# REPORT OF THE DEVELOPMENT RESULTS OF EU AFRICA ITF 2007-2012
## EUROPEAN INVESTMENT BANK (EIB)

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**FINAL REPORT: CASE STUDIES**

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## 2.1. Summary of case studies

The analysis of the EU-AITF Operations was extended beyond the Project fiches to include a more in-depth review of the ten selected Case Study Projects. This section provides a brief summary of the findings, explores Projects' value add, evaluates their contribution to EU-AITF Strategic Objectives, and identifies any lessons learnt. The individual Case Studies are presented following this initial summary.

The ten Case Studies (shown in Table A2.1) are not a representative statistical sample but were recommended by the EU-AITF Secretariat to reflect sector, intervention type, infrastructure project maturity, different PFG members and overall operational experience over 2007 to 2012.

The case studies cover a wide diversity of infrastructure projects, with a size range of €50m to €400m; the sector coverage is four in Transport, four in Energy, one in ICT and one in Water and Sanitation. With the partial exception of Maputo International Airport, all have strong regional dimensions and African ownership; at least six are directly linked to PIDA PAP.

The complexity and extended project preparation times associated with such regional Projects is underlined by the fact that despite the ITF Grant period coverage of 2007 – 2012, only two projects – the Caprivi Interconnector and the EASSy Cable – are fully operational. There is a high correlation with HIPC countries and hence the need for compliance in concessionality on loan interest rates.

Where IRS grants are made (this is mainly when the project has reached a stage approaching financial close), the total subsidy impact is much larger than when only TA is involved[1]. None of the ten case studies provides an example of a DG Operation. The TA is for both early stage and financial close activities; often the latter are to minimise risks or constraints to secure the compelling regional or domestic development benefits on which the economic case is based. It was therefore observed that the more mature the sample portfolio, the higher the likelihood of an IRS grant; disbursement delays are also less likely. For the ten Case Studies, IRS was around 80% of the total value of EU-AITF grants, despite the fact that only five Projects attract this type of support. It was also observed that of the Case Studies with IRS Operation components, the Caprivi Interconnector is the only one with an upfront IRS subsidy – the rest are classical IRS subsidies.

Somewhat surprisingly there is a roughly equal split between public and PPPs. The Case Studies also show how major, multi-country projects of great complexity are packaged into sections or segments to promote "bankability." There is also demonstration of considerable interdependence, for example in the transport corridor projects or power pool and load generation / balancing / trading activities.

[1] Typically a TA Operation would be €2-3 million, while an IRS would be more like €15 million.

In terms of the objective of encouraging PFG co-operation and blending, the sample contains only three projects with a single PFG member; by contrast there are at least six examples of three or four PFG members being involved.

There is very limited evidence on actual or indeed expected Outcomes as defined in the standard sector based indictors used in the fiches. It is also difficult to retrofit. The main characteristics of the ten Case Studies are detailed in table overleaf.

*Table A**Error! No text of specified style in document.**.1: Overview of Ten Case Studies*

| Case Study | Sector | HIPC | EU-AITF Grant Type (€ Million) | | | | Total Project (€ Million) | EU-AITF leverage[2] | Project Type | | Project Stage | | | Expected Year of operations |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | IRS | TA | DG | Total | | | Public | PPP | Design | Construction | Operation | |
| Lake Victoria Kampala | Water | Yes | 14 | 8.0 | - | 22.0 | 212 | 9.6 | Yes | - | | Yes | - | 2016 /2017 |
| Maputo Airport | Transport | Yes | NA | 1.6 | - | 1.6 | 52 | 32.5 | Yes | - | Yes | - | - | 2017 |
| Ruzizi Hydro I,II,III | Energy | Yes | - | 7.2 | - | 7.2 | - | - | - | Yes | Yes | - | - | 2018 |
| Bumbuna Hydro II | Energy | Yes | - | 2.5 | - | 2.5 | 379 | 152 | - | Yes | Yes | - | - | 2018 |
| Kazungula Bridge | Transport | Part | - | 3 | - | 3 | 190 | 63 | Yes | - | | Yes | - | 2018 |
| Caprivi Link | Energy | Part | - | 15.0 | - | 15.0 | 300 | 20 | Yes | - | - | - | Yes | 2011 |
| Felou Hydro | Energy | Yes | 9.4 | - | - | 9.4 | 176 | 19 | - | Yes | - | Yes | - | 2014 |
| EASSy Cable | ICT | Part | - | 2.6 | - | 2.6 | 199 | 77 | - | Yes | - | - | Yes | 2010 |
| Great East Road Zambia | Transport | Yes | 38.7 | 1.0 | - | 39.7 | 250 | 6 | Yes | - | Yes | - | - | 2015 |
| Beira Corridor[3] | Transport | Yes | 29.0 | - | - | 29.0 | 189 | 6.5 | - | Yes | - | Part | Part | post 2013 |

[2] EUBEC TG2 report definition : Investment leverage ratio = value of investment (total project cost) divided by total amount of EU blending facility grant(s) relating to this investment

[3] For the Beira Corridor, the port component is operational but the disbursements on the rail component are on hold due to cancellation of the Sena Railway concession.

## 2.2. Lessons Learnt

The PFG and ExCom discussions highlight the need for flexibility in approval and re-approval as well as the need for regular monitoring and reporting, particularly in case of disbursements. The 18-month rule is very useful in this regard; as is the case by case use of maximum grants. There is some evidence of increased use of phasing, with an increased reluctance to commit large sums in advance. Using sequenced grants of TA and IRS (and DGs) to help cluster and pull through PFG co-financing exists but mainly as an exception. There also does not appear to be any strategic targeting of TA (or DG) Operations in terms of budget allocations; this raises the classic tension of "demand-driven" as against a more targeted approach.

There is evidence in the Case Studies of learning from early experiences of regional infrastructure projects; although some like the EASSy project were probably unique. However, Ruzizi I, II and III, Bumbuna II and Félou, as well the two transport corridor projects all show evidence of learning, particularly the usefulness of dividing projects into "bankable" sections or parts. For example, segmentation may be used to separate a PPP generation project from a public sector transmission project, different road sections may be separated from one another, or the road / rail development may be treated separately from port development in the case of a transport corridor. The Lake Victoria Basin WATSAN programme covers five countries within the East African Community (EAC), and includes both capitals and secondary cities; with planned replication of the basic Kampala business model across Mwanza, Kigali and Kisumu.

