

“Assembly Lines” for Project Development:

The Role of Infrastructure Project Preparation Facilities (PPFs)

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Acronyms

ADB	Asian Development Bank	GII	Global Infrastructure Initiative
AfDB	African Development Bank	GIZ	German Development Agency / Gesellschaft für Internationale Zusammenarbeit
AIF	ASEAN Infrastructure Fund	HAPUA	Heads of ASEAN Power Utilities/ Authorities
AIIB	Asian Infrastructure Investment Bank	HLP	High Level Panel on Infrastructure
AP3F	Asia Pacific Project Preparation Facility	IADB	Inter-American Development Bank
APG	ASEAN Power Grid	ICA	Infrastructure Consortium for Africa
API	Integration Priority Project Agenda / Proyectos Prioritarios de Integración	ICT	Information and Communication Technology
ASCOPE	ASEAN Council on Petroleum	IEA	International Energy Agency
ASEAN	Association of Southeast Asian Nations	IIRSA	Initiative for the Integration of Regional Infrastructure in South America / Iniciativa para la Integración de la Infraestructura Regional Suramericana
AUC	African Union Commission	kV	kilovolt
B20	Business 20	LNG	Liquefied Natural Gas
BNDES	Brazilian National Development Bank / Banco Nacional do Desenvolvimento Econômico e Social	MDB	Multilateral Development Bank
BRICS	Brazil, Russia, India, China, South Africa	NDB	New Development Bank
BWG	Business Working Group	NEPAD	New Partnership for Africa's Development
CAF	Latin American Development Bank / Corporación Andina de Fomento	NEPAD IPPF	NEPAD Infrastructure Project Preparation Facility
CCT	Technical Coordination Committee / Comité de Coordinación Técnica	PAP	Priority Action Plan
CDB	Chinese Development Bank	PIDA	Programme for Infrastructure Development in Africa
COMESA	Common Market for Eastern and Southern Africa	PPF	Project Preparation Facility
COSIPLAN	South American Infrastructure and Planning Council / Consejo Suramericano de Infraestructura y Planeamiento	PPIAF	Public-Private Infrastructure Advisory Facility
COSIPLAN PAE	COSIPLAN Strategic Action Plan / Plan de Acción Estratégico	PPIU	Project Preparation and Implementation Unit
EAC	East African Community	PPP	Public-Private Partnership
EIB	European Investment Bank	REC	Regional Economic Community
EU-AITF	European Union-Africa Infrastructure Trust Fund	RIIF	Regional Infrastructure Integration Fund / Fondo de Integración de Infraestructura Regional
FIRII	Fund for Integration Infrastructure / Fondo de Infraestructuras de Integración	SADC	Southern African Development Community
FONPLATA	Financial Fund for the Development of the River Plate Basin / Fondo Financiero para el Desarrollo de la Cuenca del Plata	SE4All	Sustainable Energy for All
G20	Group of 20	T20	Think 20
G20 DWG	G20 Development Working Group	TAGP	Trans-ASEAN Gas Pipeline
GIF	Global Infrastructure Facility	TWh	Terawatt Hour
		UNASUR	Union of South American Nations / Unión de Naciones Suramericanas

“Assembly Lines” for Project Development: The Role of Infrastructure Project Preparation Facilities (PPFs)

1. Introduction

Several international fora such as the Group of 20 (G20) and the BRICS identified policy priorities, particularly economic growth and job creation, for the future. Repeatedly, infrastructure development is highlighted as a major means to achieve these goals globally. Policy-makers see infrastructure services in the energy, water, transport, and telecommunication sectors as playing a pivotal role in securing the natural resources needed for industrial activities and in accessing new markets to guarantee economic growth through import and export activities. Funding for infrastructure projects in developing countries, however, is hard to obtain. The G20’s engagement partners from the business sector (B20) point out that until 2030, additional infrastructure capacity worth approximately US\$60-70 trillion will be needed globally. Under current conditions, public and private investments could provide about US\$30-35 trillion and US\$10-15 trillion, respectively, leaving a gap of US\$15-20 trillion.¹

To close this gap, long-term financing will be needed and the G20, the BRICS and several multilateral development banks (MDBs) have taken steps to attract this investment.² Pursuing a new model of financing infrastructure development, various initiatives and institutions are being launched – e.g., the BRICS’ New Development Bank (NDB), the China-led Asian Infrastructure Investment Bank (AIIB), and the G20’s Global Infrastructure Initiative (GII) - to increase the investment in this area. Policy-makers expect the private sector to play a major role in financing mega-projects in developed and developing economies.

The dominant view on infrastructure development has changed over the last decades. In the past, a lack of policy reform in developing countries was viewed as the greatest barrier to infrastructure investment - particularly for the private sector. Recently the lack of bankable,

investment-ready and well-prepared projects is viewed as the key constraint for infrastructure development.³

As a result, apart from ramping up funding for infrastructure projects, attention shifted to improve existing Project Preparation Facilities (PPF) and create new ones. Their main objective is to invest in the early stages of project preparation, which involve high risk activities that are not attractive to the private sector for many reasons, e.g., the project may not be feasible and no return is generated.. The long term goal is to cut the time span from project development to financial closure from now approximately 7 years to 3 years maximum.⁴ This is especially worrisome as the promoted mega-projects require a structured, sophisticated project management. A rush in the early stages will most likely have adverse effects on the thoroughness of work, including reviews of least cost alternatives, identification of best available technology, consultation with stakeholders, and economic, environmental and social impact assessments. The wave of new PPFs only makes the picture more complex and creates a landscape of competing entities with overlapping mandates.

