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**TRADE AND INFRASTRUCTURE**

**DEPARTMENT OF INFRASTRUCTURE AND ENERGY**

## I. GENERAL CONTEXT

1. Africa's share of world trade has fallen from 6% twenty years ago to just about 2% according to the 2005 Report of the Commission for Africa that was chaired by the former UK Prime Minister H.E. Tony Blair. Primary commodities including agricultural produce, minerals and oil products make up over 80% of Sub-Saharan Africa's exports to the international markets. The rest includes industrial goods (about 15%) and unclassified (about 5%). The nature of this type of exports is bulky and low value. Since Africa enjoys the abundance of cheap labour which significantly minimises production costs, logistics, facilitated by infrastructure, have a significant role in determining the end cost of its exports.

2. Trade-related infrastructure includes rural and international roads, railways, ports and airports which act as links between local and international markets and also telecommunications/ICT (Information and Communications Technology), energy, and water. In that context, efficient infrastructure and associated services are critical to the competitiveness of African exports in the world market.

3. However, Africa has the least developed infrastructure with consequential highest cost of related services, which greatly offsets the competitive advantage of Africa's commodities. The sector specific situation is elaborated in the following sections.

## II. SECTOR CONTEXT

### I.1 TRANSPORT

#### 1) *Introduction*

4. The transport is the vehicle by which exchange of goods is enabled to conclude trade transactions. Simply put; trade cannot be executed without transport to complete the physical exchanges. In that context, the decision to trade between countries in a region or continent is largely dependent on the state of transport infrastructure and services in that particular region or continent. The impact of transport on trade is measured by two key elements. These are timely delivery of goods and the delivery cost. In that regard, the condition of transport infrastructure and the regulatory framework are critical factors in determining the smoothness and cost-effectiveness of trade flows in any geographical setting.

5. Intra-Africa trade is largely dependent on the state of land transport i.e. railway and road transport and, to some extent, coastal and inland water transport where the potential exists. It is commonly known that the state of transport in the continent is still inadequate and of poor quality. Moreover, Africa is a sparsely populated continent with

widely dispersed settlements in a number of areas. This requires investing in expensive long-distance transport infrastructure and services to link countries and communities whose economic returns may not be easily justified in the short-to-medium term.

6. Landlocked countries, in particular, are at the end of long international trade routes. Hence, they suffer most from the typically high current costs of overland transport in Africa. Carriage of their consignments is expensive for a great number of reasons. Some are inherent to serving relatively small production sources and markets, at the end of long distances. But many relate to outmoded inconsistencies among the procedures and standards of different countries, to inefficient transit traffic procedures and, often, malpractices in the public and private agencies responsible for facilitating transit transport. Most of these bodies belong to the transport sector, such as ports and railway authorities, agencies responsible for highway maintenance and policing, freight transport companies and their suppliers, and the government authorities responsible for regulating trade and transport.

## **2) State of Transport Infrastructure and Services**

7. The land transport network comprising of roads and railways has average densities amounting to only 6 km and 0.2 km per 100 sq. km respectively. More than 60% of the existing continental road network is unpaved with much of it being of non-engineered gravel and earth quality. Moreover, less than 40% of the paved network is in good condition.

8. The railway networks consist of mostly single-track lines running from interior to coast with few inter-linkages. The engineering of the networks was done at the turn of the century to facilitate the passage of steam-engine trains. Bare minimum upgrading has been undertaken since then to enable the operation of longer trains pulled by diesel and diesel/electric locomotives most of which are now obsolete. Moreover, the African railway network is constructed on a multiple of track gauges the prominent being two (standard: 1,435 mm and metric: 1,000 mm / 1,067 mm).

9. Ideally, railways should constitute the backbone or framework for the transport network of the continent. However, the existing state of affairs keeps relegating this important mode of transport to the background while its traditional place is being taken up by road transport which is more expensive on long-distance haulage of bulky traffic.

10. Very few African ports are properly facilitated and equipped to handle modern container ships. The average port capacity utilisation is below 50% with significant delays in clearance of cargo of all types. Poor inland transport and communications systems as well as lack of interchange facilities aggravate the situation. Furthermore, lack of adequate navigation aids including search and rescue facilities and the growing menace of piracy compromise safety and security on African shipping lanes with effect on marine environment.

11. Africa has the fastest growing air transport industry in the world especially following the market liberalisation brought about by the adoption and implementation of the November 1999 Yamoussoukro Decision (YD). Despite the slow and hesitant implementation of the YD, a number of countries have granted each other, albeit on bilateral basis, the fifth freedom of the air that allows airlines to carry passengers to third countries. Also, there has been an emergence of several private air operators which have taken up much of the share of domestic and regional flights of the previous national carriers. Creation of such regional airlines as the ASKY in West Africa is the most notable highlight of the success of the YD.