The Zambia Great East Road and Lake Victoria Basin Case Studies also indicate the co-financing possibilities with EU Delegations, EDF and other facilities like the AfDB-hosted African Water Facility (AWF). For scale and replication, partnerships and co-financing need to be maximised.

There are no EU-AITF case studies of reimbursable grants; although the EASSy study refers to an EIB reimbursable support Operation.

Given the maturity of the underlying portfolio, the Case Studies very largely deal in expected rather than the actual values; and most major infrastructure projects suffer from optimism bias. This should be reflected in the EU-AITF grant process documentation.

In terms of the size of EU-AITF Operations, the formal minimum is €0.25 million but effectively the Case Studies suggest a much higher cut-off: Maputo International Airport is the smallest with €1.6 million.

## 2.3. Eastern Africa Submarine Cable System (EASSy)

### Why did EU-AITF support the project?

The EASSy is a key ICT backbone infrastructure project for the region. It is a 10,000 km submarine cable along the East African coast, from Sudan to South Africa, with ten landing points plus increasing inland connections to land locked countries. The EASSy cable is owned and operated by a consortium of licensed operators[4], some directly investing but others with access via a Special Purpose Vehicle (SPV) called WIOCC.

The cable has support from 14 African telecommunications operators plus substantial development finance institution (DFI) co-financing. WIOCC, the largest single shareholder, acts as a commercial wholesale entity and drives competition by an open access, non-discriminatory capacity sales policy. There is also a cap of the extent to which profit mark-ups can be made. Together these ensured DFI development objectives are met.

The total investment cost of EASSy was €199m. For the WIOCC element, the equity contributions add up to €23.3m or 29% of the €80m overall financing cost. The residual is provided through loans from EIB, KfW, AFD, the International Finance Corporation (IFC), AfDB and Development Bank of Southern Africa (DBSA). The four PFG co-financiers provided 45% of these loans.

The EASSy cable predates the creation of the Programme for Infrastructure Development in Africa Priority Action Plan (PIDA PAP) but there is evidence of strong African ownership through the New Partnership for Africa's development (NEPAD) eAfrica Commission and other regional sources.

### How did EU-AITF add value?

The EASSy Project had complex preparation and support arrangements. From July 2007, the ITF provided €2.6m in a TA grant to finance 18 months of a WIOCC management team. The argument for the TA was that the SPV was crucial to the open access and competition policy objectives in that the initial years, while the most risky would also be loss making. Given the extended negotiations and difficulties evident during the project preparation phase prior to financial close, having a strong management team in place during the construction phase was seen as vital to avoid further delays and ensure that the WIOCC fulfilled its open access, wholesaler of transmission capacity function. The €2.6m TA grant was fully disbursed over 2007 to 2009.

The ITF TA Operation to provide core WIOCC during the construction phase was effectively a continuation of project preparation support funded through a number of DFIs under the leadership of the EIB and the IFC. Its additionality is associated with the need for high quality and committed management to make the SPV work and deliver the development

[4] These include some 16 African based operators plus major international telecommunications service providers.

policy objectives designed into the overall project structure. In part, it was an insurance investment to mitigate delays and coordination tensions; based on results it was highly successful and the WIOCC Board have documented their appreciation. The ITF TA was the final part in an extended and complex project preparation cycle that was also specialized and innovative.

The sum of €2.6m did not leverage other loans but it did help mobilise other DFI funds – effectively four of which are now PFG members – and helped close a transaction that was financially attractive and private sector led but required a regional public –private sector solution. The DFI interventions are market enabling and prevent the pricing and allocation failures evident in earlier similar projects in West Africa.

The EASSy demonstrates the need for substantive transactions stage support to manage critical issues and timelines and package accordingly in large regional projects; the ITF was sufficiently flexible and responsive to help finalise this process.

## What were the project results?

### Outputs

The main expected outputs were the 10,000 km submarine cable, 10 landing points plus the consortium and WIOCC institutional and commercial operation. The actual outputs, although derived from hard and often fraught negotiations, were fully in line with the expected.

### Outcomes

The main expected benefits were regional access to reliable, fast and widespread telecommunications services; increased competition and lower user tariffs due to reduced costs; and greater regional and international connectivity leading to improved economic performance and enhanced competitiveness. Given the structure of the Project and the number of countries gaining access, the Project was also seen as boosting regional integration.

The target population or internet / mobile user base is not given in the available documents but it is clear from industry data that penetration and use was low in the 2007 base year. The potential market base was immense; AfDB reports the hinterland population at around 250 million in 2007.

Some evaluations and case studies of EASSy may exist but are yet to be referenced so it is not possible to consider actual outcomes. The AfDB reports some survey evidence for Kenya and Tanzania; broadband wholesale prices fell by over 60% and 90% respectively; there was also a doubling in international broadband utilization within 6 months of the cable being live.

## 2.4. Mali: Félou Hydropower Project

### Why did EU-AITF support this project?

Félou is part of the West African Power Pool (WAPP) and includes co-operation within the four countries of the Senegal River Basin Authority (or OMVS)[5] Félou was designed as a run of the river power plant, close to the existing Manantali dam. The latter plus the transmission interconnections and power pooling between the Senegalese, Malian and Mauritanian electricity grids was the responsibility of a public company – Société de Gestion de l'Energie de Manantali (SOGEM). The original cost estimates were around €102.5m, currently this estimate has increased to €176m Financing was to be via equal IDA credits (total €61.5m) to the three countries, an EIB loan (also three parts) of €33m plus some €27.2m from SOGEM. Due to Highly Indebted Poor County (HIPC) conditions, the EIB loan had to have at least 35% concessionality and the IRS was calculated on this basis. However after various delays and rebids, the SINOHYDRO winning bid was 60% higher than that budgeted for. This led to a round of additional financing, though the EIB loan and its associated IRS grant remained as before. The Project has now been constructed and commissioned on this basis.

Félou Hydropower was a WAPP priority project, and the economic case for Félou is compelling; even with the cost increase it provides the WAPP least cost solution. The World Bank reported the economic internal rate of return (IRR) as over 20%.