2. New Financial Architecture for Infrastructure Investments

A global consensus is emerging around a new model for financing infrastructure investment and development. The consensus puts infrastructure development at the core of strategies to accelerate economic growth and job creation. The new model relies on four elements that shall promote a scale-up of private sector involvement and a speed-up of project realization: 1) an enabling environment, i.e., legal and regulatory frameworks, should be offered that attract private investors and facilitate Public-Private Partnerships (PPPs); 2) “pipelines of bankable projects” (mainly mega-projects) should be identified especially in the energy, transport and water sectors to spur economic integration and trade; 3) new and existing PPFs shall have responsibility

1 See: [B20 Infrastructure and Investment Taskforce Policy Summary, July 2014](#), p.6.

2 See: [G20 Leaders’ Communiqué, November 2014](#); [BRICS Fortaleza Declaration and Action Plan, July 2014](#); [Statement by the Heads of the Multilateral Development Banks and the IMF on Infrastructure, November, 2014](#).

3 See: [B20 Infrastructure and Investment Taskforce Policy Summary, July 2014](#), p.8.

4 See: <http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa50-infrastructure-fund/background/>

for filling project “pipelines”; and 4) public money (e.g., taxes, pensions) shall be used to “de-risk” projects in order to attract private and institutional investors.

The new model has consensus on the international level, having been embraced by the G20, the BRICS and emerging economies. It already forms the basis for several regional and national infrastructure development strategies and rising global competition between the West and emerging economies around its implementation. A wave of new institutions being created by both factions in the last months is one symptom of this competition. China is a key actor in the scenario, being involved in the establishment of 7 infrastructure related agreements, facilities or initiatives in the last several months – including the NDB of the BRICS and the AIIB. These establish a counter balance to the traditional (mostly) Western-led financial institutions such as the US-led World Bank and the Japan-led Asian Development Bank. The mostly Western-led MDBs are undertaking very significant types of collaboration on infrastructure development. In October 2014, the World Bank launched a multi-donor trust fund, the Global Infrastructure Facility (GIF).⁵ Surprisingly, the World Bank-led GIF was launched only a month before the launch of the G20’s GII, including a Global Infrastructure Hub. The two new institutions have a strikingly similar mandate.

Infrastructure Development for Whom?

Infrastructure development is urgently needed in most countries. However, the pillars of the new model for financing infrastructure development are problematic for several reasons.

Firstly, preferring mega-projects over “appropriate scale” projects raises the question of who the beneficiaries of the infrastructure projects are likely to be. Several case studies show that mega-projects rarely benefit citizens and communities, but related industries; that projects are imposed on the population without giving them the opportunity to be involved in the decision-making process.⁶

Secondly, there is also a bias in favor of public-private partnerships (PPPs) over traditional public works, which cannot be justified when looking at the empirical data. A

review of the World Bank’s experience with PPPs⁷ shows that, whether private partners can provide “additionality” depends upon whether they can improve efficiency and results on efficiency are “mixed” at best. With its sample of 128 projects, there are no conclusions about effects (positive or negative) on the poor; success is defined as “profitability” and the lack of monitoring, especially over the long-term (after project construction) creates a vacuum of data about social and environmental impacts. In many cases, the intent in creating more effective PPFs is to find standardized ways to carry out the selection, design and financing, and procurement for PPPs. In most cases, projects shall be prepared to meet private investors’ interests leaving social and environmental safeguards to guide project selection and prioritization to be of secondary importance.

Lastly, the bias against public works and – instead – offsetting the risk of the private sector in infrastructure development is a dangerous approach. At early stages of the project cycle, there is no guarantee that projects will come to financial close. Projects will depend upon public resources (e.g., taxes, pensions) to finance the preparation of projects up until a stage where it is profitable for the private sector and institutional investors (e.g., pension funds) to “take over”.

This scenario makes one wonder whether project pipelines created under the rubric of regional integration, economic growth and job creation on every continent are actually selected in the best interest of citizens and communities in need of sustainable infrastructure services – or private investors looking for high returns.

3. Project Preparation Facilities

PPFs are used as a means to guarantee a sustainable supply of bankable, investment-ready projects. They can generally be defined as entities that provide technical and financial support to project preparation activities (with greater emphasis on the financial aspect). The overarching goal of project preparation activities is to develop a project to a point where it attracts sufficient interest from other investors. The World Bank estimates the share of project preparation cost in total project cost to be between 5% and 10%.

Different PPFs have different definitions of “project preparation.” (See Appendix 1.) The main difference is

⁵ More on the new developments in recent months see: Alexander, N. (2014): “[The Emerging Multi-Polar World Order: Its Unprecedented Consensus on a New Model for Financing Infrastructure Investment and Development](#)”; Alexander, N. (2014): “[The G20 Adrift: Selected Outcomes of the 2014 Summit](#)”

⁶ See: [Infrastructure – for people or for profit? The crucial role of responsible and democratic governance](#) (2014)

⁷ See: The Independent Evaluation Group (2014): “[World Bank Group Support to Public-Private Partnerships: Lessons from Experience in Client Countries, FY02-12](#)”

whether the first stage – creating an enabling environment – is seen as part of the project preparation (and therefore can be funded) or as a prerequisite for successful project preparation.⁸

The landscape of PPFs is very diverse, fragmented and at points confusing. Apart from being focused on different sectors (e.g., infrastructure, buildings, agriculture), PPFs can have a regional focus or a specialization with respect to a specific project preparation stage, among other things. Furthermore, there are different hosting arrangements. Many PPFs are hosted by MDBs, but others are hosted by other institutions, regional economic communities (RECs), or nations.

