

Interconnecting, integrating and transforming a continent



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Foreword

Through its ambitious plans for the continent, the African Union placed Integration, Socioeconomic Development and Cooperation in the second pillar of its 2009–2012 Strategic Plan. Delivering on this pillar requires good regional infrastructure.

The African Union Commission, in partnership with the United Nations Economic Commission for Africa, African Development Bank and the NEPAD Planning and Coordinating Agency, recently completed formulating the Programme for Infrastructure Development in Africa (PIDA). This continental initiative, based on regional projects and programmes, will help address the infrastructure deficit that severely hampers Africa's competitiveness in the world market.

PIDA provides a common framework for African stakeholders to build the infrastructure necessary for more integrated transport, energy, ICT and transboundary water networks to boost trade, spark growth and create jobs. Implementing it will transform the way we do business, help deliver a well-connected Africa and realize the building of the African Economic Community, outlined in the 1991 Abuja Treaty. To put this ambition into practice we need strong political leadership and ownership.

PIDA's complex and long-term strategic planning for Africa's regional infrastructure (2012–40) has been conducted under the coordination of the African Union Commission, United Nations Economic Commission for Africa, African Development

Bank and NEPAD Planning and Coordinating Agency, in cooperation with all African stakeholders. We would like to take this opportunity to pay tribute to the Regional Economic Communities, member states and specialized agencies for their substantial contributions, without which this result would not have been achieved, and to the Panel of Experts for their independent peer reviews.

We would also like to thank the African and international donor community, particularly the African Development Fund, the Nigeria Technical Cooperation Fund, the African Water Facility, the NEPAD Infrastructure Project Preparation Facility Special Fund, the European Union, the Islamic Development Bank and the U.K. Department for International Development for their financial contributions.

Implementing PIDA will require solid coordination structures and mobilizing all relevant funding sources, both public and private. PIDA attaches more importance to member states to drive delivery of projects, as well as acknowledging the important role of the Regional Economic Communities and the NEPAD Planning and Coordinating Agency.

We invite Africa's various development partners and the private sector to consider supporting PIDA's delivery. That support would help realize the Africa Union's Vision and Strategic Plan for an integrated, prosperous and peaceful Africa, driven by its citizens and standing as a dynamic force on the world scene.

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Africa's time for action

Africa commands a powerful position on the world stage. It is seen as a land of opportunity—an emerging destination of choice for many investors and development actors as they look for high-growth markets, despite the ongoing economic turmoil and the lingering effects of the financial crisis and recession. In this rapidly changing global environment, Africa needs to seize the initiative and take advantage of these emerging conditions that will substantially boost trade, spark growth and create jobs. But right now, it is not capable of seizing the initiative or reaping the full benefits of its resources. A major problem: infrastructure. The solution: PIDA.

The 12th Assembly of Heads of State and Government adopted Declaration Assembly/AU/Decl.1 (XII) requesting the African Union Commission (AUC) to formulate the Programme for Infrastructure Development in Africa (PIDA), which was officially launched in Kampala, Uganda, in July 2010. This Executive Note consolidates the outcomes of the work and encapsulates what Africa needs to do to capitalize on its momentum and reach its potential—act boldly by investing in its regional infrastructure. Africa's leading continental organizations, including AUC, NEPAD Planning and Coordinating Agency (NPCA) and the African Development Bank (AfDB), have worked for years to address the infrastructure deficit. In addition, the G20 Infrastructure Action Plan, Infrastructure Consortium for Africa (ICA), EU-Africa Infrastructure Trust Fund and Africa Infrastructure Country Diagnostic all highlight the importance of regional infrastructure for Africa's growth.

PIDA provides new analysis and insights to bring together, under one coherent

programme, existing or previous continental infrastructure initiatives such as the NEPAD Short Term Action Plan, the NEPAD Medium to Long Term Strategic Framework and the AU Infrastructure Master Plans. It fills in gaps and, based on previous lessons, affords proper weight to the value of local ownership, the necessity of both hard and soft interventions, the need for diverse financing and the importance of sound implementation strategies. Underpinned by an extensive consultation and analytical process, PIDA provides an agenda of sensible, affordable priority projects aligned with Africa's long-term goals. Simply put, PIDA will be different from previous regional infrastructure integration initiatives because it will produce effective investments.

PIDA assumes that the average economic growth rate for African countries will be 6% a year between 2010 and 2040, driven by a surging population, increasing levels of education and technology absorption.¹ This growth implies that, over the 30 years to 2040, the GDP of African countries will multiply sixfold, and the average per capita income will rise above \$10,000 for all countries. This continuing growth and prosperity will swell the demand for infrastructure, already one of the continents greatest impediments to sustainable development. Assuming that this growth is achieved, Africa's infrastructure needs are starkly apparent:

- Power demand will increase from 590 terawatt hours (TWh) in 2010, to more than 3,100 TWh in 2040, corresponding

1. This growth rate would be similar to India's over the past three decades. Since 2005, the average annual rate of growth in Africa has exceeded 5%.

to an average annual growth rate of nearly 6%.² To keep pace, installed power generation capacity must rise from present levels of 125 gigawatts (GW; comparable with the United Kingdom) to almost 700 GW in 2040.

- Transport volumes will increase 6–8 times, with a particularly strong increase of up to 14 times for some landlocked countries. Port throughput will rise from 265 million tons in 2009, to more than 2 billion tons in 2040.
- Water needs will push some river basins—including the Nile, Niger, Orange and Volta basins—to the ecological brink.
- Information and communications technology (ICT) demand will swell by a factor of 20 before 2020 as Africa catches up with broadband. Demand, around 300 gigabits per second in 2009, will reach 6,000 gigabits per second by 2018.

This growing infrastructure demand presents a critical challenge for Africa as it competes in global and regional trade markets that rely on just-in-time production and flexible, speedy and reliable delivery. By just about any measure of infrastructure coverage—whether road density, telephone density, generation capacity or service coverage—African countries are lagging behind. In addition, the AfDB's Private Sector Development Strategy estimates that infrastructure services in Africa cost twice as much on average as those in other developing regions and notes that tariffs are exceptionally high. East Asian firms save close to 70% in transportation costs relative to their African counterparts, while Latin American and South Asian firms save approximately 50%.

