Dutch name *OntwikkelingsRelevante Export Transacties*, which can be translated as "Development Related Export Transactions"

² http://www.oret.nl/docs/ORET_brochure_eng.pdf, p. 4.

2. Project Overview

2.1 The Country

Tanzania is the largest country in East Africa occupying 942,600 km² of land and holding a population of around 44 million people³. The country is surrounded by Kenya, Mozambique, Burundi, Malawi, Democratic Republic of Congo, Uganda and Zambia. Tanzania is divided into 26 regions; 21 on the mainland and five in Zanzibar (three on Unguja, two on Pemba islands). Zanzibar is a semi-autonomous region within the State of Tanzania, with its own government (the Revolutionary Government of Zanzibar). The country's capital is Dodoma, a medium-sized city with less than 0.5 million inhabitants in the centre of the mainland. With a metropolitan population of around 4.3 million, the largest city is Dar es Salaam, which is located at the east coast not far from Zanzibar.

Tanzania is among the least developed countries in the world. Its GDP of \$695 per capita⁴ is significantly lower than the average GDP per capita in Africa (\$2,883). The country's economy depends heavily on agriculture which accounts for 25% of GDP, provides 85% of the exports and employs about 80% of the rural population (Shemdoe *et al.*, 2009).

Recent indicators, however, show that the country's economy is growing quickly, at a rate of 6% per annum, while the inflation rate is stable around the same percentage. Sectors that demonstrate high growth rates include mining, manufacturing, construction, transport and communications. Particularly, the contribution of tourism and service industries to GDP has increased rapidly and now surpasses the share of agriculture. With discoveries of natural gas, the mining industry is also expected to grow. Economic growth manifests itself in higher levels of (rural-urban) migration and commuter flows, raising the need for a more efficient transportation system.

Although substantial improvements have been made, Tanzania's transport sector is still facing considerable challenges. The First National Transport Policy – released in 2003 – mainly focused on institutional reform, with the delegation of tasks to various agencies, authorities and corporations. In 2007, the government announced an investment programme for the transport sector, which has, however, not been fully implemented due to budget deficits. The current National Transport Policy states that the sector is still dealing with major problems, such as a lack of quality and high costs. It acknowledges, for example, that “the state of much of airport infrastructure in the country is inadequate”⁵.

2.2 The Client

The Tanzania Airport Authority (TAA) is a semi-autonomous government executive agency under the Ministry of Transport. It owns, operates, manages, develops and maintains all airports and airstrips on the mainland of Tanzania⁶. TAA was mandated to represent the Government of Tanzania in the implementation of the ORET project. TAA is working on ISO 9001 certification and expected to be certified in March 2015.

Julius Nyerere International Airport (JNIA), also known as Dar es Salaam Airport, is by far the largest airport of Tanzania. In 2013, more than 2.3 million passengers made use of this international airport, including more than 1.2 million international travellers. The second most important airport is Abeid Amani Karume International Airport (AAKIA), also known as Zanzibar Airport, located on the island Unguja. In terms of passenger movements, Kilimanjaro International Airport (KIA) ranks third (see Table 1). Other relevant airports are shown in Figure 1. The government intends to develop a new international airport near Dodoma and Mbeya (Songwe).

³ Tanzania Census (http://ihi.eprints.org/2169/1/Age_Sex_Distribution.pdf)

⁴ World Bank, 2013 (<http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>)

⁵ National Transport Policy, Revised 2011 (Ministry of Transport, 2011, p.6)

⁶ The airports of Zanzibar are operated by the Zanzibar Airports Authority (ZAA), which falls under the responsibility of Zanzibar's government.

Table 1: Traffic Movement Statistics for the Three Largest International Airports of Tanzania

| Airport | Passengers | International | Cargo tonnage |
|--------------------------------|------------|---------------|---------------|
| Julius Nyerere (Dar es Salaam) | 2,348,819 | 1,266,779 | 21,891 |
| Abeid Amani Karume (Zanzibar) | 856,607 | 384,719 | 1,506 |
| Kilimanjaro | 824,848 | 503,903 | 3,533 |

Source: Traffic Movement Statistics Annual Report 2013 (TAA, 2013)

Figure 1: Main Airports of Tanzania



Source: Google Maps, created by the authors

2.3 The Transactions

The present evaluation focuses on three ORET transactions (TZ00039, TZ00108 and TZ00114) for which detailed information has been made available. However, the rehabilitation of JNIA has also been realized with contributions from several other ORET transactions, including ones that were completed earlier (A04058 and TZ0035) as well as more recent initiatives (TZ00119). Table 2 provides an overview of all relevant transactions, by merging data from various sources. It shows that, in total, the Dutch government made a contribution of more than €31 million to a project worth almost €60 million. Only a small share of this amount has not been invested in JNIA, since one of the projects (TZ00035) also involved a contribution to Kilimanjaro International Airport.

Table 2: Transactions Rehabilitating Julius Nyerere International Airport (JNIA) (in EUR)

| Reference | Applicant | Name | Timeframe ⁷ | Transaction Amount | ORET Grant ⁸ | Grant % |
|-----------|------------|-----------------------|------------------------|--------------------|-------------------------|---------|
| A04058 | Rosenbauer | Fire & Rescue systems | 1999-2003 | 2,210,000 | 1,326,000 | 60.0 |
| TZ00035 | Strukton | Power Supply | 2003-2009 | 6,424,840 | 3,279,801 | 51.0 |
| TZ00039 | Interbeton | Rehab. Phase 1 | 2004-2009 | 22.956.332 | 11.165.778 | 48.6 |
| TZ00108 | Howard | Rehab. | 2006-2010 | 845,000 | 431,770 | 51.5 |

⁷ The table shows when the grant agreement was signed and the certificate of completion was issued.

⁸ Some amounts have been rounded off.

| | | | | | | |
|--------------|-------------------|--------------------|-----------|-------------------|-------------------|-------------|
| | Humphreys | Supervision | | | | |
| TZ00114 | Interbeton | Rehab. Phase 2 | 2008-2012 | 26,333,770 | 14.557.061 | 55.3 |
| TZ00119 | Sir Frederic Snow | Airport Management | 2009- | 590,727 | 443,045 | 75.0 |
| Total | | | | 59,360,669 | 31,203,455 | 52.6 |

Source: ORET.nl

The overview of transactions also makes clear that the project took more than 15 years, and has not yet been completed fully. Various companies (applicants) participated in the implementation of the project, with transaction amounts that vary between less than €600,000 and more than €26 million. The contribution of ORET varies between 48 and 75 per cent.

The overall aim of the project is a full rehabilitation of the airport. At the time of the first applications, the airport did not meet the minimum safety standards of International Civil Aviation Organization (ICAO). Without the accreditation of ICAO, JNIA would run the risk of losing its intercontinental connections, notably with Europe. In the late 1990s, several European carriers threatened to leave JNIA. The success of the project should therefore be measured by the accreditation of ICAO, but also by passenger numbers and cargo tonnage⁹.