One of the main intentions of this paper is to look at the role that infrastructure PPFs play in the realization of regional infrastructure development strategies. Energy infrastructure projects shall be the focus of the analysis. We will look at one representative initiative on each continent (except Europe and North America). These are the Programme for Infrastructure Development in Africa (PIDA); the Master Plan on ASEAN Connectivity in Asia; and the Council of Infrastructure Planning (COSIPLAN) of the Union of South American Nations (UNASUR) in Latin America.

3.1 Infrastructure Development in Africa

Africa is confronted with major challenges with regard to its infrastructure development. The World Bank estimates the funding gap for this sector to be US\$93 billion per year until 2020. The energy sector is the one most in need of investment. In 2010, African leaders created PIDA⁹ as a blueprint for the continent. Its regional projects cover the energy, transport, information and communication technologies (ICT) sectors and trans-boundary water resources. The PIDA initiative is driven by three key African institutions: the African Union Commission (AUC); the New Partnership for Africa’s Development Planning and Coordination Agency (NEPAD Agency); and the African Development Bank (AfDB).

In consultation with the respective RECs, a priority action plan (PAP) comprising 51 projects has been identified as key to PIDA’s aim to “boost trade, spark growth, and create jobs”¹⁰ (see Appendix 2.1). Together, the cost

of these projects were estimated at US\$68 billion from 2012 to 2020.

Sector-based Analysis

In terms of numbers, most PAP projects fall into the transport sector. However, with regard to project cost, the energy sector takes up almost two third of the total cost of the priority projects. Appendix 2.2 shows the shares of the different sector in the PIDA PAP projects both in terms of numbers of projects and cost.

With the majority of energy projects being hydroelectric dams, the understanding of clean and sustainable energy within the PIDA PAP framework is highly questionable. That is, it is unclear whether PIDA takes into account the depletion of water resources as a result of climate change or the social impacts of mega-dams. Among the 15 PAP projects in the energy sector, 9 are hydroelectric dams, in addition to 4 hydropower projects listed for the water sector (Palambo, Fomi, Gourbassy, Noubiel). Furthermore, more than half of the energy projects identified as priorities for the continent can be characterized as mega-projects, which are defined as projects that cost more than US\$1 billion (see Appendix 2.3).

3.1.1 The Africa50 Fund and the Role of PPFs in PIDA

As noted above, the total estimated cost of PIDA’s PAP has been identified as US\$68 billion between 2012 and 2020. The Infrastructure Consortium for Africa (ICA) has pointed out the need to increase project preparation spending on these projects by US\$200 million – US\$500 million per year for the above timeframe.

Mobilizing these resources is the job of a new facility in the landscape, established to be “Africa’s largest infrastructure delivery vehicle. Created in 2014 as a commercial entity,¹¹ the **Africa50 Infrastructure Fund** is attracting private financing specifically to speed up the delivery of infrastructure projects – from the current 7 years that it takes on average from project idea to financial close shall be shortened to 3 years maximum. In order to do so, Africa50 will rely on two business segments: project development which includes early stage project development activities; and project finance which aims at delivering financial instruments to attract further investment to the African continent.

Africa50 has been established by the AfDB but operates as a separate commercial entity. Its current pipeline,

⁸ The G20 DWG’s report on PPFs in Asia for example works with a framework that excludes enabling environment. The project preparation starts with the project definition.

⁹ See: Dr. Qobo, M. (2014): “[High Ambitions and High Risks: Programme for Infrastructure Development in Africa \(PIDA\)](#)”

¹⁰ Brochure “[Programme for Infrastructure Development in Africa. Interconnecting, integrating and transforming a continent,](#)” p.iii.

¹¹ <http://www.afdb.org/en/news-and-events/article/afdb-and-made-in-africa-foundation-launch-fundraising-for-africa50-infrastructure-fund-12313/>

which includes PIDA projects, will need estimated investments of US\$10 billion aiming at “attracting US\$100 billion worth of local and global capital”¹².

According to many business groups, the lack of a bankable project pipeline is the key failing in infrastructure development. Therefore, new and existing PPFs are seen as the solution. A study commissioned by the G20 Development Working Group (DWG) looked at the PPF landscape in Africa and identified 67 potential sources of funding for project preparation.¹³ Excluding the national PPP units, the report counts 17 core facilities that focus on supporting infrastructure project preparation activities (see Appendix 2.4). For this purpose, PPFs have been defined as “holders of more than US\$5 million ‘ring-fenced’, non-allocated funds”.¹⁴ These numbers already anticipate the report’s conclusion: 1) the large number of PPFs active in Africa does not guarantee a proper project preparation in the infrastructure sector - as only a quarter of them focuses on infrastructure (IPPFs). And 2) many of those lack financial support and their contribution to preparation activities of mega-projects would only be a drop in the bucket (see paragraph “Findings of the G20 DWG’s Review on PPFs in Africa”).

With regard to preparing the PIDA priority projects, there is no clear information available on which IPPFs are involved. However, the ICA Assessment of PPFs for Africa evaluated the IPPFs according to their current and future relevancy with the latter taking into account “PIDA and other ambitions”:¹⁵

Current Relevancy			
Future Relevancy	High	Medium	Low
High	PPIAF; NEPAD IPPF; EU-AITF; PPIU		
Medium	AIP; InfraCo Africa; InfraVentures; PIDG-TAF	DEVCo; NEPAD PPFs; AWF	
Low		SADC PPDF; DBSA-EIB PDSF	ESMAP

Source: ICA (2012): “[Assessment of Project Preparation Facilities for Africa. Volume A: Diagnostics and Recommendations](#),” p.65.