Closing the infrastructure deficit is vital for economic prosperity and sustainable development. But it is a regional and continental problem that requires a regional and continental solution. Because Africa's economic

geography is particularly challenging, and because its infrastructure needs are so great, regional integration is the best, and perhaps only, way for Africa to realize its growth potential and equitably share the benefits of an increasingly connected world marketplace.

PIDA's outcomes: development through regional integration

The importance of regional integration for supporting Africa's economic development has long been recognized by African leaders, who have consistently expressed their desire to build a common market for goods and services. PIDA's overall strategic objective is to enable Africa to finally build that common market. By improving access to integrated regional and continental infrastructure networks, PIDA will allow countries to meet forecast demand for infrastructure services and boost competitiveness by:

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

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.

In the energy sector, for instance, more than 20 countries have national power systems below the minimum efficient scale of a single plant. The creation of power pools recognizes that regional cooperation, by sharing large-scale, cost-effective energy resources across countries, will reduce the cost of electricity. The consumer gains from full integration of power systems are about 150% of the investment cost. Some of the proposed PIDA

2. According to the International Energy Agency Key World Energy Statistics 2009, demand of 590 TWh approximates that of Germany in 2007, and 3,100 TWh that of China in 2007.

projects could be realized relatively cheaply if countries reduce inefficiencies.

Part of the problem is that Africa's framework of regional and continental policies is fundamentally sound, but those policies have not been thoroughly and consistently written into national legislation, even after treaties are signed and ratified. And where policies do appear in national legislation, they too often are not enforced. An extensive review of more than two dozen regional projects and development programmes revealed that weak policy alignment and harmonization, not just inadequate funding, were the principal drags on efficiency. And in many instances, these inefficiencies are costing Africa billions of dollars—money needed to close the financing gap in infrastructure development (box 1).

Implementing PIDA will help solve this problem. It will enable African leaders to speak with one voice and reach for common goals. It offers policymakers a ready-made list of priorities that address physical infrastructure needs and the soft issues of governance. Most important, PIDA is based on a common vision of regional integration and a long-term agenda that will support the objectives of the Africa Union's (AU) Abuja Treaty. PIDA will enable countries to:

- **Reduce energy costs and increase access.** Africa will reap savings on electricity production costs of \$30 billion a year, or \$850 billion through 2040.

Power access will rise from 39% in 2009 to nearly 70% in 2040, providing access to an additional 800 million people.

- **Slash transport costs and boost intra-African trade.** Transport efficiency gains will be at least \$172 billion in the African Regional Transport Integration Network (ARTIN), with the potential for much larger savings as trade corridors open. Steady advances in regional integration and services will finally create a shift from overseas trade to trade between countries and within and across regions, helping fulfil the promise of the 2028 African Common Market.
- **Ensure water and food security.** Africa has the lowest water storage capacity and irrigated agriculture in the world, and about half the continent faces some sort of water stress or water scarcity—and demand is going to surge. To deal with the coming crisis, PIDA will enable the water storage infrastructure needed for food production and trade.
- **Increase global connectivity.** PIDA will boost broadband connectivity by 20 percentage points. Increasing broadband penetration by 10%, which can be expected by 2018, will increase GDP by 1% by strengthening connections between goods and markets and between people and jobs.

Trade and competitiveness are not the only considerations when planning Africa's

Box 1

The high cost of inefficiencies

Nowhere are Africa's vicious inefficiencies more evident than in the African Regional Transport Infrastructure Network (ARTIN), intended to link the largest commercial centres with each other—and with the rest of the world—with modern and efficient networks and gateways. The PIDA evaluation of Africa's transport sector revealed the total economic cost of ARTIN's inefficiencies to be \$172 billion. These inefficiencies include corridor and air transport costs, as well as suppressed air transport and freight demand.

While the need for better physical infrastructure plays a role (such as the necessary completion of the four-decade old Trans-Africa Highways system), the negative costs are primarily

due to soft failures—the nonimplementation of trade facilitation measures and trade policies, or ineffective and tangled bureaucracy, by member states. One key issue, for example, is the customs facilities at borders and ports, where too much time is lost in waiting.

African countries can and should take sizeable steps to realize efficiency gains—liberalizing trade policy, eliminating non-tariff barriers and implementing previous agreements. Tackling the soft side of regional integration will produce a financial windfall for Africa and strengthen regional infrastructure development in the process.

infrastructure future. Without investing in itself, Africa will not be in position to generate the jobs its growing population will need. In 2010 Africa had 51 cities with more than a million residents, and 2 (Cairo and Lagos) with more than 10 million. In 2040 it is expected to have more than 100 cities of more than a million residents and at least 7 topping 10 million. Implicit in this surging population forecast is the rising number of Africa's workforce. The continent is poised as a manpower reservoir for Africa's economic growth and the world economy—and with PIDA providing the infrastructure base, Africa will have a powerful vehicle for strong, shared and sustainable growth.

Establishing priorities: a new approach to an old problem

PIDA draws on lessons from regions such as Asia, Europe and South America. Its method of establishing priorities for such a large-scale and complex programme relied on an in-depth 18-month research and diagnostic review—and on a detailed analysis of needs and gaps in the short, medium and long terms, distinguishing PIDA from what's been tried before. The resulting framework is a direct response to the gaps, challenges and needs identified across four key target sectors: energy, transport, water and ICT.

The detailed analytical process gives PIDA its empirical foundation for action. The study yielded a macro-outlook for infrastructure demand in each sector through 2040 (or 2020 for ICT), the projected gaps and bottlenecks created by mismatched supply and demand, the institutional inefficiencies previously highlighted and the options for identifying, preparing and funding projects. The programme is organized so that options are presented for the short and medium term (through 2020 and 2030) but with a long-term view for additional projects to meet demand through 2040.

Given Africa's urgent infrastructure needs, the project and programme list for

short- and medium-term implementation—the Priority Action Plan (PAP)—lies at the heart of PIDA. Although the entire programme can be considered the pipeline for Africa's long-term regional infrastructure development, the PAP details the immediate way forward by presenting actionable projects and programmes that promote sound regional integration between 2012 and 2020.

Most important, the PAP represents what makes PIDA unique and what will help ensure its continuing relevance and support—African ownership. The priority project list is the result not only of intense analytical work but also of a thorough consultation process from the outset with the Regional Economic Communities (RECs), the power pools, the lake and river basin organizations, specialized agencies, sector ministers and other relevant development stakeholders.