### How did the EU-AITF add value?

The Project was one of the first beneficiaries of ITF grants; the €9.34m classical IRS grant was initially approved in 2007 but delays and a major increase in the costs meant it had to be re-approved in 2008 and again in 2010. Disbursement of the IRS started in October 2010 and is likely to be concluded in 2014.

The IRS benefits the national borrowers and SOGEM; the IMF compliant loans are passed onto SOGEM at 4.5% interest rate. , which is below a purely commercial rate and above the concessional rate granted to the States. The interest rate differential between 4.5% and the rate paid by SOGEM to the States will be paid into an account and used by SOGEM to finance rural electrification.

The additionality of the IRS grant in assisting project preparation will only be known once electricity is flows through WAPP. The IRS allowed EIB to offer terms which were HIPC compliant; the alternative would have to been to have larger IDA credits or alternative bilateral grants. Despite the delays, the ITF has kept the IRS open and this extension has helped keeping the financing package together. The long term involvement of the World

[5] These are Senegal, Mali, Mauritania and Guinea; the latter joined in 2006 and was not an original project stakeholder. OMVS is of course a sub-regional organisation within ECOWAS.

Bank and EIB in preparing and implementing this project was clearly a major success factor in getting the DBOT contract completed.

On the information to hand, it is difficult to argue that the IRS grant leveraged IDA or domestic investment sources; but it was certainly important for original financial closure and its continuance maintained HIPC compliance and continuity during an extended period of difficulty. Recent events in Mali, the continuing fragility of Mauritania[6] and the ongoing negotiations for the operator concession, show these issues will remain in place and have to be continuously managed.

## What are the expected project results?

### Outputs

The main expected outputs from the Project were a new powerhouse, around 59 MW of additional generating capacity and a transmission interconnection to the existing sub-station at Kayes. The Project history demonstrates the need for commitment, patience and flexibility in promoting regional infrastructure projects. Despite the complexity of the stakeholder, regulatory and operating environment and a series of exogenous shocks, the plant and transmission line are now in place. Only the operating concession remains to be finalised and this is under negotiation.

### Outcomes

The main expected outcome will be power; the Félou plant is capable of producing 325 GWh per year, of which some 154GWh would be firm. This is expected to be used by each of the three countries in roughly equal shares. This should help stabilise grids and prevent outages; the additional power will also assist competitiveness and support economic growth. There is no estimate of the expected increase in user households or businesses or public services.

The new hydropower should also delay or displace thermal capacity – diesel or fuel oil – leading to import savings and reduction in $CO_2$ emissions. The World Bank project documents suggest annual savings of 160,900 metric tonnes of $CO_2$ per year.

The major outcomes are likely to be indirect, via the activities enabled and made more competitive by the increased power; this may also have a rural dimension which would increase the pro-poor quality. There are substantial environmental benefits and the probability of increasing revenue by carbon credits. The Project also has a positive outcome on WAPP and a demonstration impact in terms of further OMVS co-operation in a third plant in the Senegal River Basin.

[6] The IMF and World Bank Group have re-engaged since presidential elections and programmes were restarted in 2010.

## 2.5. Zambia: Great East Road (GER)

### Why did EU-AITF support this project?

The GER forms part of the Nacala road / rail corridor connecting Zambia, Malawi and northern Mozambique. It is a Programme for Infrastructure Development in Africa Priority Action Plan (PIDA PAP) project and has attracted support from a wide range of development partners. The corridor attracts both domestic and international traffic and is associated with major coal mining and other extractive initiatives in the Tete Province of Mozambique. The existing GER runs for 360 km from Lusaka to the Malawi border at Chipata, and is a single carriageway in poor condition, which requires reconfiguration, upgrading and bridge replacement. Consideration is also being given to creation of a rail / road dry port at Chipata plus the provision of One Stop Border Posts.

The EIB was the PFG lead financier with co-finance by the EU via the European Development Fund (EDF) and then AFD, who closed a residual funding gap. There was also substantial additional involvement from the AfDB, but with the latter's road financing packaged as a separate lot and dealing with a specific section. Other major donors for the programme include JICA and South Korea.

The GER link is split into two packages:

1. AfDB, with one lot (115 km) contracted under AfDB rules and procedures. This supports the works, supervision, technical audit and TA support to the Zambian Road Development Authority (RDA); and
2. "EU" package, with three lots (245 km), with three supervision and works contracts, contracted under EDF rules and procedures, with co-financing from the EU and the Government of Zambia (via loans from EIB and AFD). This covers technical audit contracts and approximately 30% of works.

The total project cost is around €250m, of which the AfDB loan is €77.8m, EIB lending mechanism was €80m, and AFD lending was €53.1m.

### How did EU-AITF add value?

The EIB IRS (€25m) and TA grant request was submitted and approved in June 2010; the original AFD (€10.8m) request followed in November 2010, though both PFG members asked for their IRS to be revised upwards afterwards. AFD's final IRS was €13.7m. While no IRS subsidy has yet disbursed, the GER works and supervision contracts are mobilised. The EY Mid-Term Evaluation reported total GER project cost at €247m: this sets overall "leverage" at six and PFG "leverage" at five.

The TA grant will be used to finance consultancy services to ensure that works on the sections co-financed by the EIB and EDF are performed to the required quality and will also help strengthen the RDA's quality control systems across all its operations.

The EU-AITF grants helped close the financing gap and enable EU, EIB and AFD co-funding. Zambia is classified as a Highly Indebted Poor Country (HIPC) country, and the ITF IRS grant subsidies to EIB and AFD comply with prevailing concessional lending requirements. Without the two IRS subsidy grants from the ITF, it appears that the HIPC conditionality would not have been met and the financing gap not closed, resulting in further delays and uncertainty for the Project. The TA grant is essentially a quality control instrument for the EIB and follows an extended grant funded project preparation phase.

The overall ITF grant contribution is substantial but the process by which IRS needs are calculated is not transparent and clearly differ between participating PFG members.

Although it is too soon to say on actual outcomes, there are some early indicators of the impact of the three ITF Operations. They do appear to have potential to influence the ability of the Project to reach financial close, help maintain the full set of lots, promote co-ordination between the PFG and the EU Delegation / EDF, help deliver the Project on time and, through the TA, enhance the quality of construction.