We describe the four IPPFs said to be of high future relevancy: the NEPAD Infrastructure PPF Special Fund; the Public-Private Infrastructure Advisory Facility (PPIAF); the EU-Africa Infrastructure Trust Fund (EU-AITF); and the Project Preparation and Implementation Unit (PPIU) established by three RECS: COMESA-EAC-SADC.

With NEPAD and the AfDB being two of the driving forces behind PIDA, it is not surprising that the work of the **NEPAD Infrastructure Project Preparation Facility (IPPF) Special Fund** – a multi-donor trust fund managed by the AfDB – has been guided by the PIDA initiative since its adoption in 2012.¹⁶ The Fund relies on a variety of financial contributions from Canada, the UK, Norway, Denmark, Germany, and Spain.¹⁷ Furthermore, NEPAD IPPF works with a number of African programs, among them PIDA. It has “adopted the PAP and incorporated it in its Strategic Business Plan 2011-2015, giving it priority in its work plan for the specified duration of time. In 2013 alone [NEPAD] IPPF ha[s] accepted 23 PAP projects into [its] pipeline.”¹⁸

Despite this seemingly high involvement of the NEPAD IPPF with PIDA, the German Development Agency GIZ works together with the NEPAD Agency to create a new Technical Assistance Facility to further “accelerate PIDA project preparation,”¹⁹ especially focusing on support to RECs, member states and specialized agencies such as the African power pools. One wonders how this new facility will add value in comparison to NEPAD IPPF and other IPPFs operating on the continent.

The **Public-Private Infrastructure Advisory Facility (PPIAF)** “is a multi-donor trust fund that provides technical assistance to governments in developing countries in support of the enabling environment conducive to private investment, including the necessary policies, laws, regulations, institutions, and government capacity.”²⁰ It was launched in 1999, is managed by the World Bank through a Program Management Unit and financed by 16 multilateral and bilateral donors.

Unfortunately, the latest annual report (2013) does not talk of the PIDA initiative explicitly, but looking at the share of projects supported in Africa, we might get an idea of the importance this initiative in the future. In the fiscal year 2013, PPIAF released US\$8.5 million

12 <http://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa50-infrastructure-fund/background/>

13 See: The Infrastructure Consortium for Africa (ICA)(2012): “[Assessment of Project Preparation Facilities for Africa. Volume A: Diagnostics and Recommendations](#),” p.24.

14 Ibid. p.25.

15 See: ibd. p.65.

16 See: [NEPAD IPPF 2012 Annual Report](#)

17 See: <http://www.nepad-ippf.org/about-ippf/our-partners/our-donors/>

18 <http://www.nepad-ippf.org/about-ippf/our-partners/african-stake-holders/pida/>

19 GIZ (2014): “Support to the Programme for Infrastructure Development in Africa (PIDA)”

20 <http://www.ppiaf.org/>

to support 57 activities. With regard to sector-specific activities, 40% of funding was dedicated to the water and transport sectors, which have the most problems attracting private sector investment. Sub-Saharan Africa received the biggest share (36%) of PPIAF’s region-specific funding (see Appendix 2.5)²¹ and the majority of its activities.

The **EU-Africa Infrastructure Trust Fund (EU-AITF)** supports not only the project preparation stage, but also identification/prioritization and implementation activities. The Fund was created in 2007 as a “blending instrument” with a focus on Sub-Saharan Africa combining “long-term investment from development financing institutions with grant monies to gain financial and qualitative leverage as well as project sustainability”.²² Funding is approved along two different lines: the “regional envelope” supports regional, cross-border projects; the Sustainable Energy for all – “SE4All” – envelope focuses on energy projects. Its donors include the European Development Fund and several EU member states. It is managed by the European Investment Bank (EIB). Among its stakeholders are all the institutions spearheading PIDA and the RECs.

Therefore, it is not surprising that the Annual Report 2013 states that its activities particularly support PIDA’s PAP. In 2013, the funding of technical assistance activities (e.g. feasibility studies, social and environmental impact assessments, resettlement action plans) made up one-quarter of total grants approved (see Appendix 2.6).²³

Almost two-thirds of total grants were directed towards the energy sector. Among them were two grants for the Rusumo Falls Hydropower Project (one for technical assistance - EUR 250,000, one was an investment grant) which is part of the PIDA PAP.²⁴

The total pipeline of EU-AITF at the end of 2013 stood at EUR 885 million (EUR 660 million of those for SE4ALL-projects). As the annual report states, “a quarter of all projects in the EU-AITF pipeline are also associated with the Programme for Infrastructure Development in Africa Priority Action Plan (PIDA PAP). Excluding the SE4ALL projects from the pipeline (mostly national projects and hence not considered by the PIDA PAP), the share of EU-AITF projects that are in the PIDA PAP is more than 55%, reflecting the strong alignment for

the classical regional infrastructure EU-AITF window with African ownership and priorities.”²⁵

The last IPPF we describe is the **Project Preparation and Implementation Unit (PPIU)** established by the three RECS: COMESA-EAC-SADC.²⁶ The purpose of the PPIU is to help identify, conceptualize and package projects along regional trade and transport corridors while also assisting in the actual implementation stage. It is hosted by the COMESA Secretariat in Zambia. In the documents available, no explicit mentioning of PIDA has been found. But as PIDA’s PAP has been developed together with the RECs and the PPIU focuses on the tripartite’s priorities, there is a great chance of overlapping.