Two-day consultations were held with each REC and the related regional agencies to discuss selection criteria, debate potential projects and reach consensus on programme details (box 2). Altogether, more than 300 representatives from African states attended. Sector minister's meetings were held considering and endorsing PIDA outcomes. This broad participation, which led to a continent-wide consensus, laid the foundation for continuing ownership through all phases of implementation. This bottom-up process infused PIDA with specialized quantitative measurements, such as national and regional investment programme details, as well as critical qualitative inputs, such as community desires and preferences.

The result is the PAP—about 50 projects and programmes grouped into a set of general categories, though a number offer cross-sector benefits. The groupings are:

- *Energy*: hydropower, interconnections, pipelines (annex 1)
- *Transport*: connectivity, corridor modernization, ports and railways modernization (annex 2)
- *Water*: multipurpose dams, capacity building, water transfer (annex 3)

PIDA priorities are driven by the programme's strategic objective and by the African Union's 2004 vision statement, which called for "an integrated Africa, a prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena". PIDA projects adhere to the overall goals of regional infrastructure development and are in alignment with the AU vision and the priorities of the RECs.

Projects were prioritized based on three criteria categories: (1) eligibility and regional integration, (2) feasibility and readiness and (3) development impacts. These detailed criteria were discussed and agreed as part of the extensive PIDA consultation process with stakeholders. Projects selected for the programme have been assessed, selected and ranked based on subcriteria within each of these three groupings and were validated during the regional consultations, review processes and endorsement from sector ministerial meetings.

- *ICT*: capacity building, land interconnection infrastructure, internet exchange points (annex 4).

Africa is already making significant progress on regional infrastructure through projects such as the Mombasa-Nairobi-Addis Road Corridor, Tema-Ouagadougou-Bamako Road Corridor, Trans-Maghreb Road Corridor (TAH 1), Kazangula Bridge and Bamenda-Enugu Road Corridor. Projects and programmes under the PAP represent the first batch of agreed priorities resulting from the analysis, criteria review and consultations on the REC master plans. It represents the priority pipeline required to meet the PIDA outcomes. Projects that are ongoing or that have reached financial close are not included. The PAP is not static and will be updated regularly to reflect progress and make way for new priorities as Africa's needs continue to evolve. This reflects the need to ensure coherence with REC master plans and consistency with the PIDA strategic framework. Therefore, the PAP should be viewed not as a single list cast in stone, but as the first (and necessary) step in a dynamic process for delivering the PIDA programme over the next three decades.

During the consultations, the particular conditions of island states and fragile countries were acknowledged. The PAP includes maritime traffic and ports as essential elements in planning the transport corridors linking island states to the mainland and trade routes. The specific regional infrastructure needs of fragile countries are acknowledged

and will be continually reflected as PIDA is delivered over the next three decades.

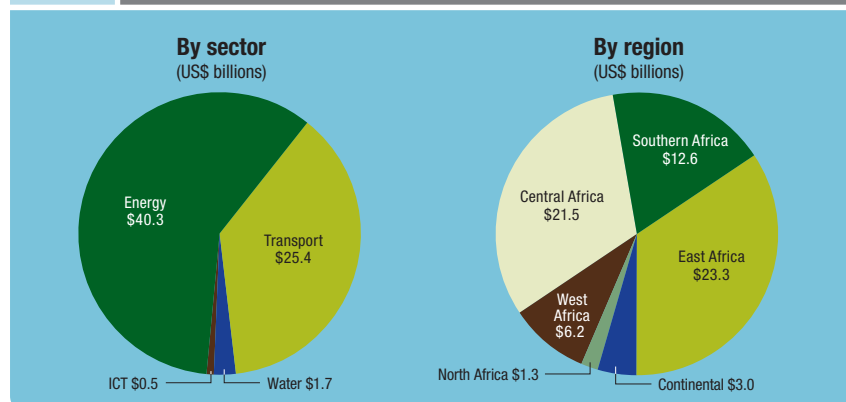
Programme costs: determining financing and investments

While it's difficult to accurately project the capital cost of PIDA's long-term implementation through 2040 (currently estimated at more than \$360 billion), the overall capital cost of delivering the PAP from 2012 through 2020 is expected to be nearly \$68 billion, or about \$7.5 billion annually for the next nine years (figure 1, box 3 and annex 5).

Energy and transport projects and programmes represent around 95% of the total cost, demonstrating the critical need for transformative investments in these sectors to support African trade, promote growth and create jobs. Investment needs for ICT and water represent lower percentages. The

Figure 1

Total capital cost of PIDA's PAP by sector and region: \$67.9 billion through 2020



Using the PIDA study's macroeconomic projections on growth and demand, the priority action plan was developed around a core set of vision statements and objectives, in alignment with Africa's long-term continental and regional strategies.

PIDA's Energy vision: PIDA will 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.

PIDA's Transport vision: To work towards an integrated continent where the transport infrastructure and services enable the free movement of goods and passengers by:

- Improving the connectedness of African capitals and major centres with modern paved roads and modern rail systems
- Satisfying demand on the African Regional Transport Infrastructure Network (ARTIN) routes at the least economic cost, with priority for landlocked countries, while minimizing the environmental impact of transport infrastructure and services
- Developing modern ARTIN corridors, including gateway ports and air transport services, to bring the performance

of ARTIN components up to best world practice in efficiency, cost, reliability and safety.

PIDA's Water vision: Promoting integrated water resource management to develop transboundary water infrastructure projects, strengthen transboundary management frameworks for regional integration and ensure water security for the socio-economic development of Africa by:

- Strengthening institutions for efficient cooperation on shared water resources
- Developing transboundary water infrastructure to meet increasing water demands while protecting people and the environment
- Strengthening finances for transboundary water development and management
- Improving knowledge on transboundary water basins and shared aquifers.

PIDA's ICT vision: To enable Africa to build an information society and an integrated digital economy in which every government, business and citizen has access to reliable and affordable ICT networks by:

- Doubling ICT's contribution to GDP from 5% to 10% by 2025
- Satisfying African broadband demand at the least cost, while increasing accessibility and security of access
- Promoting intra-African e-commerce
- Increasing physical integration at the regional and continental levels.

focus in the ICT sector is on enabling-environment reforms to promote private sector investment, along with investments to improve broadband connectivity. Fibre-optic investments along power transmission lines, road and railways are included in the energy and transport sector PAP. Many of the large water sector projects and programmes, such as hydropower facilities, are included among the energy sector costs. All projects and programmes in the PAP include accompanying soft measures to unlock the necessary investment requirements.