The rehabilitation of the airport started with investments in basic facilities such as fire and rescue systems and power supply, critical systems for the security and reliability of an airport. The actual rehabilitation of runway and taxiway pavements as well as apron parking areas was done in two phases (Phase one and Phase two). These works – involving a total investment of nearly €50 million – included the replacement of lightning systems, but also the replacement of air conditioning systems at the terminals and the construction of artificial wetland, septic tanks and sewerage system. The main runway (05/23) was rehabilitated in Phase one; the second runway (14/32) was treated in Phase two (see Photo 1). As can be seen in Table 2, the supervision by the so-called “resident engineer” for Phase one was funded by a separate, relatively small transaction (TZ00108). For Phase two the transfer of knowledge, notably on how to improve the airport’s environmental performance was covered by a separate transaction (TZ00119). The aim of this transaction has been to bring the organisation and maintenance on a higher level, thus sustaining the results of the massive investments in infrastructure.

Photo 1: Rehabilitation of the Runway at JNIA



Source: Mission Report Tanzania, February 2008 (ORET.nl, 2008)

⁹ Mission Report Tanzania, February 2008.

Figure 2: Map of Julius Nyerere International Airport



Source: Google Maps, created by the authors

2.4 The Stakeholders

Apart from the client (Tanzania Airport Authority), several other actors were involved in the rehabilitation of the airport.

Interbeton/BAM International

Interbeton is the applicant for Rehabilitation Phase one and two. In 2009, the company was rebranded as BAM International. It is a subsidiary of Royal BAM Group, one of Europe's largest contracting companies active in construction, property, civil engineering, public-private partnerships, mechanical and electrical contracting and engineering in 30 countries across the globe¹⁰. Interbeton/BAM International has considerable experience with ORET projects, being responsible for the construction of roads in Ghana and the construction of a sewage system in Ethiopia.

Strukton

Strukton successfully applied for the transaction that involved the delivery of a power supply system for JNIA. The very first application was done by a company called QttecQ, but part of this company was acquired by Strukton after it went bankrupt in 1999. Strukton is an engineering company which specializes in the development of transport and energy systems in urban areas¹¹. In 2006, the company applied for an ORET grant to upgrade a tramway in Alexandria, Egypt, this time without success.

Rosenbauer/Kronenburg

Rosenbauer/Kronenburg was the applicant of the first transaction which comprehended the delivery of a fire and rescue system. Kronenburg was a Dutch manufacturer of fire equipment and fire trucks, founded in 1823¹². In 1991, the company was acquired by Rosenbauer, which originates from Austria. Rosenbauer decided to keep using the Kronenburg brand for its fire trucks that were manufactured at the plant in Hedel (Gelderland). In June 2000, Kronenburg was liquidated. Today, Rosenbauer is the world's biggest fire equipment supplier¹³.

¹⁰ <http://www.baminternational.com/about-us/profile>

¹¹ <http://www.strukton.com/about-us/>

¹² <http://www.albert-baas.nl/kronenbu.htm>

¹³ <http://www.rosenbauer.com/en/rosenbauer-group/navigation/company/company-profile.html>

Howard Humphreys

Howard Humphreys, the resident engineer that supervised Phase one of the rehabilitation, is one of the leading consulting engineering companies in Eastern Africa, with headquarters in Nairobi, Kenya and a location in Dar es Salaam, Tanzania. The company, which was owned by Kellogg Brown and Root (UK) for some time, has more than 65 years of experience in East Africa, having supervised several important projects in Dar es Salaam. In the supervision of JNIA's rehabilitation, the company worked together with Stewart Scott International (South Africa) and Netherlands Airport Consultants BV (NACO), which are both affiliated with the Dutch consultancy firm Royal HaskoningDHV.

Sir Frederic Snow

Sir Frederick Snow & Partners Ltd is a UK-based firm that offers consultancy, design and planning services in transport and airport development projects¹⁴. The company took the lead in delivering airport management (TZ00119). Sir Frederic Snow also played an important role in updating the original design for the airport's rehabilitation. This design dates from 1998 and was drafted by M-Konsult (a Tanzanian consulting engineering company) and Scott Wilson Kirkpatrick (a design and engineering consultancy with headquarters in the UK).

Ministry of Transport

TAA falls under the responsibility of the Ministry of Transport. The Ministry's role was to ensure that the rehabilitation of the airport would comply with the legal institutions of Tanzania. Moreover the Ministry kept an eye on the airport's management, in order to safeguard (inter)national accessibility, security and safety. Another task of the Ministry was to arrange tax exemptions and to negotiate bilateral and international agreements regarding the (development of) the airport.

Ministry of Finance and Economic Affairs

The Ministry of Finance and Economic Affairs manages all revenues, expenditures and financing of the national government. It also advises the government on financial affairs in view of its economic and social objectives. In the rehabilitation of JNIA, its main role was to arrange government funding with loans from the Dutch bank ING.

2.5 Result Chain and Theory of Change

Table 3 summarizes the (expected) inputs, activities, outputs, outcomes and long-term results of the project. This results chain is a first step towards the development of a "theory of change" for the rehabilitation of JNIA. This theory of change (

Figure 3) presents an overview of the main causal relations that are analysed.

The project's main aim is to fully rehabilitate the airport, which essentially implies that it strives for an improved performance of the airport. This performance can be measured by the number of passengers and cargo tonnage, but also by its safety records and ICAO certification. Financial and environment indicators need to be taken into consideration as well in this respect. Expectations were that an improved airport would generate direct and indirect benefits, such as the creation of jobs and the development of businesses not only at the airport, but also elsewhere, for example in Dar es Salaam. Investments in environmental management and the artificial wetland including sewerage system should enhance the environmental performance of the airport, which implies a reduction of negative externalities.

