



AFRICAN DEVELOPMENT BANK GROUP

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# AFRICA INFRASTRUCTURE KNOWLEDGE PROGRAM STATUS REPORT 2015

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**Statistics Department (ESTA)**

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AFDB

Cote d'Ivoire, 01 BP 1387 Abidjan 01

## **I. INTRODUCTION AND BACKGROUND**

1.1 Building on the Africa Infrastructure Country Diagnostic (AICD) study initiated by the World Bank, the African Development Bank (AfDB) developed a framework known as the Africa Infrastructure Knowledge Program (AIKP) initiative. The AIKP initiative has a longer-term perspective and provides a framework for generating knowledge on infrastructure on a more sustainable basis. This initiative is meant to make the AfDB the repository of infrastructure data on Africa and to ensure that there would be a coordinated and sustainable collection and management of such data for the region.

1.2 The overall role of the African Development Bank, under this initiative, is to provide leadership for the African infrastructure data and information system by: (i) enhancing the original AICD database into a long-term sustainable data system of infrastructure indicators, and (ii) defining and developing analytic knowledge products. The first task involves the continual building of country-based capacity for mainstreaming infrastructure data collection and processing, central data consolidation, final quality control, processing and automatic generation of statistical tests, generation of sector indicators, and maintenance and updating of software for data capture. The second task involves mining and disseminating derived conclusions and findings to inform development policy and program management activities.

## **II. PROGRESS MADE SO FAR**

2.1 **The implementation results** of the AIKP program relate to the following main areas: (i) Establishment of Country AIKP Teams; (ii) Data collection and validation; (iii) Development of an AIKP Data management tool; (iv) Data dissemination; (v) Data processing and analysis ; (vi) Sector investment updates; and (ix) AIKP Knowledge products.

### **2.2 Establishment of Country AIKP Teams:**

- 44 countries have AIKP Country Teams fully operational (teams are composed of 1 Focal point –at National Statistical Office), 1 Fiscal expert, 1 Transport expert, 1 Utility expert);
- 10 countries have not yet identified any team members (Algeria, Angola, Cabo Verde, Equatorial Guinea, Eritrea, Gabon, Guinea Bissau, Libya, Namibia, and Somalia);

### **2.3 Data Collection and Validation:**

- 44 countries (out of 54) have submitted data covering the period 2005-2014 via AIKP templates (about 80 %) over the past 4 years since data collection started in 2011. Thirty-three countries have submitted complete datasets covering all the sectors. Annex IV provides the status of the data submitted and validated by sector and country.
- These data have been validated through regional workshops during which country experts are invited to participate, validate the data and share their experiences. A data validation workshop was recently held in Pretoria, South Africa from 15-19 June 2015. This was

followed by a training workshop from 22-27 June 2015, to train country experts on the generation of infrastructure indicators from the raw data collected in the AIKP templates.

**2.4 Development of an AIKP Data Management Tool:** An AIKP Data Management Tool (a software) has been developed to assist in tracking templates submitted by countries and validation of the data being collected. Specifically, the software has been designed to:

- Streamline data submission process;
- Validate the data submitted; and
- Build countries capacity to manage and validate their own AIKP data.

**2.5 Data Dissemination:** A web site and an AIKP Data Portal have been developed for online dissemination of the latest available infrastructure statistics. The AIKP database is accessible to users at [www.infrastructureafrica.org](http://www.infrastructureafrica.org). It contains the data collected from the AICD as well as the updated and clean datasets of 43 countries, covering the period 2005-2014.

**2.6 Data Processing and Analysis:** Once the raw data have been validated, these are processed to generate infrastructure indicators. This is generally undertaken by sector specialists who have the background and knowledge to process and analyze the data. The status of outputs from the Data Processing specialists is as follows:

- Processed data sets for the fiscal, power, water and ICT sectors are available for 10 countries;
- Processed data sets and reports for air transport sub-sector are available for 7 countries (Comoros, Djibouti, Gambia, Morocco, Sao Tome & Principe, Togo and Tunisia);
- Reports for all relevant sectors (fiscal, power, water, ICT, roads, ports, air) are available for The Gambia (*See Annex II*).
- ICT sector reports are available for 10 countries (Comoros, Djibouti, Gambia, Ghana, Morocco, Mozambique, Sao Tome & Principe, Sudan, Togo and Tunisia) (*See Annex II*).