12. However, to-date, the market share of African airlines for international flights between Africa and other regions of the world hardly exceeds 2%. Moreover, the speedy growth of the air transport industry resulting from implementation of the YD, has brought to the fore the major challenges of efficient air navigation as well as aviation safety, security and protection of the environment. The need to address these issues remains a major preoccupation of the stakeholders in the continent.

### **3) Impact of Transport on Africa's Trade**

13. Generally, Africa's share of world trade fell from 6% twenty years ago to just about 2% according to the 2005 Report of the Commission for Africa that was chaired by the former UK Prime Minister H.E. Tony Blair. Primary commodities including agricultural produce, minerals and oil products make up over 80% of Sub-Saharan Africa's exports to the international markets. The rest includes industrial goods (about 15%) and unclassified (about 5%). The nature of this type of exports is bulky and low value. Since Africa enjoys the abundance of cheap labour which significantly minimises production costs, logistics, facilitated by infrastructure, have a significant role in determining the end cost of its exports.

14. Due to the least developed infrastructure and services, transport costs in Africa are among the highest in the world, which clearly undermines the competitiveness of African products on both local and international markets. According to the Report of the Commission for Africa, in landlocked countries, transport costs can be three-quarters of the value of exports. For example, shipping a car from Japan to Abidjan costs US\$1,500, but shipping the same car from Abidjan to Addis Ababa costs US\$5,000.

15. Transport costs are in the form of high freight rates, delay charges, transit losses and missed opportunities. This state of affairs is caused mainly by inadequate, low quality and poorly functioning transport infrastructure and related services. Transport costs as a component of the value of exports for selected African landlocked countries are indicated in the following table.

**Table 1: High Transport Costs**

<b>Country</b>	<b>Transport cost as a share of value of exports (%)</b>
Central African Republic	33
Chad	52

Malawi	56
Mali	36
Rwanda	48
Least developed countries	17
Developing countries	9

Source: United Nations Economic Commission for Africa

16. The Programme of Infrastructure Development in Africa (PIDA) in its outlook report concluded that the economic cost of transport inefficiencies in the Africa Regional Transport Infrastructure Network (ARTIN) is over US\$ 170 billion per year at the present time. These inefficiencies are primarily due to:

- Non-implementation of trade facilitation measures along the ARTIN corridors (including ports and border posts);
- Transport sector policies leading to inefficient and high cost road transport and poor road condition in many countries;
- Transport sector and economic policies that prevent efficient operation and expansion of the rail system; and
- Air transport sector and economic policies that prevent the establishment of regional air hubs, leading to higher air fares.

17. The relative size of these economic costs is shown below:

**Table 2: Summary of Economic Cost of Inefficiencies in ARTIN 2009**

Type of Cost	Amount (US billion)	%
Total ARTIN Corridor Inefficiency Costs	75	43
Total ARTIN Air Transport Inefficiency Costs	25	15
Total Value of Suppressed Freight Demand	65	38
Total Value of Suppressed Air Transport Demand	7	4
ARTIN total	172	100

PIDA study, Phase III Report, Transport sector, page9

18. The elimination of these costs represents an opportunity for the identification of programmes and projects with real impact on the economy through free movements of people and goods.

#### ***4) On-going Actions to Improve Regional and Continental Transport Infrastructure and Services***

19. Efforts to improve transport infrastructure and services have been undertaken for decades now at the national, regional and continental levels. It should be appreciated that the colonial powers built just minimum infrastructure to enable them to exploit the vast natural resources of the continent. They left most of the continent with no credible transport networks. Since then, African countries, which have the primary responsibility for developing the sector in their territories, have been struggling to mobilise resources to facilitate construction and upgrading of roads, bridges, ports, airports, railways and related facilities. However, due to huge resource needs and weak economies, most

have hardly been able to put in place the transport infrastructure that would meet their development needs.

20. The transport sector, alongside the other infrastructure sectors, has continued to enjoy a special place in the AUC Strategic Plan since 2004. This is due to a clear understanding of economic dynamics that without cost-effective physical linkages, Africa will never succeed in achieving any meaningful development that would lift its peoples out of poverty and earn them a respectable place in the global economic system. As well, the unity of Africa envisaged by its founding fathers would remain just a dream.

21. In February 2009, the AU Assembly of Heads of State and Government dedicated its meeting to theme on development of transport and energy infrastructure in Africa and, to that end, adopted a special Declaration directing the AUC and its partners to work on accelerating implementation of major integration infrastructure projects in the continent as well as the formulation of the single Programme for Infrastructure Development in Africa (PIDA).