## What are the expected project results?

### Outputs

The main expected output from the EU package is a rehabilitated 245 km (68% of the GER) with realignment and improved bridging. No actual outputs exist yet as civil and supervision contracts were let in 2013.

### Project Outcomes

The main expected outcomes are savings in vehicle operating costs and travel times plus reduced road accidents through improved alignment, capacity and signage. The EY Mid-Term Evaluation reported that locally generated traffic will account for approximately 45% of trips, regional and inter-regional will account for 50% of trips. Overall traffic flows in 2008 were around 475 vehicles per day on average.

There are no baseline population catchment or poverty incidence figures, but the Eastern Province of Zambia is predominantly agricultural, with a relatively high levels of extreme poverty. Malawi – also landlocked - and northern Mozambique have similar characteristics, suggesting economic impacts have the opportunity to benefit a large population under the poverty line

As the GER is in construction phase, the actual outcomes have yet to emerge. They largely will accrue to road users – either vehicle or non-vehicle – and both regional and domestic traffic.

## 2.6. Mozambique: Maputo International Airport

### Why did EU-AITF support this project?

Maputo International Airport (MIA) is the major international and domestic airport in Mozambique, and traffic growth has been robust in recent years. A new International Terminal was opened in November 2010, and has a passenger capacity of approximately 900,000 people per year. In April 2011, following a negative International Civil Aviation Organisation (ICAO) report, the European Commission blacklisted all airlines registered as operating from Mozambique for concerns about safety and aircraft maintenance. This ban remains in place.

AFD financed a preliminary study into the condition and needs of airside airport infrastructure in 2010. This prioritised a set of investments to deal with ground lighting and safety, cargo and taxi aprons and runway pavement quality. Safety is the main objective of the Project.

The Project will deal with the above plus facilitate a dialogue with Aeroportos de Moçambique (ADM) on its business strategy, financial modelling and ability to fund periodic and recurrent maintenance at the required levels. It is estimated to cost €52m. To date, ADM lacks the technical and managerial capacity to design and project manage its own investment projects. ADF and EIB may provide loans to ADM, and the TA granted by EU-AITF could facilitate this by providing a mechanism for greater understanding of ADM's credit worthiness.

### How did EU-AITF add value?

The AFD TA application was considered by the PFG and Ex Com in 2011. AFD and ADM signed an agreement in December 2011 for the TA to support an independent consultancy to undertake field studies, finalise design and tender documents and assist ADM bid out and evaluate bids. The consultancy is now in place and the end of the design phase is scheduled for end 2013 and financing negotiations for the first half of 2014; if successful, the airside improvements will be in operation in early 2016. These will then complement the Chinese built International and Domestic terminals.

The additionality of the TA grant to assist project preparation will only be known if and when the overall Project is financed and implemented via the MRI.

### What are the expected project results?

#### Outputs

The main expected outputs from the Project are rehabilitated and improved runways, aprons, lighting and taxiways at MIA. These will improve safety for all types of air passenger and freight traffic. The ITF TA grant is assisting project preparation and may be extended to construction supervision, if AFD and EIB proceed to finance the Project. The TA grant also reflects the lack of capacity at ADM and linked AFD project support process will enable

dialogue on ADM financial and maintenance strategies. These will assist the due diligence process under the MRI.

No actual outputs exist to date as the Project is still being developed and technical studies are ongoing. The TA funded consultancy however builds on an earlier AFD financed preparatory study and will produce a report at end 2013.

### Outcomes

The main expected outcomes will be improved safety for aircraft movements into and out of MIA; which shall have significant benefits for both passengers and freight. There may be indirect outcomes via benefits from deeper and faster trade integration and Foreign Direct Investment (FDI) inflows, which are already significant in Mozambique due to minerals and gas/ coal extraction. The main impact on poverty will however be indirect as most of the users of MIA are high income, domestic or foreign.

The Project may also contribute to the ongoing attempts to improve airline safety and security in the Mozambique aviation sector and the eventual removal of EC blacklisting. This will only be realised if the Project is bankable and implemented in a sustainable manner. The airside safety constraints could limit use of the new terminal assets and their removal could have high economic returns.

On climate change and $CO_2$, the Project will effectively enable more flights, and therefore more emissions, albeit at safer levels in landing and take-off. Construction activity may generate some emissions but these should be mitigated by normal EIB and AFD contract and financing provisions. Safety issues could displace or suppress base traffic and hence delay modernisation and upgrades to aircraft and airport operations with lower $CO_2$ emissions.

## 2.7. Sierra Leone: Bumbuna Hydroelectric Power, Phase II

### Why did EU-AITF support this Project?

Sierra Leone has no electricity grid and only 60 MW of installed generation, of which 50 MW comes from the existing plant termed Bumbuna I. Transmission losses are high and instability causes frequent outages. Following the end of the civil war in 2002, Sierra Leone has been a strong reformer but still has limited public sector capacity or resources. Poverty rates are in excess of 50% of the population and indicators like gender inequality or youth unemployment are among the worst in the world.

Bumbuna II is a priority[7] project for the WAPP, as it has the potential to provide a balancing base load through the CLSG. The Project consists of modifications to the existing dam and construction of a new dam 32 km upstream. Total investment cost is estimated at €379m. Bumbuna II could add over 200 MW to existing capacity. The Project is being developed as a Public Private Partnership (PPP) by Joule Energy and Endeavour Energy.

Subject to feasibility studies, due diligence and negotiation of the PPP, the Bumbuna II should proceed to implementation in 2014 / 2015, with a three-year construction period before actual generation.

Potential lenders to the Project – which would be roughly structured 30% equity and 70% debt – include the PIDG Emerging Africa Infrastructure Fund (EAIF) and AfDB. This is the second ITF grant awarded to a PIDG investment vehicle.[8] The ITF award was for a €2.5m TA grant, managed via the EAIF, to support the Government of Sierra Leone (GoSL) in developing, structuring and negotiating the Public Private Partnership (PPP) transaction.

### How did EU-AITF add value?

The PIDG application for an ITF grant was approved in November 2012. Recent monitoring reports for June 2013 confirmed progress in contract procurement, and the first requests for disbursement were expected in the last quarter of 2013.