The capital investment required for 2020 is far below 1% of African GDP. And some of the actions have almost no financial cost but require political will and willingness to act.

Regional infrastructure will benefit all countries through economies of scale. But some will bear a higher cost than others, and the regional financing differences reflect the scale of investment required in certain countries and regions, such as the optimal development of the Inga site and associated transmission (in the Democratic Republic of the Congo). The principle of solidarity will be an important element of PIDA's success.

Financing strategy: rising to the challenge of investment and project preparation

The cost dynamics are clear. Under business-as-usual scenarios, funding sources for infrastructure for the PAP could optimistically

amount to about \$30 billion by 2020. But business-as-usual is not an option. PIDA will cost \$68 billion through 2020. How will the gap be closed? Where will the money come from?

Funding will rely on strong and committed national leadership to meet the expected financing gap. According to study estimates, financing expected from domestic sources (public or private) may represent over 50% of total PIDA funding as soon as 2020. The share would grow to about two-thirds in 2030 and as much as 75% in 2040. Official development assistance (ODA) will continue to play an important role, and major actors such as members of the ICA—which includes G20 countries, the EU-Africa Infrastructure Trust Fund, multilaterals, regional development banks and targeted funds, among other contributors—are called on to continue to increase assistance through 2040. But these ODA resources will not be enough, and they need to be used innovatively to leverage investments. They should not be relied on solely for a coherent financing strategy.

Countries will have to mobilize their own public and private domestic resources and attract foreign private investment (box 4). Private sector commitments to all infrastructure in Africa were nearly \$14 billion in 2010, rebounding to levels last seen in 2008, before the financial crisis. To attract private investment there is a need for countries to ensure a competitive market based on clear legislation with enforcement of commercial law and

transparency in procurement. Also needed are more competitive markets and banking systems. The absence of enabling legislation and regulations, a lack of local skills and a poor understanding of public-private partnership (PPP) risk allocation are all bottlenecks currently preventing many countries from fully unlocking private sector interest, particularly on regional projects. But if put to broader use, PPPs hold the potential for true transformational impact.

In addition to bringing in more private sector funds, Africa's visionary leaders must also embrace new and innovative sources of financing, critical to PIDA's success. Innovative thinking is already at work. In recent years, some African institutions have proven nimble in mobilizing finance to take advantage of the improving macro environment, putting important—and in some cases interrelated—funding instruments in place for development.

- *Infrastructure bonds* are used by many countries today. With them, South Africa finances toll roads, while Kenya has raised nearly US\$1 billion over the last four years to fund road, energy, water and irrigation projects. The Southern Africa Development Community, Common Market for East and Southern Africa and East African Community (Tripartite) is considering issuing regional infrastructure bonds in 2012.
- *Loan guarantees*, which help assure private investors, are crucial to implementing productive PPPs, as shown by the

Box 4

The role of public-private partnerships

Public-private partnerships (PPPs) are no longer a novel concept, and motivated governments can make PPPs a successful, sustainable and viable part of regional infrastructure development, says the ICA. The absence of enabling legislation and regulations, a lack of local skills and a poor understanding of PPP risk allocation are all bottlenecks currently preventing Africa from fully unlocking private sector interest.

Viewed simplistically, PPP risk allocation normally takes one (or both) of two forms. First, private partners are relieved of some

or all of the risks associated with investing large amounts of money in these projects. Second, private partners are compensated directly by governments for their work rather than by user fees from customers, who may be unwilling or unable to pay. With the help of donors and development banks, such projects are becoming more common in low-income countries. Although they are not widespread yet in Africa, PPPs are driving some regional projects such as the Ruzizi III hydropower plant. Put to broader use, they hold the potential for true transformational impact.

Maputo Development Corridor. When financing one of its toll-road projects, a road between Johannesburg and Maputo, South Africa found equity investors willing to put money in the project, but not without guarantees. Working with the Development Bank of South Africa, the South African government issued subordinated debt to underwrite the risk, giving equity investors the comfort to invest in the first PPP in South Africa.

- At the regional level, the RECs can also play an important role in innovative financing. The Economic Commission for West African States (ECOWAS) has been implementing a 0.25% *community levy* for decades. Most other RECs just rely on ODA funding or member contributions, neither of which is being constantly replenished like the ECOWAS excise tax, which yields a steady revenue stream deposited into the general fund.

Simply put, the scale of the required investments means that all possibilities need to be leveraged, including non-Organisation for Economic Co-operation and Development sources such as Arab Funds, Brazil, China and India. Opportunities for financial innovation, such as climate finance, must be recognized and seized.

Regional infrastructure development will not move forward without a sharper focus on project planning and preparation. The volumes of project preparation finance required for PIDA's transformative projects are substantial. The annual expenditures to prepare PIDA PAP projects are expected to be more than \$500 million, assuming that preparation costs average 7% of total investment costs. Preparation costs starting in 2012 will be smaller, at around \$200 million a year, and will build up progressively. A concerted effort is needed to ensure that an adequate volume of project preparation resources is made available from African domestic funding and other sources, such as multilateral development banks and project preparation facilities like the NEPAD Infrastructure Project Preparation Fund.

The efficiency of regional project preparation needs to substantially improve. For most African infrastructure initiatives, regional project preparation funding remains ad hoc and opportunistic, resulting in significant delays or repeated postponement of major projects. African countries and partners need to ensure that project preparation finance is aligned—and if necessary, consolidated—to avoid duplication of products and facilities that will continue to act as a brake on project development and ultimately delivery.

Implementation: identifying actors, responsibilities and required actions

Implementation will rely on all actors at all levels of the African development process taking coordinated action—AUC and NPCA at the continental level, the RECs at the regional level and, at the national level, the individual countries on whose territory the projects will be constructed and whose populations should benefit from them.

The process is grounded in the Institutional Architecture for Infrastructure Development in Africa (IAIDA), the implementation strategy for the PIDA programme and its related projects. Based on IAIDA, the continental bodies (AUC, NPCA) will be focused on monitoring and advocacy of the implementation process at the continental level. At the project level, implementation progress will be monitored by RECs according to individual sector arrangements. The RECs have a key responsibility in assuring the harmonization and implementation of “soft” policy measures across countries. They will also inform the continental bodies responsible for keeping policymakers and Heads of State and Government informed of overall progress.