As indicated in

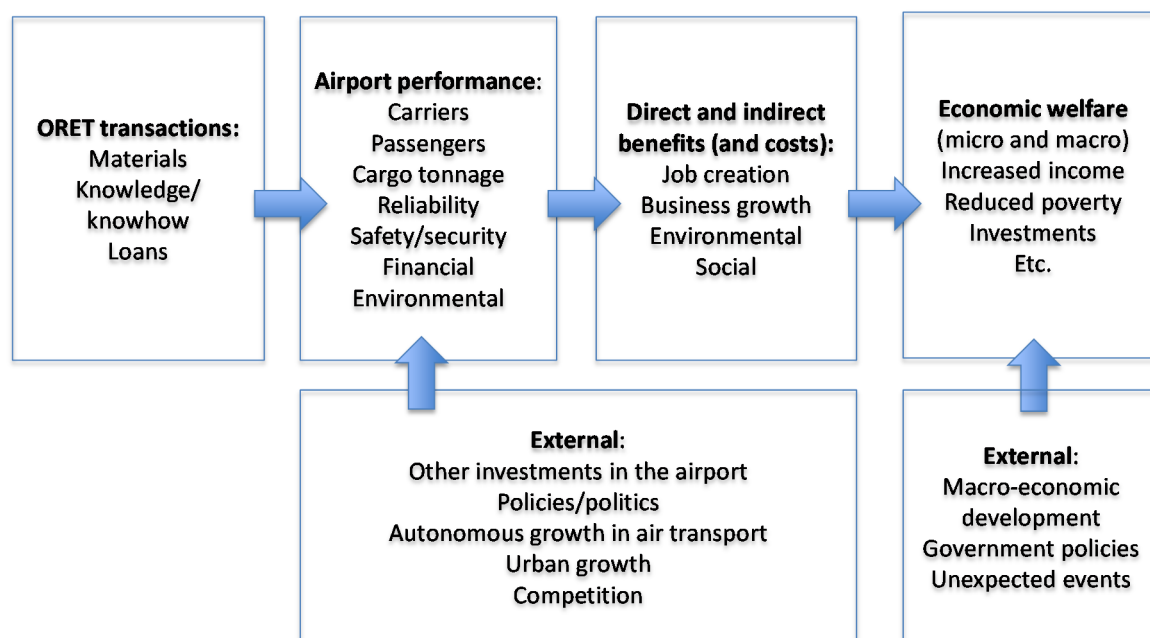
Figure 3, the performance of the airport and its (direct and indirect) impact on the socio-economic and environmental development of the region also depends on factors that cannot be controlled by the project. For example, the growth in passenger numbers and cargo transport strongly hinges on exogenous factors such as dynamics in the global economy and the competition with other airports in the region. In addition, political decisions and policies by TAA affect the development of the airport and its impact on the region.

¹⁴ <http://fsnow.co.uk>

Table 3: Results Chain for the Project

| Inputs | Activities | Outputs | Outcomes | Long-term Results |
|-----------------------------------------|------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------|------------------------|
| ORET Grant | Renovating runways, taxiways and aprons | Rehabilitated airport with safe and reliable infrastructure and systems | ICAO certification, improved safety | Business development |
| Other funding (Tanzania Government) | Replacing airfield lighting and air conditioning systems | | Growth in passengers and cargo | Creation of employment |
| Human resources (various stakeholders) | Replacing fire and rescue systems and power supply | | Enhanced (international) connectivity | Reduced poverty |
| Materials (e.g. construction equipment) | Constructing artificial wetland, including sewerage system | Improved environmental management | Reduced environmental contamination | |
| | Training (airport management) | | Creation of employment (at and around the airport) | |

Figure 3: Theory of Change



As a final step, one can argue that the direct and indirect benefits of the airport accrue to economic welfare, to be measured by increases in income, reduced poverty and (foreign) investments. This causal relation is evident, but the impact is relatively small, arguing that other policies and developments influence economic welfare (in Dar es Salaam and Tanzania) as well.

3. Efficiency

This chapter reviews the efficiency of the project. In this case, efficiency measures how economically human resources, materials and funds have been used to repave runways, taxiways and aprons, to replace vital systems and to transfer knowledge on how to improve the environmental performance of the airport. Have these outputs been realised as foreseen? Were there any delays in the project? And how about cost efficiency?

3.1 Realisation of Outputs

Desk research, interviews with key stakeholders and site visits confirm that all expected outputs have been realised as agreed, with only minor changes. Pavements of runways, taxiways and aprons were rehabilitated. A new airfield ground lighting system was installed and an artificial wetland was constructed for discharging wastewater collected from the two terminals. Both terminals are now connected to the sewerage system which was delivered in Phase 1 of the rehabilitation project (TZ00039). The entire airport is connected to the power stations that were delivered by Strukton. Also the fire and rescue system is up and running. Aprons are now being made with concrete and not with tarmac as before. Oil leakages are therefore easier to control.

The photos below give an impression of the improved facilities at JNIA.

Photo 2: Fire Truck at JNIA



Photo 3: Power Station at JNIA



Photo 4: Airfield Lighting System



Photo 5: Rehabilitated Apron



In the following sections we will discuss the details for Phase one and Phase two of the rehabilitation of the airport.

3.2 Phase 1

The final evaluation of TZ00039 (Phase one) provides some additional details, for this transaction. The total value of the transaction has been delivered, though with some changes in amounts of goods. Interbeton explains that these changes are normal for a re-measurable contract¹⁵ (no lump sum), in which the exact amounts were determined by Howard Humphreys.

Several problems caused delays during the project. For one thing, it took more than six years before the implementation of the rehabilitation – designed by M-Konsult and Scott Wilson Kirkpatrick in 1998 – could actually start. In 2004, this design had to be updated by Frederic Snow – due to changes in the field conditions (e.g. the state of existing infrastructure) – which took more time than foreseen. Pavement works on the apron began in May 2005. The adjustments in design forced TAA to redefine the scope of the project and to move some of the activities – notably investments in the terminals – to Phase two of the rehabilitation.

In comparison with the original application, more money had to be spent on asphalt for the runway because more asphalt had to be replaced than expected (in other words: the quality of the existing asphalt was lower than expected). In 2005, Frederic Snow indicated that the geometry of the main runway was not in accordance with the minimum ICAO requirements. This situation demanded an increase in the use of asphalt from the initial 14,000 cubical meters to 20,000 cubical meters in order to bring the runway to the minimum geometry profile of ICAO. Savings

¹⁵ A re-measurable contract is priced on a detailed bill of quantities specifying all elements of construction to be completed. The Contractor is paid based on the work item rates supplied during tender and measured on site.

could, however, be realized on the replacement of the airfield lighting system, because part of it had already been replaced by another party.

After Phase one it was discovered that the runway had design problems that led to water coming out of the runway, explaining why TAA was not willing to issue the Defects Liability Certificate¹⁶. The project was delayed because TAA refused to render the re-designer (Frederic Snow) accountable, while Interbeton did not want to solve the problem either, as it would raise the budget, while no additional funds were available. In the end it was decided to cover the costs of the additional work by a second ORET grant (Phase two).

One of the main problems during Phase one was that funds for the local consultant (Howard Humphreys) were not available when the construction contract commenced. According to Interbeton, the costs of a resident engineer could not be covered by the original budget. Since the ORET programme for Least Developed Countries (LDCs) was closed in 2001, it was not possible to raise this budget. Contingency funds were required to cover the consultant's expenses until the funding was secured at the end of the project (2005) by signing an additional grant agreement for this transaction (TZ00108), with a new ORET programme coming into effect. Payments to engineering consultants were also delayed in this period (2001-2005) because negotiations between ING and the Ministry of Finance – for arranging the matching loan – took longer than foreseen.