Findings of the G20 DWG’s Review on PPFs in Africa

Africa’s difficulties in attracting long-term investment for infrastructure development are well-known. That insufficient support for project preparation activities is a key reason for these difficulties has been pointed out already at the beginning of the century. But as the PPIAF publication “Gridlines”²⁷ stated in 2007, first initiatives taken by the AfDB, several RECs and national development banks in Africa have been confronted by problems hindering successful operations of these early facilities. Together with a chronic lack of funding, “project preparation has turned out to be much more complicated than was originally anticipated”²⁸, focusing too much on latter stages of preparation activities (e.g., feasibility studies) while ignoring preceding steps (conceptualization, work on the enabling environment, etc.). Most of the then-created facilities lacked the mandate for many of these tasks. Historically, little attention has been paid to the workings of democratic process and the “bottom up” identification of infrastructure needs to enhance peoples’ livelihoods.

When looking at the findings of the ICA Assessment of PPFs for Africa from 2012, it is important to distinguish between overall PPFs and IPPFs in particular. The number of PPFs in Africa has probably increased compared to 2007, but whether the quality of preparation of infrastructure projects improved is a different question. The review finds that “relatively few active PPFs of any scale are focused on infrastructure in Africa. [...] [I]n

21 See: [PPIAF Annual Report 2013](#), p.15.

22 <http://www.eu-africa-infrastructure-tf.net/about/index.htm>

23 See: [Annual Report EU-Africa Infrastructure Trust Fund 2013](#), p.7.

24 A second project that is part of PIDA’s PAP has been supported with a technical assistance grant: the Brazzaville-Libreville Road and Transport Facilitation Project.

25 [Annual Report EU-Africa Infrastructure Trust Fund 2013](#), p.41.

26 COMESA: Common Market for Eastern and Southern Africa; EAC: East African Community; SADC: Southern African Development Community. <https://www.youtube.com/watch?v=CFIcXsFBg5s>; <http://www.comesa-eac-sadc-tripartite.org/node/151>

27 See: [PPIAF Gridlines Issue No.18 \(2007\)](#). Gridlines share emerging knowledge, experience and innovations in PPPs in the infrastructure sector.

28 Ibid.

reality, infrastructure project preparation, per se, is at best incidental to many of the identified entities. [...] PPFs are relatively diverse in terms of their focuses on different types of projects and support to different project development cycle activities".²⁹ Furthermore, it finds that especially IPPFs within MDBs concentrate more on the latter stages of project preparation. As is often the case, a generic increase in institutions does not automatically mean higher quality of specific operations. Quite the opposite is the case – the range of facilities only increases the complexity of the project preparation landscape and creates the danger of inefficiency and facilities that do not meet the demand. In spite of this, still today the call for new PPFs can be heard – for example at the Dakar Financing Summit for Africa's Infrastructure in June 2014. And these calls are met with great interest – on a regional and international scale (e.g., Africa50 Fund, GIF etc.). Instead, the existing PPFs with a special focus (in this case infrastructure) should be supported adequately in order to become more efficient.

3.2 Infrastructure Development in Asia

Although Asian infrastructure has been improved over the last decades, it still does not keep up with the needs of the region's growing population. The investment needs have been estimated at US\$8 trillion through to 2020 with China requiring a little over half of the investments (see Appendix 3.1).³⁰

The improvement of infrastructure connectivity has been achieved with the help of several subnational initiatives established by Asia's numerous regional organizations.

We will look at the Association of Southeast Asian Nations (ASEAN) which is one of the larger organizations including 10 member countries.³¹ In terms of energy, the International Energy Agency (IEA) expects the region's demand to increase by 76% between 2007 and 2030.³² The region offers a wide range of traditional energy resources like hydropower, oil, gas and coal. However, even in 2008, more than a quarter of people living in the region had not had access to electricity.

The ASEAN Master Plan on Connectivity, established in 2010, therefore also focuses on the energy sector. The

overall objective of the Master Plan is to enhance "physical infrastructure development (physical connectivity), effective institutions, mechanisms and processes (institutional connectivity) and empowered people (people-to-people connectivity)".³³ 15 priority projects have been identified to be implemented between 2011 and 2015 (see Appendix 3.2).

Sector-based Analysis

In each of the three above-mentioned fields, strategies and key actions have been identified to achieve enhanced connectivity.³⁴ Based on that, priority projects have been identified. From the six projects in the physical connectivity field, three fall into the transport sector, two into the energy sector and one is ICT-related:

1. The ASEAN Highway Network (AHN) Missing Links and Upgrade of Transit Transport Routes
2. The missing links of the Singapore Kunming Rail Link (SKRL)
3. An ASEAN Broadband Corridor (ABC)
4. Melaka-Pekan Baru Interconnection (Malaysia - Indonesia)
5. West Kalimantan-Sarawak Interconnection (Indonesia - Malaysia)
6. Study of the Roll-on/roll-off (RoRo) Network and Short-Sea Shipping (involving all ASEAN members)

The Melaka-Pekan Baru Interconnection features the construction of a 52km submarine cable between Malaysia and Indonesia. The second interconnection will provide electricity to West Kalimantan, Indonesia – a region with rich mineral resources and an accumulation of large-scale industries - from the Bakun Dam (2,400 MW) in Sarawak, Malaysia – the biggest dam in Asia outside of China and a project labeled by Transparency International as "monument of corruption"³⁵. Only recently, civil society has asked the Asian Development Bank (ADB) in an open letter to withdraw the proposed loan due to corruption issues, human rights violations, environmental and social concerns.³⁶

Both interconnection projects belong to ASEAN's overall framework for a trans-ASEAN energy network. This framework leans on two flagship initiatives: the trans-ASEAN gas pipeline (TAGP) and the ASEAN

29 ICA (2012): "Assessment of Project Preparation Facilities for Africa. Volume A: Diagnostics and Recommendations," p.76.