The aim of the TA is to support the GoSL and accelerate the PPP transaction in an equitable and balanced manner to ensure sustainability. The TA package covers independent technical / engineering, financial, environmental and legal advice. The PIDG had earlier mobilised (and then extended) a total of €475,000 in grants for contracts for an experienced project manager to lead the Bumbuna II project implementation team in the GoSL. This TA was managed by the EAIF and started in late 2010.

The additionality of the TA grant can only be accurately assessed when the PPP transaction is closed. However the grant represents an investment in the supply side to address a knowledge and capacity failure in the GoSL. Had this grant not been provided, the Project

[7] Ranked as number 15 of all WAPP project priorities.
[8] The PIDG Muchinga Hydro TA grant of February 2011 was cancelled.

sponsors and developers would have to find and access other trust fund or concessional sources; the counterfactual therefore would have been delays and possible transaction failure.

The provision of independent advice should improve the overall quality of the PPP transaction, from the developers, financiers and public interest perspectives. Environment and social impact issues will be considered as part of the design and structuring.

## What are the expected project results?

### Outputs

The main expected output from the Project is a 200 MW increase in generation capacity and additional transmission line. Proposed TA outputs are independent advisory advice and reporting across legal, engineering, financial and environmental issues as the Project is structured and negotiated. No actual outputs exist as the Project is being developed and technical studies are still ongoing.

### Outcomes

The main expected outcome is a fivefold increase in electricity generation from renewable sources. The new hydropower plant and transmission infrastructure will also help stabilise loads and reduce system losses. The increase in renewable energy should result in savings in imports of diesel for off grid and standby units, lowering electricity costs and reducing greenhouse emissions. The PIDG TA application estimated diesel fuel savings at US$24m per year.

The PPP itself will increase foreign direct investment into Sierra Leone and provide an anchor project with a strong demonstration effect. The step change in the provision of hydroelectricity will also sustain higher economic growth and enhance competitiveness in the extractive industries and agricultural sectors. Increased activity and power production, for domestic or export via the CLSG, will also have positive fiscal impacts. The impact on poverty will depend on the quality of the growth and its inclusiveness.

Currently there is no quantified estimate of the poverty impact, job creation or impact on $CO_2$ emissions.

No actual output data exists as the Project is still in feasibility stage and the advisory contracts are in the process of being let through restricted but EU compliant PIDG procedures.

## 2.8. Mozambique: Beira Transport Corridor

### Why did EU-AITF support the project?

The Beira rail / road corridor links the port of Beira with central Mozambique and Zimbabwe (and Zambia / DRC) via the Machipanda line and Malawi, via a 44 km branch of the Sena line. The Sena line also provides access to Tete Province and the major coal mining developments at Moatize. The Beira and Nacala multi-modal transport corridors are Programme for Infrastructure Development in Africa Priority Action Plan (PIDA PAP) regional priorities.

The Beira corridor has suffered from long periods of neglect and disruption due to civil war and events in Zimbabwe and Malawi.[9] There are a number of potential sources of traffic: the major growth is likely to be coal but there may also be growth from Zimbabwe and the agricultural areas around Sofala and Manica Provinces, which are currently the focus of separate corridor development initiatives.

EIB was lead financier on an investment project to re-establish the transport capacity of the port of Beira by dredging the approach channel to its original depth and re-establish the freight and passenger capacity of the Sena railway. While the port dredging works were completed at slightly below cost, progress on the Sena railway was much more limited. The Indian and Mozambique railway concession, Companhia Caminhos de Ferro da Beira (CCFB) failed and in 2011, the Government of Mozambique (GoM) unilaterally terminated the concession. The Sena railway has since been operated by Caminhos de Ferro de Mocambique (CFM), the state railway and port utility. Legal proceedings are pending and EIB ceased disbursement of its sovereign loan, including IRS.

The total cost of the investment Project was €189m, of which EIB provided a loan of €65m[10] (which received an IRS of €29m) and IDA provided a credit of €85m.

### How did EU-AITF add value?

The EIB applied to the ITF for an IRS of €29m, to be allocated pro rata to the joint project components, in order to meet HIPC concessionality and facilitate the regional dimensions of the overall Project. The IRS was approved by the Ex Com in December 2008.

In December 2012, Ex Com approved the use of the residual IRS grant for the port for complementary works. Disbursement was extended by one year, to April 2014. The focus for this extension is on a maritime service tower, buoys and signage for the channel and rehabilitation of the tug quay. Following an EIB mission and recommendations, the sum of

[9] These include economic vulnerability and weak reform but also flood damage that has effectively closed the Malawi rail connection to the Sena line and Beira port. Rehabilitation of both the Malawi and Mozambique branch lines is now the subject of a DFID sponsored feasibility study, but at the moment this regional route is closed.

[10] Allocated between port and railway, at €42m and €23m respectively.

€3.2m was re-allocated including some €400,000 IRS. The interest rate was reduced from 3.3% to 2.0% for an eight-year loan.

In 2013, a request was made from the GoM to use the balance of the Sena railway component of the loan to purchase locomotives for non-coal passenger and freight carriages. In October 2013, it did not get a consensus from Ex Com and was referred back to the PFG.

The EY Mid-Term Evaluation reports an IRS "leverage" estimate of 6.5 but considers the definition too narrow; it also considers that the IDA was already committed before EIB. The use of the IRS – some €29m for a €65m loan – appears high and is justified on the basis of the need for HIPC concessionality.

The regional dimension to this Project has not evolved in the way anticipated: the effective closure of the Malawi rail link due to floods and inadequate maintenance / repairs, as well as the continued isolation of Zimbabwe (reducing transit options for Zambia and DRC) have also been volume constraints. However, some two thirds of the corridor throughput is still transit from these countries.

Additionality is difficult to judge but it is unlikely that the financing agreement would have progressed without the major IRS subsidy to EIB.

## What are the expected project results?

### Outputs

The expected outputs were re-establishment of the design depth of the port channel to eliminate vessel delays and re-establishment of the transport capacity of the Sena railway. The latter was estimated at five million tons of freight and two million passengers per year. While the port component was achieved on time and slightly under cost, the Sena railway remains in the process of a CFM-led improvement programme, with the concession having been terminated and is subject to legal proceedings.

### Outcomes

The port is more efficient and the throughput of transit traffic has increased, both bulk and containerised, and the port concession operator is in place and is effective. The channel dredging has clearly contributed to this by removing restrictions on the size and tidal access of ships. However, turnaround times remain high and financial charges reflect the ongoing significant port inefficiencies.