In 2005, when the budget for supervision was finally available, it took some time before a supervisory engineer could actually be appointed. This mainly had to do with the obligatory public tender. Awaiting the appointment of the supervisory engineer, Frederic Snow had to send a materials engineer to inspect the design and trial mixes of the rigid pavement works. Also a consultant of the Engineering Services Group was invited. In the end, it was resident engineer Howard Humphreys that provided supervision until one month after completion of the works as part of Phase one.

In 2006, the project experienced some issues with the local authorities. Surrounding municipalities complained that the rehabilitation of the runway caused air pollution, especially dust due to mixing asphalt, notably in the Yombo area. Citizens asked local leaders to defend their interests, either by stopping these activities or demanding mitigation measures. After consultation with several stakeholders (including Interbeton), TAA decided to take measures to reduce the dust and to compensate citizens financially.

3.3 Phase 2

During Phase one of the project, it became clear that the original budget was not sufficient to finance all investments. Since the highest priority was to rehabilitate the pavement of the runway to the required standards, it was decided to narrow the scope of this phase (transaction TZ00039). The rehabilitation of one of the taxiways was postponed to Phase two and airfield ground lighting was only installed on runways.

Phase two of the rehabilitation (TZ00114) started in 2008. According to TAA, the postponement of investments caused increases in costs due to inflation. Compulsory tendering processes possibly reduced transaction prices, but also slowed down the development, with inflation that led to higher transaction prices. TAA had to anticipate such changes, which required some efforts, but all objectives were reached within time.

TAA's remarks about the efficiency of Phase 2 are confirmed by the evaluation of the transaction, in which Interbeton/BAM reports that all goods and services were delivered timely, though with some small changes in amounts and budget required. The applicant successfully requested contingencies to be utilized for covering budget deficits in pavement works and the airfield ground lighting system. Furthermore the report highlights the importance of maintenance, to be addressed by TZ00119 (airport management). Also there were some administrative problems, such as clearing goods at the port tax and getting tax exemptions. A local consultant was hired by the applicant to take care of all tax-related issues, with support of the Dutch Embassy.

¹⁶ The defects liability period is the time within which the contractor is contractually obliged to return to the construction site to repair defects which have appeared in the contractor's works. The certificate is applied for after works.

From 2009 onwards, Sir Frederic Snow and other partners in the “airport management” transaction gave training sessions to engineers teaching them how to maintain and repair infrastructure and systems, and to managers on how to deal with environmental issues, e.g. with regard to the sewerage system and waste management. An Environmental Management Unit would be set up to deal with sewage and other issues related to cleanliness and avoiding spillage. Interviews held at TAA confirm that this unit has indeed been created, but also that this is not yet a well-developed unit with clear roles and responsibilities. There is still need for capacity building.

Another issue that was raised by multiple respondents is the payment of taxes. In the ORET contracts it is arranged that the transactions should be exempted from taxes, but in practice this caused many problems. Some respondents favour the World Bank policy where import duties are exempted but other taxes are not.

3.4 Conclusions

The overall conclusion is that the airport rehabilitation project was successful in delivering its expected outputs. Actors involved have made substantial contributions to the rehabilitation of JNIA, with safe and reliable infrastructure and systems as important outputs. Furthermore, an Environmental Management Unit has been set up, though without clear roles and responsibilities.

All goods and services have been provided. Phase one and Phase two of the rehabilitation were realized within the time specified and budget allocated. Taking the entire project in consideration, however, one could argue that the efficiency has been sub-optimal, with the adjustment of the scope in Phase one and the postponement of investments to Phase two. These adjustments, also in the design of the runway, caused delays and increases in prices (due to inflation). Moreover, the fact that no budget was available for the resident engineer frustrated the project’s progress. Apart from a mistake in the design of the runway, administrative procedures, both in Tanzania (e.g. clearance at the port) and in the Netherlands (e.g. the closure of ORET’s LDC programme in 2001), explain why the project as a whole took so many years. The problems were partly caused by changes in the ORET programme between 2001 and 2005.

4. Effectiveness

This chapter deals with the effectiveness of the interventions. It uses the results chain and theory of change (introduced in Chapter 2) to review the performance of the airport and its contribution to regional development.

4.1 ICAO Certification

The rehabilitation project has been crucial for JNIA in its efforts to get a certificate of the International Civil Aviation Organisation (ICAO), an agency of the United Nations. In 2008, the airport still did not meet all standards¹⁷, but was well on its way. At that time, JNIA already performed better than most other airports in the region, according to TAA. Regrettably, there is not much information available about the current performance of JNIA on the standards of ICAO¹⁸. In an interview, TAA indicates that JNIA has been granted the ICAO certificate with code 4E. This code implies that JNIA provides adequate facilities for handling large airplanes (with a wing span less than 65 meters), which is obviously essential for an international airport. In the final evaluation of Phase two (TZ00114), the applicant (BAM/Interbeton) confirms that JNIA meets the ICAO 4E requirements, with an expected "design life" of 20 years¹⁹.

4.2 Airport Growth

Passengers

Without the rehabilitation and the ICAO certification, JNIA would have been less successful in improving its performance, notably in terms of passenger growth. The upgrading of the general aviation apron and the rehabilitation of a taxiway that crossed this apron has enabled the airport to handle more airplanes, thus becoming more efficient in the use of infrastructure and facilities. The capacity of the runway increased from six to 30 flights per hour of which only one third is currently (2014) being used.

An ex-ante study by NEI predicted that without the investments the airport would have been confronted with an annual decline of passengers of around five percent²⁰. Passengers not only bring direct economic benefits (employment at the airport), but also indirect benefits as they spend their money in hotels, shops and other facilities. Before the project started, the Ministry of Tourism (and National Resources) calculated that each tourist spends on average USD1,248 (based on 1996-2004 data) and that 43.75% of the international passengers visits the country for leisure. Business travellers usually spend more per day and potentially bring trade and investments.

TAA's Annual Report of 2013 also provides some insight in long-term trends. Between 2000 and 2012, the number of international visitors registered at airports in Tanzania more than doubled from half a million to more than one million (see Figure 4). As can be concluded from Table 1, JNIA took the largest share in this growth. In terms of passenger movement, JNIA is currently the fifth largest airport in Africa. The most important hubs on the African continent are Johannesburg (South Africa, 18.9 million passengers), Cairo (Egypt, 13.7 million), Addis Ababa (Ethiopia, 8.8 million) and Nairobi (Kenya, 5.9 million). In 2013, JNIA was one of the fastest growing airports in Africa, reporting an increase of 12.5%.