30 See: Adam Smith International (2014): "Assessment of the Effectiveness of Project Preparation Facilities in Asia," p.8.

31 Member countries are: Brunei Darussalam, Cambodia, Indonesia, Lao DPR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam

32 See: Infrastructure Investor (2013): "ASEAN. An Intelligence Report," p.22.

33 [Master Plan on ASEAN Connectivity \(2010\)](#), p.i.

34 For detailed information on the key actions see: [Master Plan on ASEAN Connectivity \(2010\)](#), pp.38ff.

35 For more see: <http://www.internationalrivers.org/campaigns/bakun-dam>

36 See: [Letter of Concern to the ADB](#)

power grid (APG). Priority projects no. 4 and 5 are part of the realization of the APG.

The AGP was established in 1997 under the ASEAN Vision 2020 with the purpose of enhancing regional trade in electricity and optimizing energy generation. The Heads of ASEAN Power Utilities/Authorities (HAPUA) has been entrusted to lead APG’s development. Only recently, HAPUA projected cross-border power purchases to reach almost 20,000 MW by 2025.³⁷ Appendix 3.3 shows the progress of the 14 identified interconnection projects.³⁸

The second pillar of ASEAN’s energy infrastructure framework is the trans-ASEAN gas pipeline, also adopted in 1997. It is spearheaded by the ASEAN Council on Petroleum (ASCOPE) made up of the member states’ heads of national oil and gas companies. Until 2020, a gas transmission network of 8,000 to 10,000 kilometers is to be developed, eventually linking 80% of ASEAN’s total gas reserves. In spring 2013, 11 bilateral gas pipelines were in operation (3,020 kilometers)(see Appendix 3.4).

In 2011, the initiative expanded beyond pipelines and now also involves cooperation in the liquefied natural gas (LNG) sector. Talks about the establishment of a regional LNG system started in 2012.

3.2.1 The Role of PPFs in Asia and the ASEAN Region

The G20 DWG also commissioned a study on the effectiveness of PPFs in Asia. The study was published in September 2014. PPFs in this report include “formal sources of financial assistance such as trust funds that are used by MDBs to prepare projects, entities whose main activity is project preparation and donor government programs that focus on project preparation. Eighteen PPFs were identified for specific review after excluding PPFs in G20 member countries and taking account of PPFs for which data could be obtained”.³⁹

It is an extensive task to identify which PPFs are important with regard to ASEAN’s Master Plan on Connectivity and its energy flagship projects as these initiatives are each made up of numerous individual projects that can tap on funding from several PPFs. However, it is very likely that the **Clean Energy Financing Partnership Facility** – hosted by the ADB - plays a role (e.g., for the Sarawak – West Kalimantan Transmission Line) as well as national PPFs due to the bi-national character of many of the individual projects (e.g., roads, railways).

Moreover, in October 2014, a multi-donor trust fund for project preparation activities under the auspices of the ADB was proposed that would certainly play a role in the implementation of the ASEAN Master Plan. The **Asia Pacific Project Preparation Facility (AP3F)**’s objective would be to promote PPPs in the region. The proposal identifies major problems hindering investment in infrastructure projects in the area that it tries to deal with, among others:⁴⁰

- Governments’ problems with identifying and preparing projects that would attract private investors
- Weak enabling environment, i.e., a lack of investor-friendly PPP arrangements
- Little flexibility with regard to the financing approach
- Complexity of regional agenda that makes it difficult to structure regional, cross-border projects

With regard to financing the Master Plan on ASEAN Connectivity along the whole project cycle, one important, relatively new instrument is the **ASEAN Infrastructure Fund (AIF)**. It was established in 2012 and became fully operational in 2013. Although it is “giving priority to national projects which are in line with the concept of ASEAN Connectivity,”⁴¹ it does not have a specific focus on project preparation and is therefore not considered a PPF. Together with the ADB, Malaysia and Indonesia pushed for its creation and contributed the largest amounts to the Fund so far (US\$150 million and US\$120 million, respectively). The AIF aims at mobilizing the region’s capital resources for its infrastructure development. Initial funding of almost US\$500 million will eventually be increased to reach a total of US\$13 billion (in 2020).

Findings of the G20 DWG’s Review on PPFs in Asia

The report of the G20 DWG finds that PPFs in Asia are generally effective in preparing regional transformative infrastructure projects. Most PPFs in the region are hosted by MDBs and therefore focus on projects to be implemented by their host-institution. Unfortunately, PPFs “rarely publish information on their finances and outputs from technical activities that they finance”⁴²

37 See: Ibrahim, S.B. (2014): “[Barriers and Opportunities for Electricity Interconnection. The Southeast Asian Experience](#),” slide 6.

38 Srisuping, K. (2013): Presentation “[ASEAN Power Grid](#),” slide 18.

39 Adam Smith International (2014): p.i.

40 See: Asian Development Bank (2014): “[Establishment of the Asia Pacific Project Preparation Facility](#),” pp.1f.

41 Infrastructure Investor (2013): “[ASEAN. An Intelligence Report](#),” p.27.

42 Adam Smith International (2014): p.ii.

which makes it hard to trace the financial relations between projects and financial institutions.