22. In practical terms, since 2010, the AUC has moved ahead and set in motion preparations of a number of key regional and continental transport projects with the support of the NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF) and the EU-Africa Infrastructure Partnership. These are:

- i. Pre-Feasibility Study of Missing Links on the Dakar-N'djamena-Djibouti Transport Corridor
- ii. Pre-Feasibility Study of Missing Links on the Djibouti-Libreville Transport Corridor
- iii. Study on the Operationalisation of the Executing Agency of the Yamoussoukro Decision on the Liberalisation of Air Transport Markets in Africa.
- iv. Continental Evaluation of the implementation of the Yamoussoukro Decision with a view to improving liberalisation of air transport markets in Africa
- v. Feasibility Study of Lobito Corridor on Trans-African Highway No.9 (Beira-Lobito corridor).
- vi. Technical Advocacy and Support Activities for Gambia Bridge Project.
- vii. Comprehensive Market Analysis and Options Study for Implementation, Operation and Financing of Cotonou-Niamey-Ouagadougou-Abidjan Railway.
- viii. Regional Transport study of Trans-African Highway no. 3 in Central Africa with Pre-feasibility Study of Selected Road Sections and Strategic Options Study for Regional Ports.

23. All these projects have been included in the PIDA Priority Action Plan (PAP).

## **II.2 ENERGY**

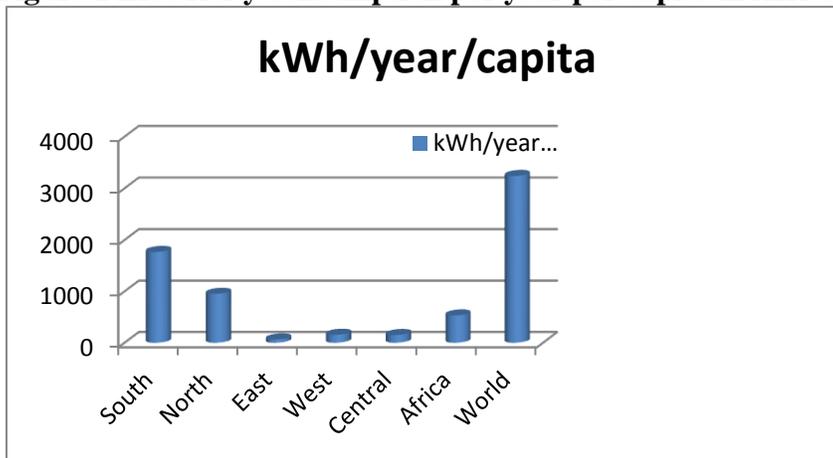
24. Energy as a product embodies a number of special characteristics with regard to trade that render its treatment in policy terms different from that of many other products in sectors such as manufacturing and agriculture.

25. Much of today's energy supply - particularly fossil fuels and natural gas - is geographically concentrated, fixed in terms of location, and prominent in the production and trade of the countries that possess the resource. Thus, trade patterns on the supply side are largely pre-determined and change only slowly, in contrast to the shifting comparative advantage we associate with economies that are less resource-endowed in this way.

26. But compared to the geographical concentration that characterizes the supply side of energy markets, demand is very widely spread because we all need energy to run our economies. This relationship between supply and demand has important implications for the economic and political conditions under which trade takes place.

27. *Under-exploited energy resources and under-served demand* Africa has 15% of the world's population but accounts for only 3% of the world's primary energy consumption (renewable energy and waste excluded) and 5-6% of world's final energy consumption (renewable energy and waste included). Electricity consumption per capita is 1/6 of world overall average. The region therefore needs to make renewed efforts to bring about a major expansion of its already well identified energy potential.

**Figure 1 Electricity consumption per year per capita in Africa**



28. *Limited trade of energy.* With numerous small and isolated economies in the Africa region, all infrastructure networks would benefit from regional integration. Benefits are most visible in electric power.

29. The incentive to pool energy resources is thus strong and led to the formation of regional power pools in the 1990s. However, cross border power trade has yet to take off outside of the Southern Africa Power Pool (SAPP). In SAPP about 10% of total

consumption came from trade activities in 2008, but this share dropped significantly thereafter due to generalized capacity shortages (see Table 2). However, even in the SAPP some of the trade - e.g., South Africa-Mozambique, Zambia-Namibia - is governed primarily by bilateral contracts. In West Africa, power trade is also growing and now accounts for more than 5% of total consumption in this regional area.

Table 2 Regional trade in electricity, 2005

	<b>Consumption, TWh</b>	<b>Imports, TWh</b>	<b>Exports, TWh</b>	<b>Percentage electricity traded</b>
<b>CAPP</b>	8.80	0.01	1.80	0.1
<b>EAPP</b>	13.41	0.28	0.18	2.1
<b>SAPP</b>	233.97	22.71	25.74	9.7
<b>WAPP</b>	28.63	1.63	2.04	5.7

*Source: EIA, 2008.*

30. AMU (Mauritania, Morocco, Algeria, Tunisia, and Libya) consumption was 91 TWh in 2006, with only 0.7 TWh of cross-border trade. Although a line linking Libya to Tunisia was constructed in 2003, the two countries have not yet started trading electricity.