**2.7 Processed datasets and indicators:** These will be disseminated through the AIKP online database, in addition to the raw data collected through the AIKP data collection cycle. This will be done, at least for all the 33 countries that have submitted the full datasets, by end-December 2015.

**2.8 Sector Investment Model Updates:** Under the AICD, 4 sector models (Electricity Spending Needs, ICT Broadband Universal Coverage, ICT Voice and Irrigation Spending Needs) were developed and made available online for estimating investment needs in each sector. However, these models are no longer valid (as they targeted the past ten year period - 2006-2015) and had to be reworked, parametrized and updated to take account of recent technological developments and more recent data available as well as targeting the ten year period 2016-2025. In this respect, the Bank under the AIKP embarked on updating the models. Two models have so far been updated for ICT and energy sectors. These are currently being uploaded onto the AIKP web site.

- *Power Investment Needs Model:* The model to estimate energy sector investment needs has been finalized and estimates for 15 African countries have been generated. A report

(“Estimating Investment Needs for the Power Sector in Africa Region”) has been prepared and is currently under review by a committee composed of the Bank’s Energy experts (*See Draft Report in Annex I*). The report describes the model (its mechanism and assumptions) and presents generated investment needs for the following 15 countries: Algeria, Burundi, Comoros, Djibouti, Egypt, Libya, Mali, Morocco, Sao Tome & Principe, Seychelles, South Sudan, Swaziland, Togo, Tunisia and Zimbabwe. The targeted investment needs results cover the period 2015-2025. The next step is to extend the results to all African countries and to disseminate the model and the related report on Bank’s website at [www.infrastructureafrica.org](http://www.infrastructureafrica.org). 15 countries. The model was developed using the Open Source Energy Modelling System (OSeMOSYS).

- ***ICT Investment Needs Model:*** The model to estimate ICT sector investment needs has been finalized and estimates for 45 African countries have been generated (except Algeria, Angola, Botswana, Equatorial Guinea, Gabon, Guinea Bissau, Eritrea, Libya, and Somalia). A report (“African Telecom Infrastructure Investment Needs”) was produced and is currently under a process of validation by Bank’s ICT experts (*See Draft Report in Annex I*). The report assessed the current status and future investment need in three broad categories: (i) Coverage extension and capacity driven investment in mobile networks; (ii) Investment needed in fibre back bones including across borders; and (iii) Rough indicative FTTH potential based on local affordability. The approach used is based on GIS models to focus on coverage extension and capacity expansion. The report covered 45 countries which are: Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, DRC, Cote d’Ivoire, Djibouti, Egypt, Ethiopia, Gambia, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome & Principe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia and Zimbabwe. The targeted investment needs results cover the period 2016-2024. The next step is to extend the results to all African countries and to disseminate the model and the related report on the Bank’s website at [www.infrastructureafrica.org](http://www.infrastructureafrica.org).
- ***Transport Investment Needs Model:*** The model to estimate road transport sector investment needs is being finalized and preliminary investment estimates are available for 50 African countries (*See Draft Report in Annex I*). This covers the period 2015 – 2025.
- ***Water Supply and Sanitation Investment Needs Model:*** The model to estimate Water Supply and Sanitation investment needs for all African countries is being finalized and preliminary estimates will be available by end November 2015. This model covers the period 2016-2025. A draft report on “Investment Needs for Water and Sanitation in Africa, 2010-2069” has been prepared (*See Draft Report in Annex I*). The report and the model will be reviewed and disseminated through the website by end December 2015.

2.9 **AIKP Knowledge Products:** Besides the databases available online, a number of key knowledge products have been generated using the AIKP data. The briefs provide insight on the

infrastructure sectors at the regional/sector/country levels. The list of knowledge products is indicated in Annex III.