The responsibility for devising master plans and identifying integrative regional infrastructure lies at the regional and national levels. The responsibility for updating PIDA rests with the NPCA in close cooperation with the RECs and their specialized institutions. This periodic planning exercise will

be undertaken at least every five years and include a revised outlook for the future and PAP.

As Africa's regional building blocks, RECs are considered the linchpins in planning and monitoring PIDA projects. With their long-term visions and regional interests at heart, they and their agencies are well positioned to plan and monitor. Because the RECs and their agencies lack adequate human and technical capacity to fulfil their role, the Institutional Architecture and other ongoing programmes are helping address this. Because RECs are not structured as implementing agencies, it is countries that will have to rely on experienced developers, public or private, to carry out implementation on the ground. It is countries that will drive and own projects. And it is countries that will create the special purpose vehicles needed for each project. That is why countries will have to marshal the resources and build the capacity essential for preparing, implementing, operating and maintaining projects. This process will not always be easy, but it is necessary, and it has already proven successful in Africa (box 5).

Implementing infrastructure is always complex—more so for regional projects with many stakeholders. For PIDA implementation to succeed, coordinated action must be taken all along the project chain, starting with the Heads of State and Government,

who must provide political leadership and set the agenda. Country governments and financial institutions, such as the African Development Bank, must provide financial leadership. Political leadership, as well as financial leadership, is required to avoid the mistakes of past regional infrastructure efforts. And at the regional level, RECs and the selected implementing agencies must ensure that countries involved are united and that project developers are skilled.

The requirements for different projects in different regions will naturally differ. Given these realities, PIDA's impact will rely on a few key success factors in the implementation process:

- *Adherence to AU values of subsidiarity and solidarity.* Decisions in a hierarchical system are best taken at the lowest level possible, where accountability should also reside. For PIDA, this means that continental bodies should not undertake actions better handled by the RECs. The RECs in turn will defer to member states on items they are better equipped to handle. The actions at all levels should be complementary.
- *Strong local ownership.* PIDA will avoid previous traps associated with regional infrastructure development, whereby projects ended incomplete or without adequate ownership responsibility for continued work and maintenance. All

Box 5

A model of successful implementation

The Ruzizi III project—a \$450 million, 145-megawatt hydro plant located on the Ruzizi River flowing between Lake Kivu and Lake Tanganyika—offers more than much-needed electricity to Rwanda, Burundi and the Democratic Republic of the Congo. It also offers a blueprint for successful infrastructure development through regional integration.

The first regional PPP power project in Africa, Ruzizi III is expected to leverage more than 50% commercial financing (debt and equity), with majority private ownership. With a high level of interest from major international investors and financing institutions, the project can boast of a finance plan that is practically complete and of a true regional partnership at its foundation. Overseen by a regional

entity formed by the three beneficiary countries to develop projects of common interest, the framework for Ruzizi III has been successfully developed, despite its complex public-private structure, over a period of 18 months for a number of key reasons, perhaps none more important than effective project preparation and management.

The project, part of the PIDA PAP, offers many valuable lessons for how sound structuring can attract commercial financing and lead to timely implementation, including: installing a dedicated and experienced predevelopment team, good communication with countries to maintain support, targeted capacity building, rapid execution of preparatory studies and the availability of substantial preparation funds.

PIDA projects are aligned with regional priorities and are the result of extensive bottom-up consultation and review.

- *Quick starts and early wins.* Programme sponsors are interested in seeing quick progress on the ground in construction and commissioning of facilities. Several shovel-ready projects that are well advanced are included in the PAP: hydropower generation projects such as Rusumo Falls, Ruzizi III, Kaleta and Sambagalou, transport projects such as Gambia Bridge, and ICT land infrastructure.
- *Shared responsibilities.* PIDA is for all Africans. All Africans, in turn, must support it by whatever means they are capable. Obviously, the greatest weight of this responsibility falls on the shoulders of leaders. The sense of well-studied pragmatism and African ownership underlying the programme will be validated and affirmed only if Heads of State and Government accept a strong leadership role and move Africa to the next level of regional integration.

The way forward: embracing Africa's shared responsibility

Today, Africa is the least integrated continent in the world, with low levels of intraregional economic exchanges and the smallest share of global trade. Infrastructure inefficiencies are costing tens of billion dollars annually and stunting growth. For Africa to reach its potential there must be a shared commitment by all countries and by all stakeholders to work together on this common agenda and speak with one voice, so that the difficulties in launching and implementing a large-scale regional infrastructure project can be addressed.

Here is what Africa will look like by 2040 if regional integration is pursued effectively and if all countries and leaders embrace the shared responsibility of PIDA.

- Africa's competitiveness will be established in niche markets and in a growing

spectrum of mainstream activities, including agriculture and manufacturing

- Africa's share of world trade will be much higher, at least twice today's share of 2%
- Up to 15 million new jobs will be created for the construction, operation and maintenance of PIDA projects, with many more millions created indirectly through the increased economic activity they will enable
- Intra-African trade shares will double from the current levels of 11–12%
- Water resources and basins will be secured for future generations
- ICT bandwidth will handle demand swells by a factor of 20
- Access to electricity will be no less than 60% in any African country, providing access to an additional 800 million people.

The positive outcomes are endless. With a robust regional trade system powering advanced international trade, and with sustained economic growth and job creation to meet the demands of a surging population, Africa will reach new heights. But it all starts with making the right infrastructure investments, in the right place, at the right time. The time for action is now, and PIDA offers the only path forward.

The programme's ultimate success—and thus Africa's infrastructure future—will depend on Heads of State and Government serving as champions for these projects. Heads of State and Government must set the tone, keep the momentum alive and provide critical national leadership by working together and showing an unwavering commitment to integrated policies, projects and goals. They should create an enabling environment for the private sector, and they should ensure that priority commitments filter down through top executing agencies and ministries. The progress of the Presidential Infrastructure Champion Initiative has shown how involvement at the highest level can move complex regional projects forward by removing barriers to progress.

Successfully implementing PIDA also means tackling the soft governance issues necessary for true regional integration—harmonization, facilitation, monitoring, maintenance and peer review—and, when necessary, establishing a legal framework for action through legislation. Regional trade agreements already in place need to be enacted, while regulatory reform should address standards and policies that currently restrict free trade and the flow of goods and services.