31. Cross border natural gas trade has also potential benefits- though which have yet to be realized to any significant extent. For example, the potential benefits of supplying Nigerian natural gas to the neighboring countries of Benin, Togo, and Ghana through a gas transmission line were first discussed in 1995 but have yet to be fully realized.

32. In the meantime, many sub-Saharan African countries continue to experience crisis conditions in national energy supply. National networks suffer from a combination of high generating costs, weak institutions, inadequate financial resources, low prices and the inefficient operation of most national networks. These obstacles make the goal of universal access to electricity by 2050 very challenging for a majority of African countries. Expanding regional energy integration is therefore an essential step to improve affordability by households if these universal access goals are to be achieved.

33. Energy is the biggest infrastructure challenge in Africa. More than 30 countries face power crisis due to a comparatively lowest power generation capacity in the world. Development of Africa's enormous energy resources is limited partly due to low level of exploration and development, as well as droughts, oil price shock, conflict and high growth in some cases.

34. Many African countries have responded by leasing high cost emergency generation capacity, which, in some cases, reaches beyond 100% of the total generation capacity and, over 4% of the GDP (AICD: Sierra Leone). The situation,

illustrated in the table below, contributes to high costs of production and logistics in the continent.

**Table 2: Leased High Cost Emergency Generation Capacity**

Country	Emergency capacity (MW)	Percentage of total capacity	Cost as percentage of GDP
Angola	150	18	1.0
Gabon	14	3	0.5
Ghana	80	5	1.9
Kenya	100	8	1.5
Madagascar	50	36	2.8
Rwanda	15	48	1.8
Senegal	40	17	1.4
Sierra Leone	20	133	4.3
Tanzania	180	20	1.0
Uganda	100	42	3.3

Source: Africa Infrastructure Country Diagnostic (AICD) study - The World Bank

**35. Power shortages and regular interruptions of services result in heavy loss in sales to Businesses. Enhanced interconnectivity in Energy and in other infrastructure is expected to contribute to enhanced trade and to the alleviation of poverty within the continent, while overall contributing to peace and security among AU Member States.**

Therefore various initiatives are on on-going, and actions need to be supported and expedited namely:

- the interconnection of regional power pools into a continental network In fact, the creation of power pools recognizes that by sharing large-scale, cost-effective energy resources across countries, regional cooperation will reduce the cost of electricity and enhance energy security.
- the integrated development of the major hydropower potential located at four poles of the continent: Congo, Niger, Zambezi and Nile River Basins.
- the development of the Trans Saharan Gas Pipeline (TSGP) (Nigeria-Algeria Gas Pipeline) that would export Nigerian gas to Europe and serve as a backbone gas network to further extend gas supply to the surrounding African countries.
- the construction and operationalization of the Regional Gas Pipelines and Petroleum Products Pipelines.
- the establishment of African Electrification Fund.
- cross-border electrification, in addition to grid to grid interconnections.

- the development of Renewable Energy programme (geothermal, wind, solar, etc).
- implementation of PIDA Priority Action Plan with the aim of accelerating regional economic cooperation and integration. Increased cooperation and investment on key regional infrastructure interconnectivity projects is an important aspect of this Priority Action Plan.

36. PIDA's Energy Vision is to develop efficient, reliable, cost-effective and environmentally friendly infrastructure for the physical integration of the continent and enhance access to modern energy services for the majority of the African population by:

- Developing regional and continental clean power generation and transmission projects
- Implementing high-capacity oil refineries and oil and gas pipeline projects
- Developing renewable energy resources.

37. If regional integration is pursued effectively and if all countries and leaders embrace the shared responsibility of PIDA, by 2040 Africa will look like this:

- Africa's share of world trade would be much higher, at least twice today's share of 2%
- Intra-African trade shares would double from the current levels of 11–12%
- Access to electricity will be no less than 60% in any African country, providing access to an additional 800million people.

### **II.3. ICT IN TRADE**

#### **1) Introduction**

38. Information and communication technologies (ICTs) remain a major positive dynamic force in all economies. ICT networks have now spread throughout the business sector of many African countries, and will increasingly be used to improve performance. Technological progress in ICT goods and services is continuing at a rapid pace, driving prices down and leading to a wide range of new applications. While much smaller than business-to-business electronic commerce, business-to-consumer e-commerce continues to gain in importance. Broadband is diffusing rapidly, and activity in the telecommunications sector continues to grow. Moreover, several applications, such as broadband and e-commerce, are still in their early stages in the continent and may have a large potential for future growth. ICT thus remains a technology that can underpin future growth and innovation. ICTs provide:

1. Quicker access to information in a real time from factory floor devices delivered to your desktop.

2. Creation of a Common Information Infrastructure allowing greater interoperability and management of equipment.
3. Scalability in deployment. Cost effective deployment in a build an information structure incrementally.