### III. CHALLENGES FACED & MITIGATION MEASURES TAKEN

3.1 Key challenges faced in implementing the AIKP program over the past 5 years are outlined in the matrix below:

Table 1. Challenges and mitigation measures

N°	Challenges Faced	Mitigating Measures
1	❖ <b>Staffing deficiencies:</b> Limited staff in the Statistics Department (ESTA) meant that AIKP work is handled by staff who has other statistical responsibilities.	The work has been handled mainly through the use of consultants. Measures will be taken to ensure that ESTA has internal dedicated AIKP expertise in future.
2	❖ <b>Lack of financial resources:</b> Funding of the AIKP (about USD 7.5 million) has been done entirely by the Bank except for a \$526,000 contribution from South Korea. To a large extent, the AIKP program has so far been financed from the Statistical Capacity building Program of the Bank. Some activities (data collection, data validation, etc.) were delayed and scaled down due to lack of funds and delays in resource commitment and transfer to RMCs.	<b>Mobilization of resources:</b> Development partners need to supplement efforts made by the Bank. Financing gap still remains for the coming years as indicated in the section “AIKP financing needs” (see Table 2). A funding proposal has been developed and will be shared with development partners for their consideration.
3	❖ <b>Lack of expertise:</b> Analytical review of the data and knowledge products by the Bank’s operations department is critical for the quality of the data and products generated by the program. While some reports have been produced in the past, the expected feedback from key infrastructure departments were not always provided on time to ensure proper and timely dissemination.	<b>Wider network of experts</b> is being mobilized with a proper mechanism of review process of analytical works within the Bank and involving ICT, Power, Transport and water supply sector department experts (ONEC, AITC, OWAS, ICA, and EDRE). This will constitute a technical committee under the lead of CS Vice-President and Chief Economist Complex.
4	<b>Lack of strong coordination with sub-regional organizations (SROs):</b> SROs were involved only on financial aspect of the program (through disbursement). It was not sufficient.	<b>Extension of SRO’s participation:</b> It is envisaged to provide capacity building (through trainings and seminars) to SROs to strengthen supervisions of data collection, data validation and data processing for their member countries.

#### IV. PROPOSED WAY FORWARD

4.1 **Based on the lessons learnt** from the implementation of the program over the past 5 years, the Bank is working to enhance the implementation of the program. The emphasis will be on dissemination of the data already collected and submitted by countries; generation of a number of regional and sector reports; preparation of country reports for dissemination at the country level; engagement with countries not yet in the program so as to cover all RMCs; and ensuring that trained country teams are in place before the next phase of data collection.

4.2 **Over the coming years**, AIKP work will continue to focus on enhancing: data collection and processing mechanisms, online databases, consolidating all the online sector models, preparation and dissemination of country reports, sector reports, a continental report, briefs and information notes on specific infrastructure areas using AIKP data. In the medium/long term the objective is to facilitate the collection of data by making use of new technologies, and enhancing country capacity to collect and disseminate infrastructure statistics, including use of geo-localization of infrastructure facilities.

4.3 **Capacity Building** is also a key component of the AIKP work over the coming years to ensure sustainability of the generation of infrastructure statistics in RMCs. The main areas of this support will include: incorporating infrastructure statistics in Countries strategy for statistics development (NSDSs), development of manuals, guidelines, training of national officials, etc.

4.4 **Staffing, resource mobilization and financial resources requirements:** Infrastructure is critical in the development of the continent and the realization of the regional integration agenda. This is clearly articulated in the Bank's long term strategy and infrastructure has been and continues to be the major sector of Bank's lending. It is important that adequate human and financial resources are allocated for the AIKP work. The coordination team will be reinforced with adequate staff and supported by a team of infrastructure consultants. An advisory committee will be put in place, chaired by ESTA and composed of representatives from the various infrastructure departments to provide guidance on the efficient implementation of the program.