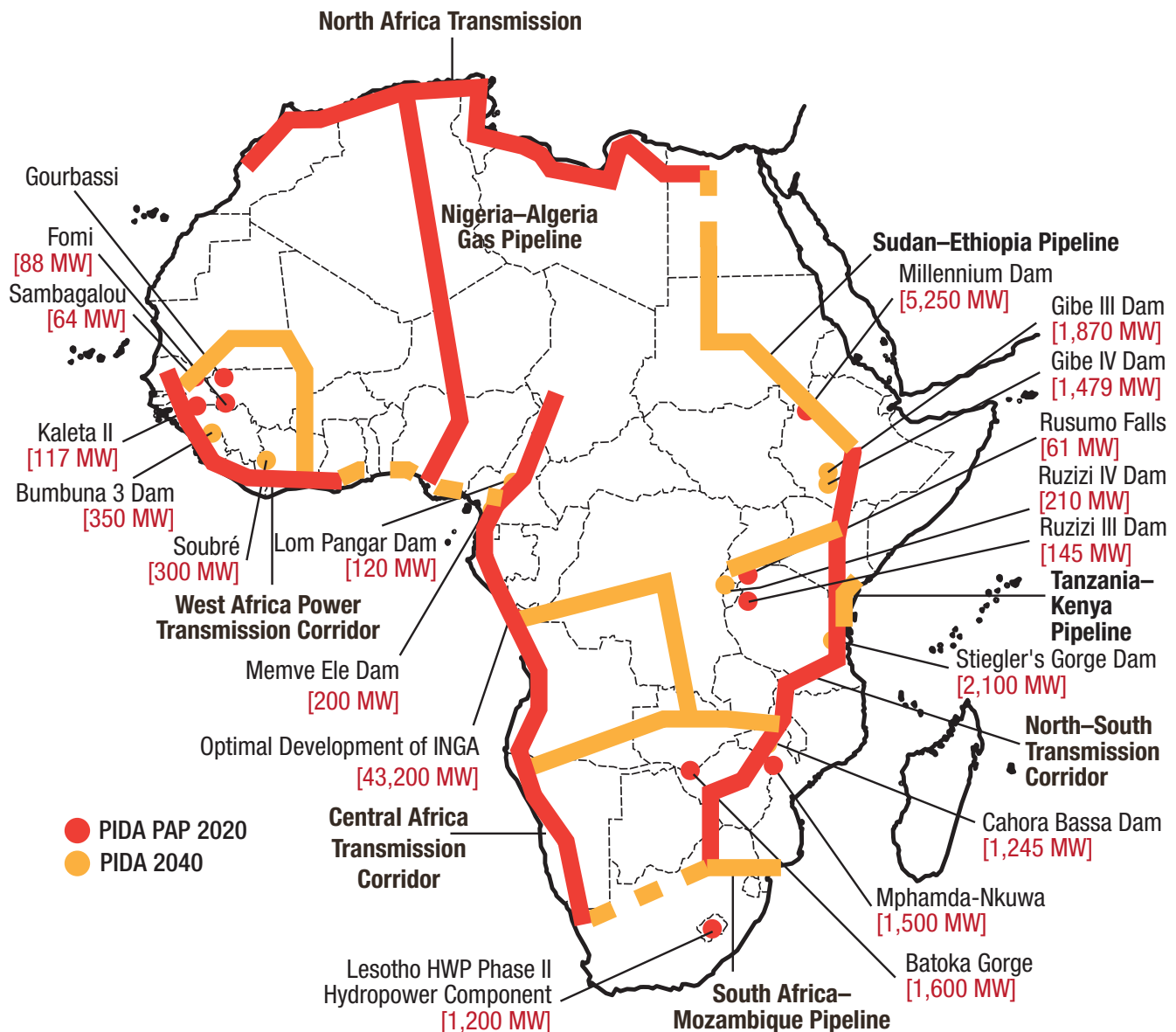
These actions are urgent and need to move in parallel to physical infrastructure development. They depend on building coherent policies and institutions, while working through differences and across borders to ensure that PIDA stays on track. In some cases, countries may be faced with the need to make difficult

sovereignty choices, including increased reliance on neighbours, which can understandably be difficult and politically sensitive. This is why visionary leadership is required at the highest levels of government, and why all African leaders are asked to accept their mutual responsibility.