There is no evidence on the benefits to local or corridor level economic growth. None of the Project documents reviewed as part of this analysis reference potential poverty impacts except through better transport connectivity and access to markets.

Outcomes with regard to the Sena railway are unknown but the likelihood is that progress is limited.

## 2.9. Caprivi Interconnector

### Why did EU-AITF support this project?

The Project consisted of the construction of a 970 km, 300 MWe[11] capacity transmission line linking Zambia to Namibia and therefore the northern and western parts of the Southern African Power Pool (SAPP). The client was NamPower,[12] the public sector owned utility dealing with all electricity generation and transmission in Namibia. Traditionally NamPower had imported a large share of its electricity from South Africa. Over time, the surplus available in South Africa has declined and contractual arrangements became less secure. The opportunity of balancing the supply of hydro-power from northern members of the SAPP[13] to the higher demand of southern members[14] was recognised by the Pool, and the Caprivi Interconnector aims remove the technical bottleneck to this market integration.

The Project costs were estimated at approximately €300m and the overall construction was completed marginally under budget during 2009 to 2011. Three PFG members (EIB, KfW, and AFD) each provided €35m and the ITF contributed a further €15m subsidy. This originally took the form of a classical IRS but was later converted to a single upfront IRS payment[15]. All the other finance – around half - appears to have been raised by NamPower, which is a well-managed utility with a good credit rating and no government guarantees were sought.

### How did EU-AITF add value?

The Caprivi Interconnector ITF application was one of the earliest considered by the Ex Com, presented by EIB in 2007. Final approval for a classical IRS subsidy of €15m was given in 2008, with an option for conversion to an upfront single subsidy payment. The grant was changed to an upfront subsidy in in June 2009, after a legal opinion was sought by the European Commission and the IRS subsidy was fully disbursed by the end of that year.

Without the IRS subsidy, NamPower would have proceeded with a lower cost generation option to improve its security of supply and longer term regional SAPP benefits would have been lost. The additionality of the ITF grant intervention is therefore considered high. The EY Mid-Term Evaluation Report notes that the additionality was enhanced because IRS was paid upfront – worth approximately €28m rather than €15m. It also comments: "without ITF funding the project would have been below [NamPower's] hurdle rate for projects of this type." The leverage, as reported by the ITF calculation, was very high at 20.1.

[11] This is the theoretical technical limit; it may be limited by contiguous links or other load constraints.
[12] Namibia Power Corporation (Pty) Limited.
[13] Consisting of Zambia, DRC, Malawi, northern Mozambique and Angola.
[14] Namibia, South Africa, Botswana, Lesotho, Swaziland and southern Mozambique
[15] The interconnector was pre-financed and one of the arguments for using a single upfront IRS payment was simplicity, as the three PFG financiers all had different rates and tenors.

There was also an attempt to capture the upside in benefits to NamPower, through a rural electrification development account financed via surpluses above the modelled estimates. The technology employed in the line was also innovative and sourced from a European firm.

## What were the project results?

### Outcomes

The main expected output was to be the 300 MWe (upgradeable to 600 MWe) capacity transmission line plus converter stations. The new wheeling route would enable the development of new hydro generation in the northern SAPP. The SAPP would also be stabilised and more balanced. In addition, the new Caprivi station hub based on the Interconnector would allow increased rural electrification in northern Namibia.

The original ITF proposals of January 2008, reported that the Net Present Value (NPV) of quantified economic benefits – principally stabilisation and the avoidance of transmission losses[16] would be approximately €170m over 20 years at a 6% discount rate; of these some 88% accrued to SAPP and only 12% to Namibia.

In the first year of the interconnector's operation during 2010/11, the line was underutilised due to network capacity constraints in Zambia. These limit current capacity to 100MWe. These constraints should be removed through the ITF supported Kafue – Livingstone Transmission Line upgrade and will raise effective capacity to 200MWe. The reliability of the Caprivi Link is acceptable at 92% but it is expected to rise to the contractual guarantee level of 98% over the next two to three years. This illustrates one of the lessons from this Project: major cross-border investments in the SAPP need to be implemented in the context of the network they serve, with planning and governance arrangements reflecting this reality. ZESCO constraints did not feature in the Operation's documentation except on completion.

### Outputs

The first year results of the Caprivi Link are less than expected but the potential gains are close to realisation and progress towards the regional objectives remains positive.

None of the Operation documents reviewed makes any reference to reductions in $CO_2$ or other emissions, which result from the Project. The financial benefits to NamPower have not yet materialised as the northern electricity price is so high. Namibia continues to import around 40% of its power supply from ESKOM in South Africa. The actual energy transmission in the first year of the Caprivi Interconnector was 400 GWh, about 11% of NamPower sales.

Some 1,000 person years of employment were expected to be generated during construction, and the Project Completion Report refers to 30 permanent jobs being created. There are no reported expected or actual outcome indicators for population or households. Given the structure of the Project it is difficult to assess how such indicators could be constructed other than at a very high level

[16] Namibia would be supplied directly from Zambia and DRC, as against routed via Zimbabwe, Botswana and South Africa.

## 2.10. Kazungula Bridge and Border Project (KBBP)

### Why did EU-AITF support this project?

The KBBP consists of the construction and operation of a 0.93km permanent road (and potential rail) bridge over the Zambezi River, linking Zambia and Botswana while being contiguous to the Zimbabwe and Namibia borders. It will replace two ferries and outdated custom / transit arrangements, which create bottlenecks on the western route of North – South Transport Corridor (NSTC).[17] The bridge is recognised as a "missing link", and is included in the Programme for Infrastructure Development in Africa Priority Action Plan (PIDA PAP). The main objectives were to reduce transit-crossing times and generate time savings for traffic. The main impacts are indirect; arising from increased trade and international competitiveness, leading to economic growth.

Financial close was achieved in 2012 and the overall investment for the Project is €190m. For the AfDB it is a PIDA flagship project and AfDB, JICA and a number of bilateral donors contributed to project feasibility and other preparation activities over a long period.