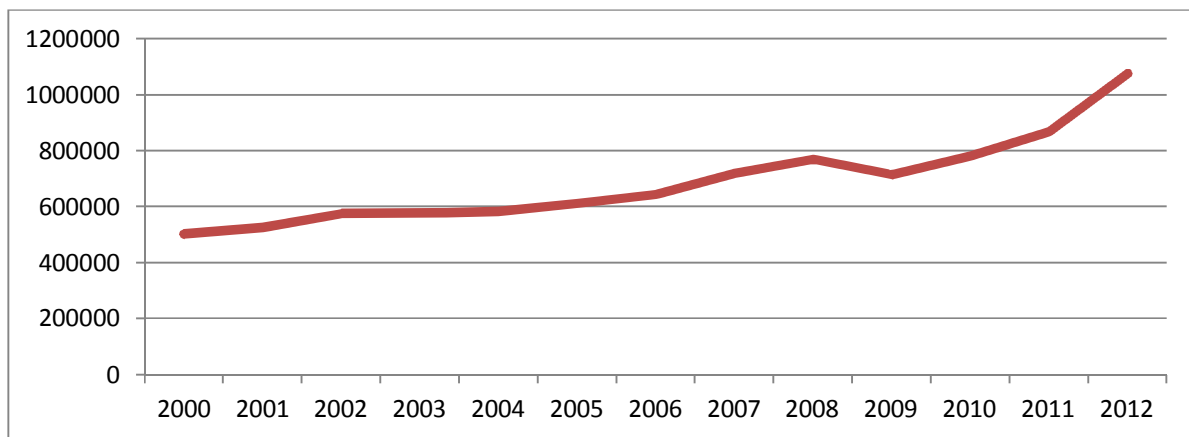
¹⁷ Mission Report Tanzania, 2008.

¹⁸ It seems that the information is not public.

¹⁹ TZ00114 Final report (BAM, 2012).

²⁰ Ibid.

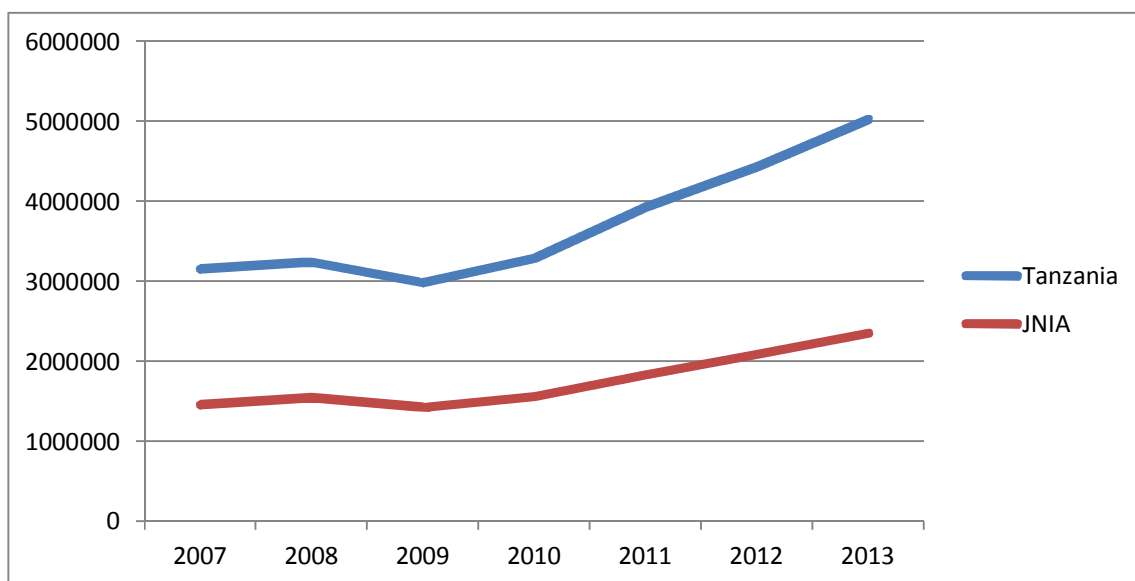
Figure 4: International Passenger Movements at Tanzania Airport



Source: Traffic Movement Statistics Annual Report 2013 (TAA, 2013)

Between 2007 and 2013 the total number of passenger movements at JNIA increased by more than 61% (see Figure 5). A similar growth rate is reported on the level of all airports in Tanzania. In other words: the share of JNIA in all passenger movements in the country has remained stable, at around 47%. In the past years, air passenger transport in Tanzania has grown faster than the global average of 22.6%²¹.

Figure 5: Passengers Movements in 2007-2013



Source: Traffic Movement Statistics Annual Report 2011 and 2013 (TAA, 2011/2013)

In sum: we can conclude that JNIA was successful in raising the number of passengers. The investments co-financed through ORET facilitated this growth. It is important to note here that the increase in passengers is not only caused by the rehabilitation. Other factors external to the project such as the increase in demand for transport and the growing economy of Dar es Salaam and Tanzania are at least equally relevant. Important reasons for the traffic increase are the growth in tourism and other economic activities such as mining and oil/gas exploration, but also the rising incomes of people in Tanzania²². Without the rehabilitation, however, the airport would not have been able to fully meet this increased demand.

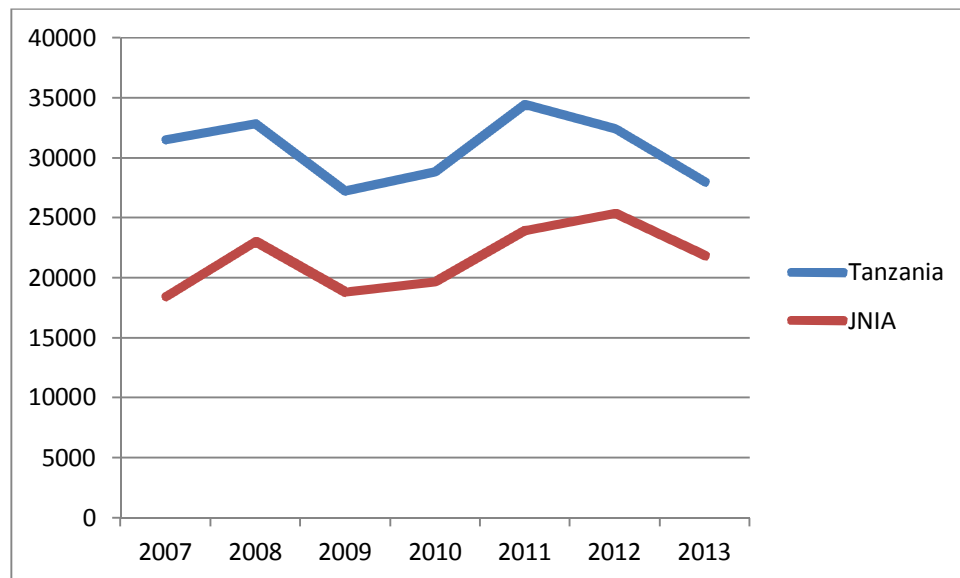
²¹ Source: http://www.iata.org/pressroom/facts_figures/fact_sheets/Documents/industry-facts.pdf

²² <http://asokoinstight.com/news/julius-nyerere-international-airport-4th-worst-airport-africa-tanzania/>

Cargo transport

With regard to air cargo transport, JNIA reported a relatively small increase of 18.6% from 2007 to 2013. As can be seen in Figure 6, cargo movements have gone up and down in this period, also on a national level, very likely due to the global crisis. The share of JNIA in all cargo movements increased from 58.5% to 78.1%. JNIA performs slightly better than the global average of 17.6%, as reported by IATA.