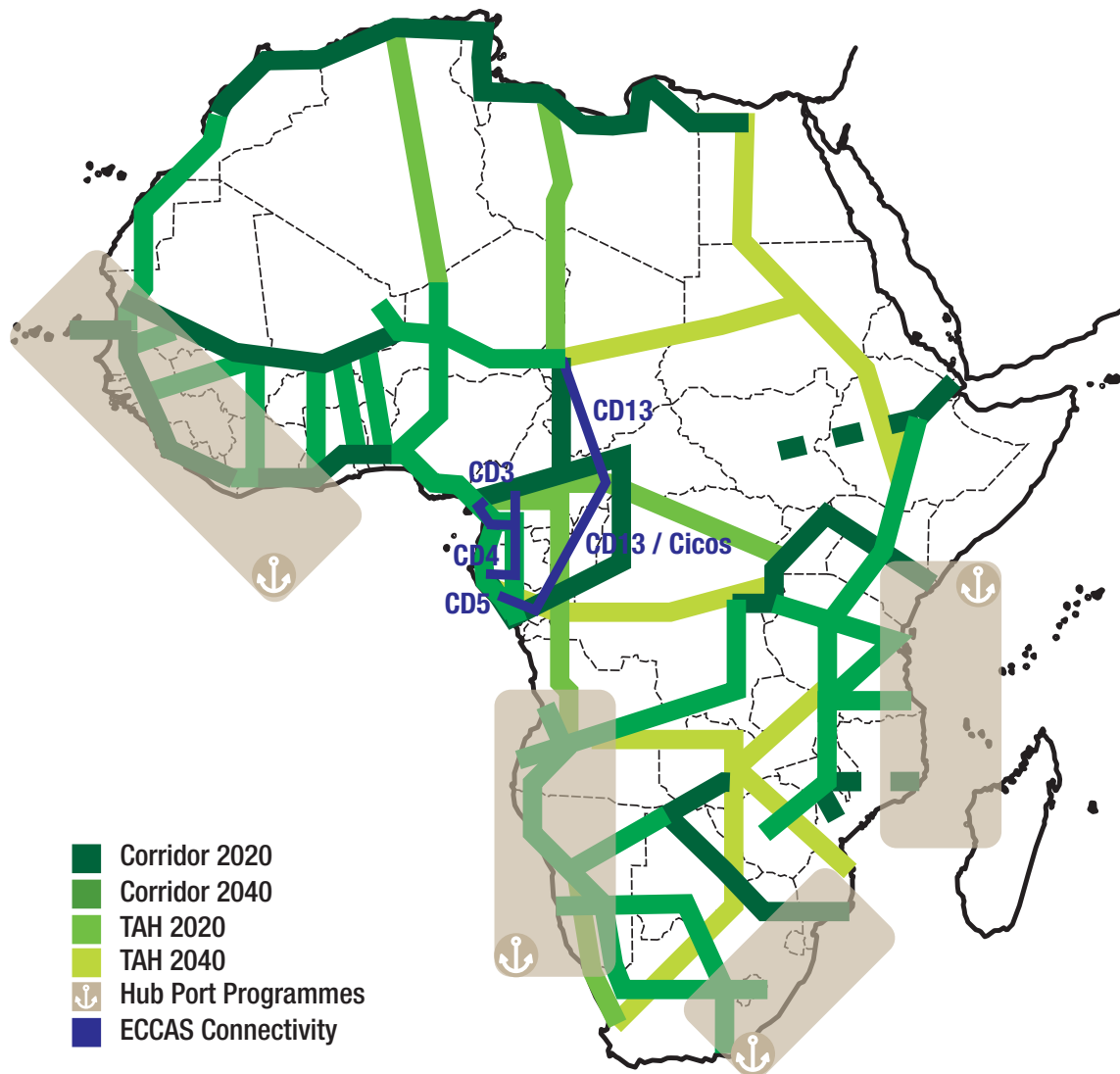
For Africa, the issue is not whether countries should pursue a regional integration strategy; there is a political consensus and socioeconomic impetus to do so. The challenge is to implement policies and projects and to create conditions that will result in stronger markets, enhanced trade integration and sustainable growth to benefit the people and nations of Africa. PIDA, as *the* African-owned and African-led programme initiative, is a way to meet that challenge.

PIDA's energy impact

The energy infrastructure programme focuses on major hydroelectric projects and interconnects the power pools to meet the forecast increase in demand. Regional petroleum and gas pipelines are also included.

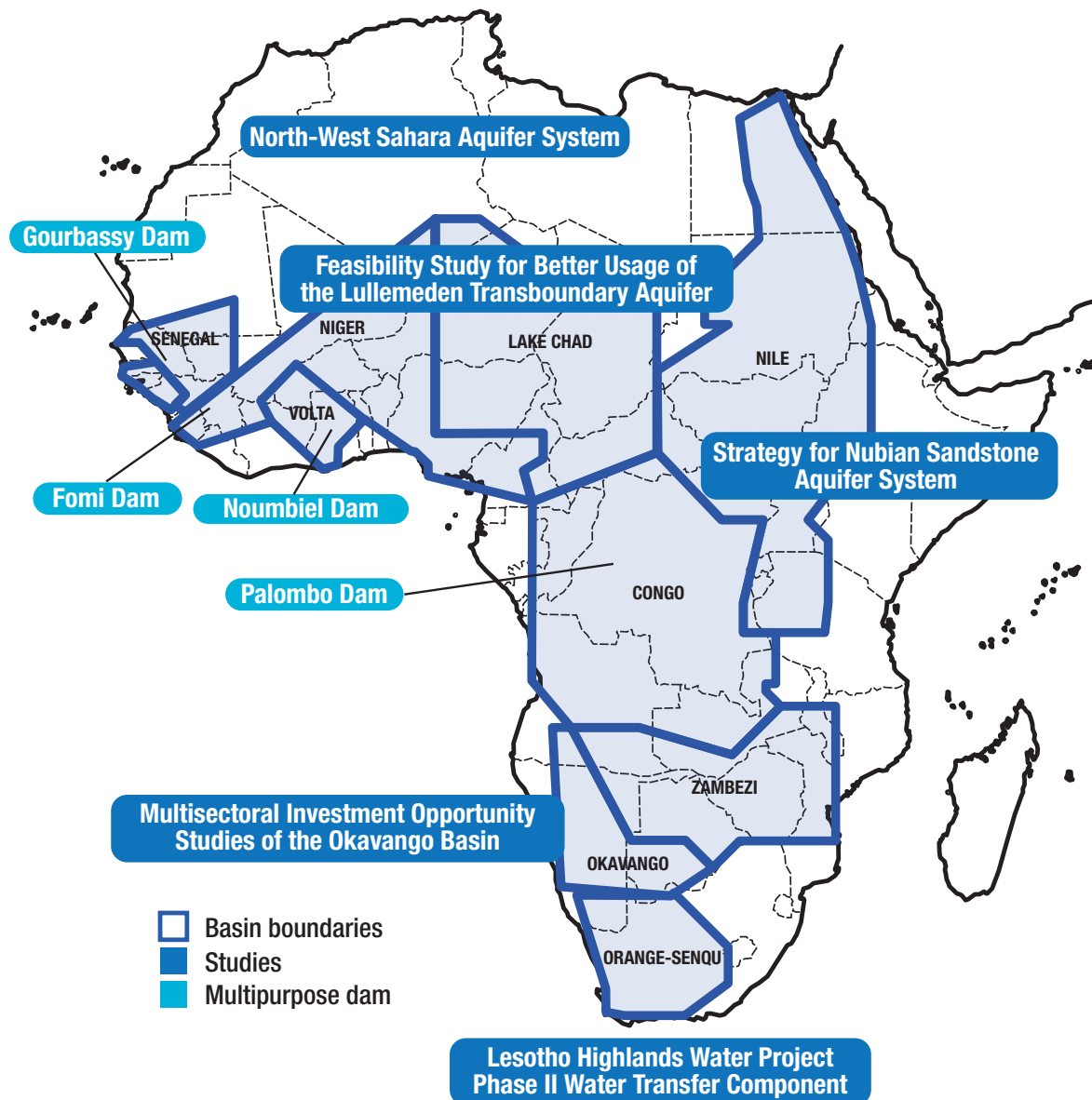


The transport programme links the major production and consumption centres, provides connectivity among the major cities, defines the best hub ports and railway routes and opens the land-locked countries to improved regional and continental trade.