In order to nevertheless improve project preparation outcomes, the report points out that increased institutional capacity and additional funding is needed for these activities. Other than the review of the African PPFs, this review does not include the provision of an enabling environment in the project preparation activities, but understands it as the country's government's task. Governments' capacity to do so needs to be strengthened in order for identified projects to meet favorable legal and regulatory conditions. On the topic of PPPs, the review recommends that the decision about the financing modality (PPP or government financing) should be made only after the feasibility study when more information about the project is available.⁴³

3.3 Infrastructure Development in Latin America

Latin America's infrastructure needs are said to be vast and hinder the region's global competitiveness. As is the case in Africa and Asia, tackling these deficits requires region-wide initiatives. For South America, this process was led by the Union of South American Nations (UNASUR).⁴⁴ It was established in 2008 as part of the process of regional integration. In 2000, a first concrete action of the newly created Union was the establishment of the Initiative for the Integration of Regional Infrastructure in South America (IIRSA) with the main purpose of compiling a development plan for the physical infrastructure of the region with a special focus on transportation, energy and telecommunication projects. In the first decade after its creation, IIRSA identified 10 so-called Integration and Development Hubs and their respective infrastructure requirements (see Appendix 4.1). The whole process was technically and financially supported by the IIRSA's Technical Coordination Committee (CCT) comprised of the Inter-American Development Bank (IADB), the Latin American Development Bank (CAF), and the Financial Fund for the Development of the River Plate Basin (FONPLATA).

In order to prepare the implementation of the regional infrastructure integration, in 2009 the South American Infrastructure and Planning Council (COSIPLAN) was created. Two years later, UNASUR adopted the COSIPLAN Strategic Action Plan 2012-2022 (PAE)

and the Integration Priority Project Agenda (API) identifying 31 "structured" priority projects.⁴⁵ The 31 priority projects are considered to have a "high impact on the physical integration and the socioeconomic development of the region"⁴⁶ and require investments worth approximately US\$21,172.6 million (10.6% of the COSIPLAN Project Portfolio total investment)(see Appendix 4.2).⁴⁷

Looking at the territorial scope of the projects, it can be seen that the majority of the priority projects is multilateral (17 are binational, 7 involve three or more countries). Regarding the sectoral distribution, almost all fall in the transport sector (97% of the individual projects), the other 3% are energy related projects.⁴⁸ In December 2014 eleven of the 100 individual projects had been completed with the majority of the others being in the pre-execution stage (pre-feasibility, feasibility and investment studies in progress).

Sector-based Analysis

When looking at the distribution of API projects among the Hubs (API projects are located in 8 of the 10 Hubs), an interesting scenario appears: although comprising less structured projects than the other five Hubs together (13 vs. 18 structured projects), the Amazon, Andean and Capricorn Hub account for two thirds of the total estimated investment in API projects. (See Appendix 4.3).

For each of these Hubs, at least one giga-project (more than US\$1 billion) has been identified which is especially worrisome when looking at some of the Hubs' characteristics: 1) they include the two most resource-rich areas of the continent – the Amazon forest and the Andes; 2) two of the Hubs (Amazon and Capricorn) stretch out over the whole continent from the Atlantic to the Pacific Ocean suggesting that economic interests (trans-continental trade) played a prominent role in the decision process. The rapid expansion of mining and agricultural activities and the problems arising from the shifting economic frontier have been documented greatly⁴⁹ and the logistical reclamation of the Amazon through transport projects promoted by COSIPLAN only supports the

45 Every "structured" project is made up of one or more "individual" projects (100 individual projects in total). The priority projects were chosen from the COSIPLAN Project Portfolio that comprises more than 500 projects and is part of the [COSIPLAN Strategic Action Plan \(PAE\) 2012-2022](#).

46 UNASUR/COSIPLAN (2013): "[API Progress Report 2013](#)," p.5.

47 See: UNASUR/COSIPLAN (2014): "[Informe de Avance API 2014](#)," 10.

48 These figures correspond approximately to the sectoral distribution of all 514 projects of the COSIPLAN Portfolio: 88% transport, 10% energy.

49 See for example Little, Paul E. (2014): "Mega-Development Projects in Amazonia. A geopolitical and socioenvironmental primer".

43 See: Adam Smith International (2014): p.iv.

44 Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guayana, Paraguay, Peru, Suriname, Uruguay, Venezuela

commercialization of the region at the cost of its natural wealth and abundant biodiversity.

Apart from that, the scenario is only another proof of the common configuration of infrastructure mega-projects as PPPs: the Amazon Hub is, firstly, the one with the greatest number of projects financed by the private sector (both PPP arrangements and other forms of contracting private investors: 76.9% of all Amazon Hub projects) also accounting for the highest share of private investment among the Hubs (both PPP and others: US\$2.795.4 million). And secondly, this Hub also ranks highest when it comes to PPPs (in terms of numbers).

With regard to energy infrastructure projects, API only includes 3 individual projects:

500-kV Transmission Line between Itaipu and Villa Hayes (Capricorn Hub)	
	completed
	US\$555 million
	source of financing: public
500-kV Transmission Line between Yaciretá and Villa Hayes (Capricorn Hub)	
	execution stage
	US\$297 million
	source of financing: public
Northeastern Argentina Gas Pipeline (Mercosur-Chile Hub)	
	pre-execution stage
	US\$1,000 million
	source of financing: public-private

The purpose of both transmission lines is to improve service quality and supply reliability in the city of Asunción, Paraguay. The first transmission line will connect Villa Hayes, a neighboring city of Asunción, with the Itaipu dam – the largest operating hydroelectric facility worldwide (98.6 TWh generated in 2013) on the Paraná River on the border between Brazil and Paraguay.