Figure 6: Cargo Tonnage in 2007-2013



Source: Traffic Movement Statistics Annual Report 2011 and 2013 (TAA, 2011/2013)

As cargo airport JNIA ranks fifth in Africa, but the tonnage of less than 22,000 is relatively small compared to the four above-mentioned competitors, which registered numbers between 160,000 (Addis Ababa) and 307,000 (Johannesburg). While the number of passengers at JNIA grew in 2013, the number of cargo movements declined by 13.9%.

In conclusion: the growth of cargo was less significant than the growth in passengers, but still it can be argued that the rehabilitation facilitated the increase of both numbers, with JNIA outperforming not only other airports in Tanzania, but also many other international airports on the African continent.

4.3 Connectivity: Hub Development

A critical success factor for an international airport is its connectivity: the number and frequency of connections with international (and intercontinental) destinations. Already before the project started, JNIA acted as the main hub for Tanzania, essentially because Dar es Salaam has always been the main commercial centre of the country.

In 2013, 21 carriers offered flights from and to JNIA. The airport provides direct connections to the four African hubs: Johannesburg, Cairo, Nairobi and Addis Ababa. Moreover, there are connections with destinations in neighbouring countries such as Mozambique, Uganda, Rwanda, Malawi and Zambia. JNIA also serves inter-continental destinations such as Amsterdam, Zurich, Istanbul, Doha and Dubai²³. The general impression is that JNIA has been successful in improving its connectivity. Since 2006, several carriers have opened offices at the airport, such as Oman Air, Turkish Airlines, Egypt Air and Fly 540 (low-cost carrier from Kenya). Other airlines such as British Airways, Emirates, Ethiopian, Qatar Airways and KLM have increased the frequencies of their connections with JNIA²⁴.

²³ Traffic Movement Statistics Annual Report 2013 (TAA, 2013)

²⁴ Final Report TZ00114 (BAM, 2012)

It is, however, not the ambition of TAA to compete with the four African hubs. Without a strong home carrier such as Ethiopian (Addis Ababa) or Kenyan Airlines (Nairobi), such an ambition would probably not be realistic. The national carrier Air Tanzania has a fleet of only two aircrafts that are mainly used for domestic flights.

4.4 Economic Benefits for Tanzania

The rehabilitation helped JNIA to accommodate growth in passenger and cargo transport and to develop into an important hub on the African continent. The improved performance of JNIA has generated several economic benefits, in terms of income and employment.

Passengers generate direct income as they have to pay a fee when they depart from JNIA. This fee varies from USD7 for a domestic flight to USD40 for an international flight²⁵. In addition, JNIA collects landing fees that range from USD3.70 to USD5, as well as parking fees for aircrafts (up to USD5 per hour, depending on the weight). All these charges are collected by the International Air Transport Association (IATA), which takes a commission and redistributes the remaining amount among TAA (60%), the Tanzania Civil Aviation Authority (30%) and the Tanzania Meteorological Agency (10%).

Construction works provided temporary jobs. In Phase one approximately 300 temporary jobs were created, and during Phase two this number increased to 350. In the final reports of both phases, the applicant (BAM/Interbeton) states that the investments also generated many indirect jobs, through the enhanced performance of JNIA (more passengers → more spending → more employment). This is in line with the applications that foresaw a significant number of indirect jobs as a result from the investments.

Regrettably, there is not sufficient data available to fully evaluate the project's impact in terms of employment. For example, annual reports of TAA do not provide data on the growth of jobs at the airport. Currently, however, Swissport Tanzania employs 550 people, which gives an indication of the airport's relevance as employer²⁶. Recently, WFS Cargo Storage announced investments in JNIA, expecting to generate employment for 120 persons²⁷. Interviews with owners of shops (mostly tax-free and tourist-oriented) and taxi drivers confirm that business at and around the airport increased over the past years: they report an increase of customers and also more competition of other shops and taxi drivers/motor taxis. Other entrepreneurs that benefit from the growth of the airport are parking operators and money exchangers/banks.

In absence of good statistics, the overall conclusion is that interviews support the view that the rehabilitation of the airport has not only helped to create temporary but also structural jobs. In this section we focused on jobs at the airport, but it is very likely that the improved performance of JNIA also lead to more trade, investments and jobs in Dar es Salaam and Tanzania.

4.5 Economic Benefits for the Netherlands

Apart from benefits in Tanzania, the airport rehabilitation project also resulted in positive outcomes for the Dutch applicant, in this case BAM/Interbeton.

Phase one of the project generated 250 direct man-years, 75 indirect man-years and 12 expat labour man-years, and very likely the numbers are similar for Phase two (no accurate data is available). In addition, the ORET project has helped the applicant to acquire other projects in Tanzania. One is the rehabilitation of the Tanzam highway (USD76 million) in a joint venture with Per Aarslef from Denmark, with co-funding of DANIDA, Denmark's development cooperation of the ministry of Foreign Affairs. Another concerns the rehabilitation of several roads in West Tanzania (Sumbawanga), with a total value of USD96 million, and support of the Millennium Challenge Corporation (US)²⁸.

²⁵ <http://www.taa.go.tz/index.php/aeronautical-fees>

²⁶ <http://www.swissport.com/network/network-detail/?busiId=321&cHash=0b115e07f9cf0c5c33158fbb76512ccb>

²⁷ <http://allafrica.com/stories/201406021389.html>

²⁸ Final report TZ00114 (BAM/Interbeton, 2012)

But the most important achievement is probably the contract that BAM International acquired in April 2013, for constructing the first phase of Terminal III at JNIA. This contract with TAA has a total value of USD168 million, financed by the World Bank's Transport Sector Project (AfDB 2013:106).²⁹

Terminal III

This first phase of Terminal III will raise the capacity of JNIA to 3.5 million passengers a year, while the second phase will further expand the capacity to six million a year. After completion, Terminal III will function as platform for international flights, leaving domestic flights to the older Terminal II.