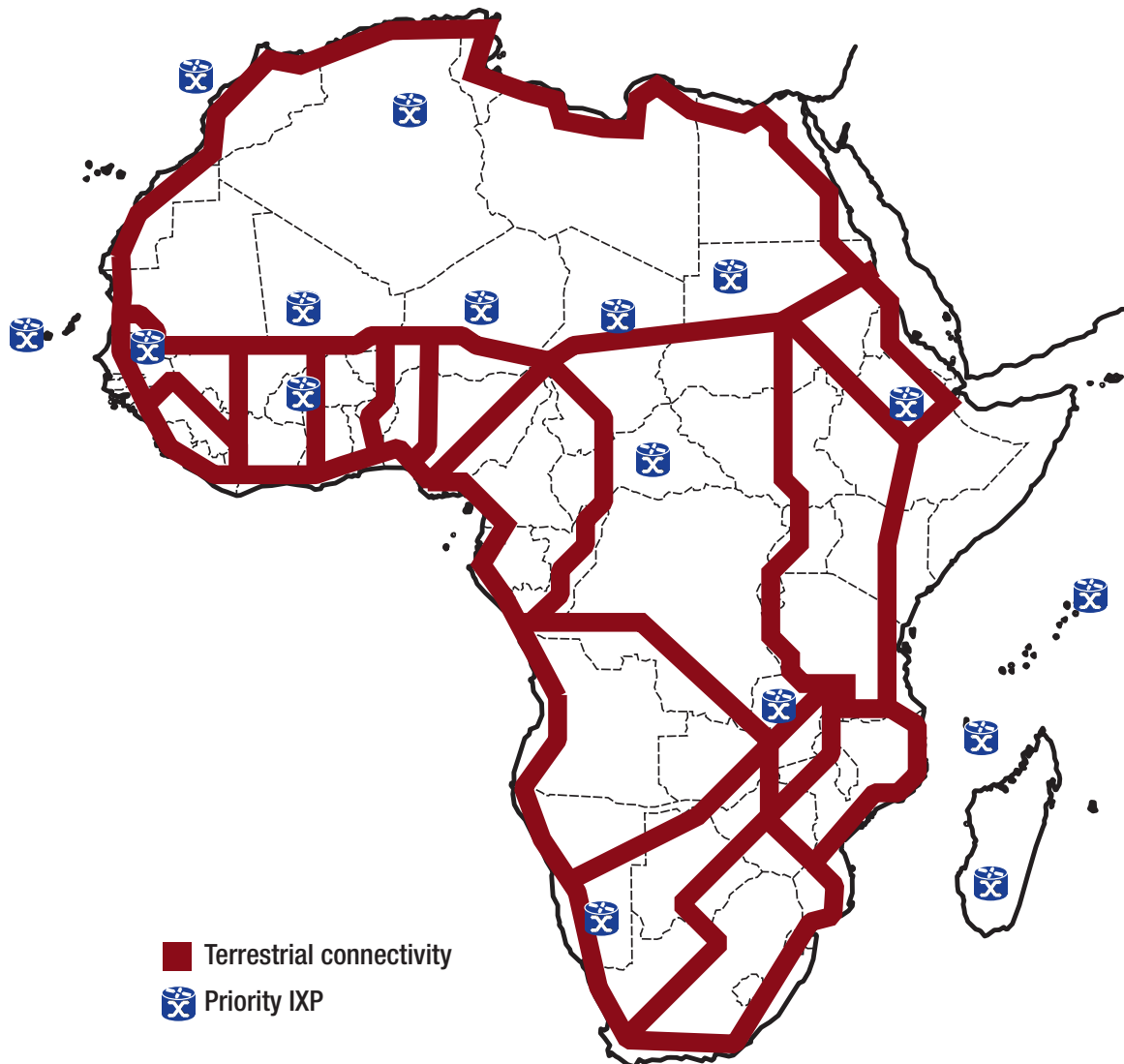


PIDA's transboundary water impact

The transboundary water programme targets the development of multipurpose dams and builds the capacity of Africa's lake and river basin organizations so that they can plan and develop hydraulic infrastructure. It would also help address the looming food deficit.



The ICT programme will establish an enabling environment for completing the land fibre-optic infrastructure and installing internet exchange points in countries without them. It will connect each country to two different submarine cables to take advantage of the expanded capacity.



PIDA Priority Action Plan: summary tables of sector projects and programmes

Projects and programmes under the PAP represent the first batch of agreed priorities resulting from the analysis, criteria review and consultations on the REC master plans. It represents the priority pipeline required to meet the PIDA outcomes. Projects that are ongoing or that have reached financial close are not included. The PAP is not static and will be updated regularly to reflect progress and make way for new priorities as Africa's needs continue to evolve. This reflects the need to ensure coherence with REC master

plans and consistency with the PIDA strategic framework. Therefore, the PAP should be viewed not as a single list cast in stone, but as the first (and necessary) step in a dynamic process for delivering the PIDA programme over the next three decades.

PAP project stages are defined as follows:

- S1 – early concept proposal
- S2 – feasibility/needs assessment
- S3 – programme/project structuring and promotion to obtain financing
- S4 – implementation and operation.

Table 5.1 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 export	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, OMVG	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 – OMVG	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

* The Grand Ethiopian Renaissance Dam (GERD) is under construction in the Abbay Gorge by the Government of Ethiopia (GoE). The GoE is convinced that the Dam has huge benefit to all the three riparian countries, namely Egypt, Ethiopia and Sudan. Egypt and Sudan have concerns on the impacts of the Dam upon them. To that end, the GoE has invited in good faith the two downstream countries Egypt and Sudan to form an International Panel of Experts to review the design documents of the GERD, provide transparent information sharing and to solicit understanding of the benefits and costs accrued to the three countries and impacts if any of the GERD on the two downstream countries so as to build trust and confidence among all parties.

Table 5.2 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

Table 5.2 PIDA PAP—transport sector (continued)

Programme	Description	Stage	Cost (US\$ millions)	Countries	REC	Region
14. Praia-Dakar-Abidjan Multimodal Corridor	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. 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	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-N'djamena 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

Table 5.3 PIDA PAP—transboundary water resources 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. Gourbassy	Multipurpose dam located in Guinea: regulation of the Senegal river (four countries)	S2	NA	Senegal River Basin	ECOWAS	Western
6. Noumbiel	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

Table 5.4 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