39. ICTs have changed the process of life in the world. Power relations between governments and the governed have been transformed from being mainly vertical and hierarchical and structured along rigid and well-defined departmental boundaries to being horizontal, networked and participatory. ICT can enhance trade through a number of ways including infrastructure, e-governance, e-commerce sites, e-banking, money orders and addressing micro finance sites. This following sets out the context and main conclusion of how ICT can contribute to the welfare of people via trade by exploiting ICTs in trade facilitation progressively over time:

1. Through the deployment of ICT-enabled applications at critical locations and among critical stakeholder communities along the trade supply chain - including ports and border crossings, Customs and Permit Issuing Agencies - where they can achieve substantial efficiency savings in cost and time to trading businesses and government agencies;
2. Through the development of national single window systems for data management and sharing, which integrate these ICT applications along the supply chain, adding further savings in cost and time as a result of inter-agency and inter-stakeholder coordination within countries;
3. Through the extension of single window principles to regional level, enabling a third level of savings in cost and time to be achieved through cooperation between agencies in different countries throughout the supply chain and throughout Regional Economic Communities.

## **2) *ICTs in trade***

40. ICTs are a large sector by itself such as agriculture, industry, mines, etc. Indeed nowadays a lot of trade products between Africa and developing countries are made with ICT products such as equipments, mobile devices, computers, etc. The part of ICT product is growing continuously trade today as well as number of people involved in.

41. ICT can facilitate trade by enable governments and other trade stakeholders in using measures to simplify, harmonize and standardize trade management processes in order to address inefficiencies and lack of coordination which lead to delays, costs and unreliability. The objective of trade facilitation by using ICTs is to reduce trade costs and expedite trade flows while ensuring the effective management of statutory processes such as revenue collection, the enforcement of public health regulations and the protection of public safety and security.

42. ICTs have demonstrated their potential to enhance performance and, in some cases, to transform organizations and processes in many social and economic development areas, including trade. Their ability to do this is rooted in three capacities of ICTs to:

1. enhance efficiency (enabling people and organizations to manage processes more quickly, reliably and cheaply than they could previously manage them);
2. enhance coordination (enabling them to integrate processes with those of other people and organizations in ways that were not previously possible); and
3. enhance information and knowledge (enabling them to access more information and other resources than were previously available, and thereby improve decision-making).

43. ICTs can contribute to addressing structural and infrastructural challenges, for example through the development of ICT-enabled export sectors (such as business process outsourcing) and through better integration of communications and transport infrastructure. There are many interfaces and relationships along the supply chain at which delays and costs are currently incurred through inefficiencies in management and lack of coordination between different stakeholders. The most important contributions of ICTs to trade, however, lie in ways in which they can improve and expedite trade processes along the supply chain by enhancing efficiency and coordination.

44. It can be noted the postal network composed of almost 30,000 Post Offices is a critical infrastructure for the delivery of goods for e-commerce. **Parcels, small packets and registered items** are all very attractive for delivery of common e-commerce purchases-shoes, clothing, books, CD/Videos, confectionary, gifts, electronic equipment, mobile phones, etc.

45. Moreover, posts provide technology solutions to help enable small and medium enterprises (SME) to make their goods available online.

46. Many people do not have access to credit cards or banking series for transaction payment. Posts provide various payment options and help reduce payment fraud.

47. Post offices are able to facility trade using advanced e-trade systems. **The ExportaFacil project in South America and its matching importaFacil**, show how SMEs can use the **postal network to efficiently process export and import documentation** and submit it to the relevant authorities electronically for efficient processing-saving days on normal export and import transactions, and making cross-border trade a reality for SME.

48. Further a suitable addressing systems contributing to social integration and economic development and enable the distribution of basic goods and services, contributing thus to trade development.

## THE WAY FORWARD

49. PIDA's overall strategic objective aims at accelerating the regional integration of the continent and facilitating the creation of African Regional Economic as planned by the Abuja Treaty. By improving access to integrated regional and continental infrastructure networks, PIDA will allow countries to meet forecast demand for infrastructure services and boost their competitiveness by:

- Increasing efficiencies;
- Accelerating growth;
- Facilitating integration in the world economy;
- Improving living standards;
- Unleashing intra-African trade.