#### V. AIKP FINANCING NEEDS

5.1 **The AIKP has been supported so far** by the Bank only using resources from ESTA administrative budget, Middle Income Countries Funds and the Statistical capacity building program for a total of \$7.5 million over the period 2010-2015. The Korean Trust Fund also contributed \$0.526 million. Some donors have shown some interest in the past to support the program but have not been conclusive for various reasons.

5.2 **The Bank will continue its financial support** to the program for the period 2016-2020 by mobilizing about **\$3.3 million** from the same financing instruments. It is necessary for ICA to assist in mobilizing resources from other partners for this important work. The financing gap for the next data collection cycle (2016-2020) is estimated to reach about **\$6 million**.

5.3 **The funding gaps and estimated resources required** for the implementation of AIKP activities during the period 2011-2020 are indicated in the following Table 2. Due to the funding

gaps in previous years, some of the key activities were not undertaken. These include: reduced statistical capacity building in RMCs, scaled down data collection and processing, etc.

Table 2. AIKP financing needs, 2011-2020 (Thousand USD)

AREAS OF FUNDING NEEDS	CYCLE OF DATA COLLECTION & PROCESSING					GRAND TOTAL
	FIRST	SECOND	THIRD	FOURTH	FIFTH	
	2011-2012	2013-2014	2015-2016	2017-2018	2019-2020	2011-2020
<b>1. Data Collection</b>	1,720	1,496	1,288	1,250	1,260	<b>7,014</b>
<b>2. Capacity building</b>	3,060	1,825	1,435	1,425	1,450	<b>9,195</b>
<b>3. Data analysis &amp; dissemination</b>	540	450	345	450	435	<b>2,220</b>
<b>4. Knowledge generation</b>	820	505	370	550	750	<b>2,995</b>
Total	6,140	4,276	3,438	3,675	3,895	<b>21,424</b>
Contingency (5%)	307	214	172	184	195	<b>1,071</b>
<b>Total Funding Needs</b>	<b>6,447</b>	<b>4,490</b>	<b>3,610</b>	<b>3,858</b>	<b>4,090</b>	<b>22,495</b>
AfDB Funding <sup>1</sup>	3,314	2,685	2,296	1,200	1,350	<b>10,845</b>
Korea Fund	112	380	34	-	-	<b>526</b>
Other donors	-	-	-	-	-	-
<b>Total Funding Gap<sup>2</sup></b>	<b>3,021</b>	<b>1,425</b>	<b>1,280</b>	<b>2,658</b>	<b>2,740</b>	<b>11,124</b>
<b>FUNDING GAP FOR PERIOD 2016-2020</b>				<b>USD 6.00 MILLIONS</b>		

**Notes:**

- (1) Funding sources from administrative budget, SCB program and MIC Funds.
- (2) Equivalent of total amounts for which additional donors funding are/were required

## V. LIST OF ANNEXES

### ANNEX I - ESTIMATING INVESTMENT NEEDS DRAFT REPORTS

- Power Investment Needs Model Report
- ICT Investment Needs Model Report

### ANNEX II – DRAFT SECTOR REPORTS IN SELECTED COUNTRIES

- Air Transport – Morocco
- ICT – Morocco
- ICT – Mozambique
- ICT – Sudan
- Air Transport – Gambia
- ICT - Gambia
- ICT – Ghana
- Air Transport – Sao Tome
- Air Transport – Djibouti
- Air Transport – Tunisia
- ICT Djibouti
- ICT – Tunisia
- Air Transport – Morocco
- Air Transport – Togo
- ICT – Comoros
- ICT – Togo

### ANNEX III – LIST OF AIKP KNOWLEDGE REPORTS

#### Products generated in 2010:

- Infrastructure Deficit and Opportunities in Africa, *Market studies*;
- Aide au développement et accès à l'eau et à l'assainissement en Afrique subsaharienne, *Synthèse de recherche sur le développement* ;

#### Products generated in 2011:

- Infrastructure Development and its Impact on Agricultural Productivity in Africa, *Market studies*;
- The Africa Infrastructure Development Index, *Economic Brief*;
- Closing Africa's Infrastructure Gap: Innovative Financing and Risks, *Infrastructure studies*;