Interviewees indicate that BAM's experience with the rehabilitation of the airport played an important role in winning the new contract. They argue that it would be easier for BAM to design the new terminal in close cooperation with TAA. Apparently this advantage outweighs the higher costs of the Dutch offer in comparison with Chinese competitors. It is also mentioned that the Chinese try to combine one offer with another in their negotiations (e.g. regarding the trade of raw materials and oil/gas), which is not always appreciated, nor in the interest of Tanzania.

4.6 Conclusions

Although data on effectiveness is far from complete, it is fair to conclude that the rehabilitation of the airport has been successful in producing the desired outcomes. Investments have been crucial to get the ICAO Code 4E status, which is essential for an airport that wishes to become a relevant international hub. The improved infrastructure and systems have facilitated, but not caused a significant growth of passengers, a modest growth of cargo transport and improved connectivity (more carriers, higher frequencies). Stakeholders at JNIA observe an increase in income and employment, with more business at the airport and very likely also outside the airport. For the Dutch applicant (BAM/Interbeton) the project has been very successful, it has since had three new projects in Tanzania that can to some extent be related to the ORET project.

²⁹ African Development Bank, 2013, Tanzania: Transport Sector Review, AfDB Group. See http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Tanzania_-_Transport_Sector_Review.pdf

5. Sustainability

In this chapter we review the sustainability of the outputs and outcomes discussed in the previous chapters. It essentially answers the question if activities at JNIA can be continued independently after the completion of the project, which involves technical, financial and institutional aspects of sustainability. The analysis in this chapter is mainly based on interviews with representatives of TAA.

5.1 Technical Sustainability

The expected “design life” of the runways and taxiways is 20 years, which gives an indication of the technical sustainability of the project. Other elements of the rehabilitation project, however, may have a shorter life expectation and/or require additional investments in maintenance and spare parts.

As part of the project, training sessions have been given to engineers at the airport, in order to ensure that the electric and mechanic instalments could also be maintained after the project finished. TAA officials state that the current staff is indeed able to manage and maintain these instalments and fix spare parts, since most of the staff that attended the training is still working at the airport. However, because TAA has to hire new engineering staff now and then (from Tanzania, but also from other countries), they now also organize their own training sessions to make engineers familiar with the relevant technical knowhow. Furthermore, TAA says that there is an annual budget for the maintenance of critical infrastructure. On top level, priorities are set for maintaining and repairing infrastructure, but the problem is that middle and lower managers on the ground do not always share the views of top-level managers (e.g. regarding the question what should be considered “critical infrastructure”), which may pose a threat to the technical sustainability of the project.

Another aspect of technical sustainability is the availability of spare parts. For all systems and instalments, spare parts can be ordered from the manufacturer. TAA appreciates the good business relations with the suppliers, but is not fully confident that spare parts will remain available in the coming years. In the current set-up the customer remains highly dependent on the producer of the machines, and therefore vulnerable to business decision of the producer (e.g. to stop producing particular spare parts). TAA suggests that it would be “more sustainable” to produce spare parts locally, but it is not clear if this would have been considered feasible at the time when the project was set up.

In sum, the technical sustainability of the project is assured by the transfer of knowledge on how to maintain systems and the possibility of ordering spare parts. To assure the future use of the systems, it is vital that suppliers and the customer (TAA) continue to invest in maintenance.

5.2 Financial sustainability

The financial sustainability of JNIA is strong, for two reasons. First, the airport is successful in generating income from charges that are collected via IATA and levies from different services. The rehabilitation project has improved the airport’s capacity and has facilitated a growth of passengers and cargo transport, which raises the budget to be spent on investments and maintenance. The construction of a new terminal (by BAM International) suggests that the airport has growth potential. The growth of JNIA fits in a more general pattern of expanding airports in East Africa³⁰. TAA expects that the new terminal will also improve customer satisfaction, which is one of the main challenges for the airport. In 2014, travellers rated JNIA as the fourth worst airport of Africa, only performing better than the airports of Khartoum, Kinshasa and Tripoli³¹. In an interview (with a journalist, not specifically for this case study), director Moses Malaki says that the airport’s designed capacity is already too low to handle the current number of passengers. It was designed for about 1.2 million passengers, but it has to handle 2.5 million. “You can see the

³⁰ <http://www.ihairport360.com/article/4820/africa-demonstrates-eastern-promise>

³¹ <http://asokoinsight.com/news/julius-nyerere-international-airport-4th-worst-airport-africa-tanzania/>

mismatch between the designed capacity and the actual number of passengers we handle. So, it is obvious that toilets and equipment are limited to accommodate 2.5 million passengers”.³²

A second reason for the strong financial sustainability of JNIA is the fact that the government gives much priority to its development and takes responsibility for its continuity. Despite the development of a new airport at Dodoma (the Capital City of Tanzania), the position of JNIA as the number one airport of Tanzania is undisputed. The government aims to further develop JNIA as an important destination airport, avoiding unnecessary competition with other hubs in the region such as Addis Ababa and Nairobi. The official policy is that JNIA should act as the international connection for all airports in Tanzania, and not as a hub for transfer passengers.

On the one hand, the strong involvement of the government more or less guarantees its continuity, as one would expect in most countries. On the other hand, it seems that TAA is less autonomous in taking important decisions than most other airport authorities with regard to for example pricing and the distribution of revenues. The political influence on such decisions is very high, which also explains why TAA is relatively inflexible and inert in taking decisions.

To conclude, the financial sustainability of the project is relatively good, due to good development prospects for the airport and the strong commitment of the national government.

5.3 Institutional Sustainability

As discussed in the previous section, the development of JNIA is backed up by the government of Tanzania. TAA and TCAA are powerful government authorities that regulate operations at all airports in the country, with clearly delineated responsibilities and close collaboration between them. The development of JNIA fits in the vision and strategy of the government, as formulated in the National Transport Policy, which dates from 2003 and is to be revised in 2015.

Despite the strong government support for the development of JNIA, the development of the aviation industry gets less policy attention than the development of other modes of transport such as rail and shipping. The main reason is that air transport is accessible and affordable for only a very small fraction of the population (“elite”). In a country such as Tanzania it makes sense to focus the development of transport on modes with a larger and more diverse group of users. Domestic flights are to some extent also relevant for JNIA, despite its dependence on foreign carriers, with flights that bring tourist to national parks such as Serengeti, Ruaha, Mikumi and Rubondo Island, and to important tourist destinations such as Zanzibar and Kilimanjaro.

Another institutional context factors is the resistance against private sector control over public utilities. TAA is in favour of more private-sector participation in order to make operations more efficient. The government, however, is sceptical about this idea. For the development of Terminal III, TAA suggested to opt for a contract in which the developer would not only build but also operate the terminal, but this option was not accepted by the government. In the end, they chose a more conservative model with less private-sector involvement.

In conclusion, the strong involvement of the government in the development and management of JNIA adds to the financial and institutional sustainability of the project, but also limits the freedom of movement for TAA.

³² Ibid.