50. The essential benefits of a regionally integrated approach to infrastructure development are to make possible the formation of large competitive markets in place of small, isolated and inefficient ones-and to lower costs across production sectors. Despite robust GDP gains by many countries in recent years, Africa's staggering infrastructure inefficiencies have been choking integration efforts, stunting growth and sapping national resources, public and private.

51. The PIDA programme is going through its priority Action Plan to bridge the infrastructure gap of Africa by putting in place an integrated African Continent where the infrastructure and its services enable the free movement of goods and passengers by providing efficient, safe, secure, reliable and seamless networks options and reducing costs to support environmentally and economically sustainable regional development. Actions to be undertaken for that purpose are attached in the PIDA PAP as appendix.

## ANNEXES

### 52. PIDA PAP Energy Sector

Project	Description	Stage	Cost (US\$ millions)	Countries	REC	Region
1. Great Millennium Renaissance Dam	Develop a 5,250 MW plant to supply domestic market and export electricity on EAPP market	S4	8,000	Ethiopia, Nile basin	COMESA/ IGAD	Eastern
2. North–South Power Transmission Corridor	8,000 km line from Egypt through Sudan, South Sudan, Ethiopia, Kenya, Malawi, Mozambique, Zambia, Zimbabwe to South Africa	S2	6,000	Kenya, Ethiopia, Tanzania, Malawi, Mozambique, Zambia, Zimbabwe, South Africa	COMESA/EAC/ SADC/IGAD	Southern
3. Mphamda-Nkuwa	Hydroelectric power plant with a capacity of 1,500 MW for export on the SAPP market	S2	2,400	Mozambique, Zambezi basin	SADC	Southern
4. Lesotho HWP phase II hydropower component	Hydropower programme for power supply to Lesotho and power export to South Africa	S2	800	Orange-Senqu River Basin	SADC	Southern
5. Inga III Hydro	4,200 MW capacity run of river hydropower station on the Congo river with eight turbines	S2	6,000	DRC Congo River	ECCAS	Central
6. Central African Interconnection	3,800 km line from the DRC to South Africa through Angola, Gabon, Namibia and to the north to Equatorial Guinea, Cameroon and Chad	S1	10,500	South Africa, Angola, Gabon, Namibia, Ethiopia	ECCAS	Central
7. Sambagalou	128 MW of hydropower capacity, 930 km from the mouth of the Gambia River to supply Senegal, Guinea, Guinea Bissau and Gambia	S3	300	Senegal, OMOVG	ECOWAS	Western
8. West Africa Power Transmission Corridor	2,000 km line along the coast connecting with the existing Ghana–Nigeria line with a capacity of 1,000 MW	S2	1,200	Guinea, Guinea Bissau, Gambia, Sierra Leone, Liberia, Côte d'Ivoire, Ghana	ECOWAS	Western
9. North Africa Transmission	2,700 km line from Morocco to Egypt through Algeria, Tunisia and Libya	S2	1,200	Morocco, Algeria, Tunisia, Libya, Egypt	AMU	Northern
10. Kaleta	Hydropower generation of 117 MW	S3	179	Guinea – OMOVG	ECOWAS	Western
11. Batoka	Hydroelectric plant with a capacity of 1,600 MW to enable export of electricity	S3	2,800	Zambia/Zimbabwe Zambezi basin	COMESA/EAC	Eastern
12. Ruzizi III	Hydroelectric plant with a capacity of 145 MW to share power among Rwanda, Burundi and DRC promoted by CEPGL	S3	450	Rwanda/DRC	COMESA/EAC	Eastern
13. Rusumo Falls	Hydropower production of 61 MW for Burundi, Rwanda and Tanzania	S3	360	Nile River Basin	COMESA/EAC	Eastern
14. Uganda–Kenya Petroleum Products Pipeline	300 km long pipeline for a lower cost mode of transport of petroleum products	S4	150	Uganda, Kenya	COMESA/EAC	Eastern
15. Nigeria–Algeria Pipeline	4,100 km gas pipeline from Warri to Hassi R'Mel in Algeria for export to Europe	S2	NA	Nigeria, Niger, Algeria	UMA/ECOWAS	Northern, Western