### How did EU-AITF add value?

The original ITF application from AfDB was for €2.7m. Consensus was to phase the grant, and approval was given in 2011 for €1.0m to support pre-construction activities, including the establishment of the Kazungula Bridge Authority (KBB), the joint venture that will operate and maintain the bridge. The Phase 1 grant allocation expired in January 2013, but has since been extended. The delay was due to rescheduling of the land resettlement and delays in procurement for the separate but complimentary JICA design and supervision TA, which was prioritised and the AfDB components were pushed back.

Phase 2 was approved by the ExCom in 2012. To date therefore there has been no disbursement; the AfDB schedules now indicate April 2014 as the start period for Phase 1, which will continue to the end of the construction period in 2018. Due to changes in the exchange rates, the reapplication increased the overall sum from €2.7m to €3.0m.

The ITF Phase 1 Operation was to deal with outstanding pre-construction TA needs, mainly project management, establishment of the KBS and harmonisation / training linked to trade and transport facilitation. The ITF Phase 2 TA consists of support for the construction and operational phases. The December 2012 reapplication lists the overall budget total of €2.962m but does not break out Phase 1 or 2 elements.

AfDB argued that the ITF TA Operation, although small in relation to the total investment cost, was crucial to effectiveness of the Project as the grant provided support for the establishment and eventual operation of the KBA. Without the ITF TA grant, the AfDB would

[17] The NSTC connects eight countries and three RECs, combining around 44% of SSA GDP; about 95% of the freight using it is road. There are three major routes within the corridor; the Kazungula Bridge is on the western route, linking Botswana and Zambia / DRC; the other two routes pass via Zimbabwe.

have had to find another source, which would have complicated and possibly delayed the financial close.

In terms of ITF strategic objectives, the KBBP TA Operation offers a good fit to regional infrastructure and integration, has strong ownership and has helped close a difficult but flagship project. In terms of lessons of experience, it would appear that greater rigour and detail was required in the TA definition and application, particularly with regard to additionality, focus and timing. It also appears to be positioned essentially post-transaction. Once cleared in principle, despite the phasing and limited clarity, it appears to become locked into the AfDB / JICA financial close agreement.

### What are the expected project results?

#### Outputs

The main output was expected to be a 0.93 km span cable stayed structure with some 10km of access and approach roads, as well as two border posts that would operate as one stop facilities. As well as the transport and trade facilitation facilities, there would also be the KBA to operate and maintain the bridge. Despite some delays, design review and consultant supervision contracts are now in place. Construction is expected to start in mid-2014 and be completed in 2018. Engineering and financial studies have been completed.

#### Outcomes

There is little quantification of expected or actual outcome indicators. The AfDB estimate that an average crossing times will be reduced from 30 hours to six hours, with baseline traffic flows of trucks of 116 per day (2009 figure). With the bridge and cross-border facilities and systems, this was expected to rise to some 225 trucks per day by 2020.

On other cross cutting indicators, there is no estimate of the net impact of the bridge construction and operation on C02 emissions. There are other socio-economic issues recognised in the appraisal: these include resettlement of some 117 persons, HIV/AIDS awareness and communication, road safety and building climate resilience. Most of this is funded via government contributions.

There is no estimate of the FTE jobs created, though the AfDB appraisal refers to approximately jobs 1,200 during construction. There is a gender reference to 30% female quotas in local construction employment.

As the Project is still in pre-construction stage, no actual estimates are available.

## 2.11. Lake Victoria Water and Sanitation – Kampala

### Why did EU-AITF support this project?

The Lake Victoria Basin is under major stress though migration, pollution and fishing but remains the only major source of raw water for the hinterland, which includes a large number of rapidly growing urban centres, such as Kampala. Approximately 45% of the inhabitants of Kampala live in informal settlements and slums; this number is increasing due to rural - urban migration. Access to clean water and modern sanitation is poor and currently, over half Kampala's 2.5 million population live below the poverty line.

The Kampala Project is part of a wider and integrated programme of water and sanitation interventions in the Basin. This programme has built on initiatives over the last decade to try and stabilise and remove water pollution, improve water treatment and distribution, upgrade sewerage systems and enhance the capacity of water operators. A similar project and ITF Operation was approved in 2012 for Mwanza[18] in Tanzania, and for Kisumu in Kenya for 2013; other projects may follow for Rwanda and Burundi.

The EIB, AFD and KfW have coordinated their response to this challenge in Kampala using the Mutual Reliance Initiative (MRI). The total cost of the Lake Victoria Kampala Project is estimated at €212m, covering the cost of physical investments and capacity/ planning improvements and is segmented into five lots to speed implementation. The Project directly addresses water supply, treatment and distribution issues plus pro-poor access and affordability and is fundamental to public health. The coverage in Kampala includes 20 informal settlements, two satellite towns and the provision of over 3,000 public water points or yard taps to enable some 400,000 people to access clean and affordable water.

The National Water and Sewerage Corporation (NWSC) / Government of Uganda (GoU) has contributed around €34m, KfW has provided a €20m urban grant, AFD a €75m loan, (benefitting from an EU-AITF classical IRS subsidy of €14m), and an EIB €75m loan, sourced from the ACP Investment Facility.

### How did EU-AITF add value?

The ITF Operation was approved by the Ex Com in 2010. IRS was provided to AFD to ensure Highly Indebted Poor Country (HIPC) concessionality at 35% or more, and TA was provided to KfW is to help project preparation and management, lot design and procurement plus capacity and knowledge dissemination.

The counterfactual to no ITF Operation is probably that the scale and ambition would have been smaller, while other grant sources were sought; some lots may have been delayed or lost. The momentum of the regional Lake Victoria Basin water and sanitation programme would also probably have been lost and the pollution and public health issues worsened.

[18] This involved an ITF TA grant of €7.0m and IRS of €10.7m, with EIB as the lead but with all three PFG members involved in financing.

Kampala is also a pilot for the PFG MRI, and of importance to all three lenders. There is co-finance at this level and future developments will include the Mwanza and Kisumu pipeline and complimentary secondary cities initiatives, which involve AWF and the AfDB. The TA grant appears partly to offset the substantial lead financier responsibilities placed on KfW, despite its lack of loan activity in the specific Project. Under MRI, it is the PFG member with the best local experience and expertise that tends to lead.

## What are the expected project results?

### Outputs

The improved water treatment plant capacity is expected to be around 350,000 m3/ year for the Kampala area, as well as the addition of at least 3,000 public water points and yard taps to connect some 400,000 people onto the piped and clean water network. There are no comparable estimates for sanitation. There is a particular focus on poorer communities. There are no additional calculations of likely public health outputs or outcomes.