6. Relevance, Additionality and Policy Coherence

This chapter analyses the three remaining evaluation criteria: the relevance of the rehabilitation project for the development of JNIA and Tanzania's aviation industry, the additionality of the ORET funds and the coherence with other policies.

6.1 Relevance

As discussed in previous chapters, the rehabilitation of JNIA was essential for the development of the airport. While the application stated that without the investments the number of passengers would have declined each year, TAA goes even further by stating that the airport ran the theoretical risk of being closed. In this what-if scenario, ICAO would have declared the airport as unsafe resulting in restrictions on activities. Without the ICAO certification, JNIA would have become an airport for domestic flights only, since these flights "only" require a certificate of the national aviation authority (TCAA).

From the very beginning, however, it was clear that the government was not willing to accept this scenario, simply because it would cut off Tanzania from the outside world. Since the late 1990s, the rehabilitation of JNIA has been a key priority of the national government, in view of its role as the main entrance to Tanzania, notably for tourists and investors. Other airports in Tanzania, such as the ones in Kilimanjaro and Zanzibar, have always been highly dependent on JNIA; not only due to its function as hub for international destinations, but also because TAA cross-subsidizes these smaller airports with revenues earned at JNIA (70% of all revenues collected at airports in Tanzania come from JNIA). In theory other airports could have taken over the role of JNIA, but this would have been less desirable, since Dar es Salaam is the country's most important commercial centre, with a high potential for business growth.

We conclude that the rehabilitation project was highly relevant, not only for JNIA in view of the airport's problems at the beginning of the project and its development potential, but also for Tanzania's aviation industry, with JNIA as the main source of income and important hub for international flights.

6.2 Additionality

As stated in the previous section, the government of Tanzania would never accept the closure of JNIA, for one thing because "the President should be able to fly". This means that also without the support of ORET the government would have done everything to find alternative financial sources for the rehabilitation of the airport. It is not very likely, however, that the government of Tanzania would have financed the entire project, due to budget restrictions. Without ORET funds the government could have made critical investments to keep the airport open for international flights, but with a considerably lower capacity. Another scenario is that the rehabilitation would have been funded by the Chinese government and/or investors, which probably would have been combined with trade deals. As discussed earlier, this scenario was not preferred by Tanzania for various reasons (e.g. too much dependence on the Chinese). A third option is that Tanzania would have applied for a loan of the World Bank, but at less attractive conditions than the deal with ORET.

Another dimension of additionality concerns the displacement of jobs from Tanzania to the Netherlands, as a result of the ORET sourcing conditions (which require 60% of the inputs to be delivered by Dutch suppliers). The case study shows that such displacement took place, particularly because it was decided to use bitumen (asphalt) which had to be imported, while one could also have used aggregate (a component to make concrete) from Tanzania. TAA would have been in favour of involving more local suppliers, not only in view of technical sustainability (see Chapter 5) but also because of job creation.

In sum, the additionality of the ORET funds in this project is substantial despite the fact that the government or another investor would have been willing to invest in the airport and despite some displacement of jobs due to the 60% Dutch input requirement.

6.3 Policy Coherence

The rehabilitation of JNIA is coherent with national policies in Tanzania. As in other African countries (such as Ghana, see the case study on the delivery of buses) the development of the transport sector has been a key priority of the Tanzanian government. Investments in the airport fit in the strategy to improve accessibility, based on the conviction that improved infrastructure facilitates mobility of citizens (access to jobs and services) and trade. The ruling party in government made a commitment to the improvement of infrastructure and accessibility in the early 2000s, and interviewees expect that the topic will remain high on the political agenda, particularly during the campaigns for national elections.

However, we must repeat here that the development of airports may get less policy attention than investments in road infrastructure (see section 5.3 on institutional sustainability). Interviewees indicate that the ticket prices for domestic flights are “very high”; as one would expect tickets are not affordable for an average Tanzanian. The question is if tickets should be subsidised (as some stakeholders suggest) or if the government should focus on other ways to improve wellbeing.

As stated above, the government supports the development of JNIA as the hub for domestic and international flights. There is no doubt that Dar es Salaam still has the highest growth potential, despite the development of other (international) airports in Dodoma and Mbeya City (Songwe).

We conclude that the coherence with Tanzania’s policy is high. The government supports investments in airports and the position of JNIA as domestic and international hub is indisputable.

7. Conclusions

In this report we reviewed the results of the rehabilitation of JNIA airport (Dar es Salaam, Tanzania), co-financed through ORET via several transactions, with BAM/Interbeton as the applicant for the lion's share of the project of EUR60 million. Desk research and interviews with TAA (the client) and several other stakeholders in Tanzania have provided insight in the efficiency, effectiveness, sustainability, relevance, additionality and policy coherence of the project:

- The project has been **efficient** in delivering the outputs it intended to deliver. However, several issues (design errors, no funds for a resident engineer, etc.) caused serious delays explaining why the entire project (not the individual transactions) took longer than needed.
- The project's **effectiveness** is rated high, as the rehabilitation of the airport made a crucial contribution to the airport's ICAO Code 4E accreditation, which has been essential for the airport's growth (in terms of passengers and cargo transport) in the last decade. The growth of the airport has been accompanied with increases in jobs at the airport, but presumably also elsewhere.
- The technical, financial and institutional **sustainability** of the project is sufficient, considering the expectation that the rehabilitated runways and taxiways will meet ICAO requirements until 2025-2030, the transfer of knowledge on how to maintain systems, the expected growth of passengers (and income) in the coming years, and the relatively stable institutional backing by the government.
- The **relevance** of the project for the development of JNIA and the aviation industry in Tanzania is beyond any doubts.
- The **additionality** is also clear. Without the ORET funds, the airport would not have been closed, but the rehabilitation would probably have been done on a smaller scale.
- The **policy coherence** is high, in view of the government's support for developing the aviation industry, and for securing JNIA's status as the domestic and international hub.

Annex A: Interviewees

- Dirk Jan Brouwer, First Secretary Economic Affairs, RNE
- Harko Kloeze, Managing Director, BAM International, Tanzania
- Eng. Edwino H.T Mujwahuzi, Director, Transport Infrastructure Division, Ministry of Transport
- Eng. Suleiman S.S, Director General, TAA
- Eng. Rehema, TAA
- Eng. Neema Joseph, Manager, Construction and Maintenance, TAA
- Thomas Haule, TAA
- Paul C. Rwegasha, Chief Compliance Unit, TAA
- Ms. Mameltha Mutagwaba, Ministry of Finance
- Taxi Drivers, JNIA Dar es Salaam Airport (anonymous)
- Shop attendants, JNIA Dar es Salaam Airport (anonymous)
- Passengers, JNIA Dar es Salaam Airport (anonymous)
- Isack Kamukulu, Owner of Lodge close to Dar es Salaam Airport