### 53.PIDA PAP Transport Sector

Programme	Description	Stage	Cost (US\$ millions)	Countries	REC	Region
1. TAH programme	This is phase I of the continental connectivity programme that focuses on completion and standardization of the TAH missing links by 2030	S2/S3	2,150	Africa	Continental	Continental
2. Single African Sky phase 1 (design and initial implementation)	Single African Sky is a continental programme that will create a high-level, satellite-based air navigation system for the African continent	S3	275	Africa	Continental	Continental
3. Yamoussoukro Decision implementation	Accelerate Yamoussoukro Decision implementation by identifying countries that are ready to fully implement it, and discussing and agreeing with both their governments and airlines to launch the voluntary club on a full membership basis	S4	5	Africa	Continental	Continental
4. Smart corridor programme phase I	This programme includes both the development of model smart corridor technology and the design and the implementation of a continental and regional corridor efficiency monitoring system	S1	100	Africa	Continental	Continental
5. Northern Multimodal Corridor	This programme is designed to modernize the highest priority multimodal ARTIN corridor on modern standards (climbing lanes and urban bypasses) in East Africa. This programme aims to facilitate travel by people and goods across the borders between Kenya, Uganda, Rwanda, Burundi and DRC with a spur to South Sudan	S3/S4	1,000	Kenya, Uganda, Rwanda, Burundi	COMESA/EAC	Eastern
6. North-South Multimodal Corridor	This programme is designed to modernize the highest priority multimodal ARTIN corridor in Southern Africa on modern standards and facilitate travel of people and goods across the borders between South Africa, Botswana, Zimbabwe, Zambia, Malawi and DRC	S3/S4	2,325	DRC, Zambia, Zimbabwe, South Africa, Mozambique	COMESA/EAC/SADC	Eastern
7. Djibouti-Addis Corridor	This programme would resuscitate the rail system in a high priority multimodal ARTIN corridor in Eastern Africa and increase the flow of goods across the border between Djibouti and Ethiopia. It would also design and implement a smart corridor system for both road and rail transport	S3/S4	1,000	Djibouti, Ethiopia	COMESA/IGAD	Eastern
8. Central Corridor	This programme would modernize the third priority ARTIN corridor in East Africa and facilitate travel for people and goods across the borders between Tanzania, Uganda, Rwanda, Burundi and DRC	S3/S4	840	Tanzania, Uganda, Rwanda, Burundi, DRC	COMESA/EAC	Eastern
9. Beira-Nacala Multimodal Corridors	Rehabilitation/reconstruction of railway and road links, including one-stop border posts along the corridors. Improvement of capacity at the ports, including capital dredging at Beira Port. Natural resources development, including Moatize Coal Field in the Zambezi Valley will use the ports as main export gateways	S3/S4	450	Mozambique, Malawi, Zimbabwe	COMESA/SADC	Eastern
10. Lamu Gateway Development	This programme aims at responding to the Eastern Africa challenge in developing sufficient port capacity to handle future demand from both domestic sources and landlocked countries. The priority action will be to develop the Lamu gateway	S3/S4	5,900	Kenya, Uganda, Rwanda, Burundi	COMESA/SADC/EAC	Eastern
11. Southern Africa Hub Port and Rail Programme	This programme aims at responding to Southern Africa challenge in developing sufficient port capacity to handle future demand from both domestic sources and landlocked countries	S1	2,270	REC members	SADC	Southern
12. Abidjan-Lagos Coastal Corridor	This programme would modernize the most heavily travelled ARTIN corridor in West Africa (trade facilitation, OSBPs, capacity enhancement and implementation of PPP) for five countries: Côte d'Ivoire, Ghana, Togo, Benin and Nigeria	S3/S4	290	Nigeria, Benin, Togo, Ghana, Côte d'Ivoire	ECOWAS	Western
13. Dakar-Niamey Multimodal Corridor	This programme is designed to modernize the most heavily travelled ARTIN corridor in West Africa (trade facilitation, OSBPs, capacity enhancement and implementation of PPP) for four countries: Senegal, Mali, Burkina Faso, Niger	S3/S4	590	Senegal, Mali, Burkina Faso, Niger	ECOWAS	Western