No actual outputs yet as the overall Project is in the mobilisation and procurement phase, although some immediate technical gains in water treatment and reduced losses have been reported. Project feasibility and design documents exist.

### Outcomes

While it is too soon to report on outcomes as the Project will not be complete before end 2015, the scaling-up programme for the Lake Victoria Basin water and sanitation has maintained momentum. In the long run this should benefit the entire population of the Lake Victoria Basin, estimated to be 30m.[19] This replication is innovative and provides good value for money. In addition, the effort is being widened and deepened by the extension of complementary programmes to secondary and smaller towns. Within this, there is an explicit focus on being pro-poor and accessing vulnerable communities. The longer-term outcomes to public health, due to both the reduction of water borne disease and the improved sustainability of fish stocks that are critical to food security and nutrition, are important but not yet in the evidence base.

There is also a twin track approach to addressing the capacity and business needs of the water operators in the Lake Victoria Basin – this adds to sustainability and ownership – and helps justify the TA and IRS. However, there was no discussion at either the Ex Com or PFG meetings of whether there would be higher benefits by providing the IRS as an upfront payment, which could have maximised the social and environmental gains. The holistic view of the Project is also long term, looking to 2035 and beyond and seeks to improve hydraulic knowledge and planning data as well as physical infrastructure.

[19] East African Community, Lake Victoria Basin Commission, *Terms of Reference for Consultancy Services for a Project to Prepare Investment Plans for 15 Secondary Urban Centres Under the Lake Victoria Basin Water and Sanitation Initiative in Kenya, Tanzania, Uganda, Burundi & Rwanda,* accessible at: http://www.unhabitat.org/downloads/docs/ToR%20for%20LVWATSAN%20Phase%20II.pdf

## 2.12. DRC, Burundi and Rwanda: Ruzizi Hydroelectric Power, I, II and III

### Why did EU-AITF support this project?

The Ruzizi River flows from Lake Kivu to Lake Tanganyika, descending some 700 metres overall, with a particularly steep section of around 40 km; this is the location for the existing and planned hydropower plants, with an aggregate potential of 500 MW. Ruzizi I (30MW) was built in 1958 and is operated by the DRC utility, SNEL. Ruzizi II (44 MW) was built in 1989; and is operated by SINELAC, a tri-national public company created under the umbrella of the Economic Community of the Grand Lakes (CEPGL)[20] and the Energie des Grands Lacs (EGL) – the sub-regional organisation charged with energy developments in the Great Lakes region.

Ruzizi III involves new construction of a run of the river 145 MW facility, through a PPP contract involving a 25-year Build-Own-Operate-Transfer (BOOT) concession with a private sector investor / developer. Power would be sold equally to the three states. Operation of Ruzizi III is dependent on integration with I and II.

Potential lenders to the Project from the PFG include EIB, KfW, Agence Française de Développement (AFD) and the African Development Bank; a range of other financiers are also linked to the Project. The equity and loan component from the private sector is not known but the financing plan is committed to a PPP model. EGL is acting as the public sector sponsor, and the three states may add up to 10% each, which is likely to be financed via an IDA credit. Private sector investors are expected to hold a majority of the shares.

Ruzizi III is important to EU-AITF as it is a Programme for Infrastructure Development in Africa Priority Action Plan (PIDA PAP) project. The EIB, AFD and KfW are also cooperating under the Mutual Reliance Initiative; with KfW as the lead in Ruzizi I and II.

### How did EU-AITF add value?

In 2010 a grant was provided to continue the support for the international treaty and agency, and funded an environmental and social impact assessment. Of the total TA grant of €4.2m, €2.5m had been disbursed by mid-2013.

For the KfW-managed Ruzizi I and II TA, the two components of €1.5m each are currently being tendered. The contracts are expected to start in the second quarter of 2014 and will run for approximately one year.

The additionality of the TA grants can only really be assessed when the PPP transaction is closed and the Ruzizi I and II restructuring and rehabilitation is financed. The mid-term review and PFG discussions however suggest that without the ITF TA, the PFG members would not have been able to stay engaged in a long, expensive and difficult process: tri-

[20] Due to regional conflict and instability, CEPGL collapsed in the 1990s, but following the International Convention on the Great Lakes initiative started in 2004, CEPGL was relaunched in 2007.

national project preparation on this scale and complexity is a very risky process, particularly if a PPP solution is preferred. While Ruzizi has received strong political support from the participating governments since 2007, the actual ITF TA disbursement has been relatively slow. This reflects the complexity and the need to find a sustainable but holistic solution.

There is a close alignment of the Ruzizi Project to the ITF strategic objectives with regard to regional, transformative energy projects.

### What are the expected project results?

#### Outputs

After the rehabilitation of the Ruzizi I and II hydropower plants and the construction of the Ruzizi III hydropower plant, the main expected output from the Projects is 160 MW of additional hydroelectric generating capacity via a shared regional resource. A new institutional and regulatory structure will also be in place, building on the existing sub-regional organisations. This will include capacity building and effective transformation of the EGL, the overall Project public sector sponsor. The proposed outputs from the TA Operations will be a series of reports and advisory inputs that help structure the two components of this highly complex project, ensuring that bankability is not compromised or unduly delayed. The Ruzizi Projects address the severe energy deficit of Eastern DRC, Rwanda and Burundi.

#### Outcomes

The main expected outcome from this Project is an increased flow of low cost, stable energy from a renewable source, which will increase competitiveness and facilitate economic growth in the three land locked, low-income states. Climate change benefits via reduction in reliance on fossil fuel sources is mentioned but not quantified in the available documents, and recognition is also given to the potential of improved water management in the river basin. No estimates are given of employment gains, direct or indirect.

The purpose of much of the TA is to make the transaction bankable and equitable; ensuring therefore its sustainability. The case for the public sector TA intervention is based on the need to facilitate and, if possible, accelerate the Ruzizi III project preparation phases to transaction. None of the papers quantify the direct or indirect likely poverty impact or additional households likely to be connected. It is also not known if later applications may be made to the ITF for IRS or DG[21] subsidies.

[21] Some resettlement of communities will be required for Ruzizi III.