#### Products generated in 2012:

- Infrastructure for the growing middle class in Africa, *Middle Class Book*;
- Infrastructure comparison of Price Level Indices, (2005 ICP); Communication Transport and Construction, *Market studies*;

- Africa Price Level Indices for selected Infrastructure Components based on the ICP data for 2005, *Market studies*;
- Africa Infrastructure Development Index - 2012 Update, *Economic Brief*;
- An Integrated Approach to Infrastructure Provision in Africa, *Economic Brief*;
- Road Infrastructure Costs and Cost Overruns in Africa, *Economic Sector Work*;
- The State of Infrastructure in the East African Community, *Economic Sector Work*;
- Water and Sanitation in Africa: Current Status, Trends, Challenges and Opportunities, *Market studies*;
- AIKP Statistical Handbook on Compilation of Infrastructure Statistics, *Methodological guidelines*;
- Linking Africa through Regional Infrastructure, *Working Paper*;
- Infrastructure investment and Economic Growth in South Africa, *Working Paper*;
- Accessing Local Markets for Infrastructure: Lessons for Africa, *Working Paper*;
- The Water and Sanitation Index of Development Effectiveness (WIDE) in Sub-Saharan Africa – Overview of Country Performance, *Economic Brief*;

Products generated in 2013:

- Mortality in Africa: The share of Road Traffic Fatalities, *Economic Brief*;
- Rapid Urbanization & Growing Demand for Urban Infrastructure in Africa, *Economic Sector Work*;
- Prospects for Infrastructure Development, *Africa in 2060 Book*;
- Infrastructure Development in the Gambia: A continental Perspective, *Economic Sector Work*;
- Infrastructure Development in the Comoros: A continental Perspective, *Economic Sector Work*;
- Infrastructure Development in Djibouti: A continental Perspective, *Economic Sector Work*;
- Infrastructure Development in Sao Tome & Principe: A continental Perspective, *Economic Sector Work*;
- Infrastructure Development in Morocco: A continental Perspective, *Economic Sector Work*;
- Infrastructure Development in Tunisia: A continental Perspective, *Economic Sector Work*;
- Infrastructure Development in Togo: A continental Perspective, *Economic Sector Work*;
- The Africa Infrastructure Development Index, 2013; *Economic Brief*;

Products generated in 2014:

- Study on Road Infrastructure Costs: Analysis of Unit Costs and Cost Overruns of Road Infrastructures Projects in Africa, *Economic Brief*;
- Améliorer la compétitivité en Afrique par le développement des infrastructures, Sénégal ; *Working Paper*;

Products generated in 2015

- Estimating Investment Needs for the Power Sector in the African Region (covering 15 countries), *Africa Report*;
- Africa Telecom Infrastructure Investment Needs (covering 45 countries), *Africa Report*;

2015 Work is ongoing and the following knowledge products are expected by the end of 2015:

- Provisional reports on the investment needs in infrastructure for the continent by November 2015;
- An Unsteady Course: Growth and Challenges in Africa's Air Transport Industry - 2014 Update
- Country Report for The Gambia
- Road Transport Sector Country Report Case Studies for 6 countries (Tanzania, Uganda, Ghana, Mozambique, South Sudan, and Liberia).
- Air Transport Sector Country Report Case Studies for 7 countries (Comoros, Djibouti, Gambia, Morocco, Sao Tome & Principe, Togo, and Tunisia)
- ICT sector briefs for 10 countries (Comoros, Djibouti, Gambia, Ghana, Morocco, Mozambique, Sao Tome & Principe, Sudan, Togo, and Tunisia)
- Port sector briefs for 2 countries (Togo and Gambia)
- Rail Sector brief for Togo
- Investment Needs for Water and Sanitation in Africa, 2010-2060
- A continental report based on AIKP data to be generated by March 2016.

**ANNEX IV - DATASETS COLLECTED AND VALIDATED, 2009-2014**

# ANNEXES