Programme	Description	Stage	Cost (US\$ millions)	Countries	REC	Region
14. Praia-Dakar-Abidjan Multimodal Corridor	<p>This programme would improve marine transport and the connection between island and mainland countries by creating a new maritime service between regional ports and facilitating this with a modern information system that links the maritime service with ports and road corridor in the Dakar-Abidjan Corridor.</p> <p>This programme would also modernize one of the most heavily travelled ARTIN corridor in West Africa (trade facilitation, OSBPs, capacity enhancement possibly through PPP) for eight countries: Cape Verde, Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, Côte d'Ivoire</p>	S2 to S4	150	Cape Verde, Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, Côte d'Ivoire	ECOWAS	Western
15. Abidjan-Ouagadougou/Bamako	This programme would modernize and rehabilitate the multimodal corridor that suffered during civil war in Côte d'Ivoire	S3/S4	540	Côte d'Ivoire, Burkina Faso, Mali	ECOWAS	Western
16. West Africa Hub Port and Rail Programme	This programme aims at responding to the future capacity problems in West African ports. This programme has two components: (a) a regional hub port and rail linkage master plan and (b) port expansion	S1	2,140	15 countries, PMAWCA	ECOWAS	Western
17. West Africa Air Transport	This programme aims at increasing the air transport service levels in West Africa, which are currently limited by the lack of a regional air hub	S1	420	15 countries	ECOWAS	Western
18. Pointe Noire, Brazzaville/Kinshasa, Bangui, N'djamena Multimodal Corridor	This multimodal programme would resuscitate the river transport in the Congo-Ubangi River Basin and modernize road transport along the corridor	S3/S4	300	Congo/DRC/Central African Republic	ECCAS	Central
19. Kinshasa-Brazzaville Bridge Road and Rail Project & Rail to Ilebo	This programme would provide infrastructure to improve the regional transportation and trade systems through the construction of a fixed crossing linking Kinshasa and Brazzaville, ensuring continuity in railway traffic from Matadi and Pointe-Noire to the eastern border of the DRC and, beyond that towards the eastern and southern parts of Africa	S2	1,650	Congo/DRC	ECCAS	Central
20. Douala-Bangui Douala-Ndjamena Corridor	This programme would modernize the highest priority multimodal ARTIN corridor in Central Africa and facilitate travel for people and goods across the borders between Cameroon, Chad and the Central African Republic	S3	290	Cameroon/Central African Republic/Chad	ECCAS	Central
21. Central African Inter-Capital Connectivity	This programme is specially designed for Central Africa, where one of the key issues for regional integration is the missing links in several inter-capital connectors	S2	800	Cameroon/Chad/Central African Republic/Congo/DRC/Gabon/Burundi/Angola	ECCAS	Central
22. Central Africa Air Transport	This programme aims at increasing the air transport service levels as well as airport improvement in Central Africa, which are currently limited by the lack of a regional air hub	S1	420		ECCAS	Central
23. Central Africa Hub Port and Rail Programme	This programme aims at responding to the future capacity problems in Central African ports. This programme has two components: (a) a regional hub port and rail linkage master plan and (b) port expansion	S1	1,400	Cameroon/Chad/Central African Republic/Congo/DRC/Gabon/Burundi, PMAWCA	ECCAS	Central
24. Trans-Maghreb Highway	This programme is designed to improve travel for people and goods across the Maghreb countries, which have had their trade and travel limited by artificial barriers between countries at the borders. This programme would design and implement a smart corridor system along the highway and install one-stop border posts	S3/S4	75	Morocco to Egypt through Algeria, Tunisia and Libya	AMU	Northern

## 54. PIDA PAP Transboundary Water Sector

Project	Description	Stage	Cost (US\$ millions)	Countries	REC	Region
1. Palambo	Regulation dam to improve navigability of Obangui River with added hydropower component	S2	155	Congo River Basin	ECCAS	Central
2. Fomi	Hydropower station in Guinea with irrigation water supply for Mali and regulation of the Niger river (nine countries)	S3	384	Niger River Basin	ECOWAS	Western
3. Multisectoral Investment Opportunity Studies	Identification and preparation of investment programmes in the basin	S1	1	Okavango River Basin	SADC	Southern
4. Lesotho HWP Phase II – water transfer component	Water transfer programme supplying water to Gauteng Province in South Africa	S3	1,100	Orange-Senqu River Basin	SADC	Southern
5. Goubassy	Multipurpose dam located in Guinea: regulation of the Senegal river (four countries)	S2	NA	Senegal River Basin	ECOWAS	Western
6. Noubiel	Multipurpose dam with hydropower generation (for Burkina Faso and Ghana) component	S1/S2	NA	Volta River Basin	ECOWAS	Western
7. Nubian Sandstone Aquifer System	Implementation of regional strategy for the use of the aquifer system	S4	5	Nubian Sandstone Aquifer System	UMA	Northern
8. North-West Sahara Aquifer System	Prefeasibility studies for improved use of the aquifer system	S2	2.5	North West Sahara Aquifer System	UMA	Northern
9. Lullemeden Aquifer System	Prefeasibility studies for improved use of the aquifer system	S2	10	Lullemeden and Taoudeni/Tanezrouft Aquifer System	UMA	Northern

## 55. PIDA PAP ICT Sector

Programme	Description	Stage	Cost (US\$ millions)	Countries	REC	Region
1. ICT Enabling Environment	This programme would improve the environment for the private sectors to invest in high-speed broadband infrastructure	S2	25	Continental	Continental	Continental
2. ICT Terrestrial for Connectivity	This programme has two main components: secure each country connection by at least two broadband infrastructure and ensure the access to submarine cable to all landlocked countries	S3	320	Continental	Continental	Continental
3. Internet Exchange Point (IXP) programme	The aim of this programme is to provide Africa with adequate internet node exchange to maximize internal traffic	S3	130	Continental	Continental	Continental