The gas pipeline is supposed to provide natural gas from Bolivia to northeast Argentina. According to the API Progress Report 2014, it will be used for natural gas vehicles and for industrial and agribusiness production. The gas reserves the pipeline will tap are located in northern Argentina and Bolivia and the pipeline will span approximately 1500 km running across the Argentine province of Chaco linking Formosa and Santa Fe.

3.3.1 The Role of PPFs in Latin America and the Realization of API Projects

According to the API Progress Report 2014, the biggest source of investment is the public sector (74.3%) followed by the private sector in the form of different contractual forms (15%) and PPPs (10.7%).⁵⁰ The three CCT-institutions – IADB, CAF and FONPLATA – together finance the pre-execution or execution stages of 17 of the 31 structured projects – an investment worth approximately US\$2,190.8 million.

Furthermore, a Working Group of Financing Mechanisms and Guarantees was established in 2011 in order to attract resources from national and regional financial organizations. At the fourth meeting of the group in September 2014, representatives of the Bank of the South, the Chinese Development Bank (CDB), the BRICS’ NDB, and the Brazilian Development Bank (BNDES) had been present to discuss alternative sources of funding for API projects and expressed their interest.

There does not yet exist a systematic overview of PPFs active on the Latin American continent comparable to the studies on PPFs in Asia and Africa. However, the G20 DWG praises the work of IADB’s PPFs in Latin America.⁵¹

It is likely that the following PPFs contribute to the funding of COSIPLAN’s priority project preparation activities, but no detailed information was available concerning the relation between these and the API projects.

The IADB hosts several PPFs that play an important role for infrastructure projects in the region. In 2005, the **Fund for Integration Infrastructure (FIRII)** was created with a special focus on funding preparation activities of projects included in the IIRSA Initiative and the Mesoamerica Project.⁵² The Fund’s original capital was US\$20 million, but was increased in 2008 to reach US\$40 million in 2010. Originally created to support both “software” (regulations and policy frameworks) and “hardware” (physical integration) areas of infrastructure, it later focused more on the software aspect.

That is why, in 2011, the **Regional Infrastructure Integration Fund (RIIF)**, also managed by the IADB, was established to support the IADB’s integration strategy and to complement FIRII with regard to the

50 See: UNASUR/COSIPLAN (2014): “Informe de avance API 2014,” p.10.

“La fuente principal de los proyectos individuales de la API es el sector público (74,3%). La presencia privada mediante diversas formas contractuales (15%) y las asociaciones público-privadas (10,7%) contribuyen a completar el cuadro.”

51 See: G20 DWG Infrastructure (2014): “Report on Infrastructure Agenda and Response to the Assessments of Project Preparation Facilities in Asia and Africa,” p.5.

52 See: <http://www.iadb.org/en/topics/regional-integration/iirsa/the-firii-and-idb-support-of-feasibility-and-impact-studies,1464.html>

hardware aspect.⁵³ RIIIF's donor countries include Canada, Colombia, Mexico, Spain, and the U.S. who together contributed almost US\$22 million as of November 2014.⁵⁴

Additionally, in 2006 the IADB committed US\$20 million to the creation of the InfraFund. The Fund has a special focus on projects that mobilize financial resources from the private sector and prefers the support of PPPs.⁵⁵

4. Competing Visions of Infrastructure Development

There is no doubt that infrastructure development is important for people's quality of life, their chances for economic and social development. But for citizens to actually benefit from infrastructure projects, it is important to consider the public's interest in project selection. In its Submission to the G20 Investment and Infrastructure Working Group, the Think20 (T20) points out how important it is to "ensure that the 'right' infrastructure projects are selected, namely those that provide positive net social benefits."⁵⁶

The current narrative of infrastructure development focuses too much on the financing mode of projects when the necessary first step would be to ensure that appropriate projects are being selected and supported. In this regard, the extreme bias for private sector involvement and PPP arrangements is highly problematic. As the T20 puts it: "the cost-benefit analysis associated with selecting infrastructure projects is different from the financial analysis of investments taken by firms. The cost-benefit assessment for infrastructure has to be broad and take into account social, distributional and environmental considerations. These are ultimately matters for which governments have to take responsibility."⁵⁷

But when looking at the reality, most infrastructure projects are selected according to other priorities.

Selection Criteria

The G20's High Level Panel on Infrastructure (HLP) in 2011 included in its recommendations to the G20 six

selection criteria that it worked out together with the MDBs to identify regional infrastructure projects in low and middle income countries (see Appendix 5.1). Those two of the six criteria that deal with the impacts of priority projects focus on regional integration and economic growth. Social and environmental aspects are only considered as a subset within this economic framework.

When looking at the selection criteria used to identify the priority projects of the regional strategies introduced above, certain similarities to the HLP criteria can be identified. In the case of PIDA, the priority projects were chosen in a consultation process that included the RECs, ministries, power pools and other relevant stakeholders. Three criteria were used: (1) eligibility and regional integration; (2) feasibility and readiness; and (3) development impacts.⁵⁸ However, the 2012 World Economic Forum on Africa Summit decided to create a Business Working Group (BWG) on infrastructure in Africa to further rank PIDA PAP projects in order to identify those suitable for further acceleration. The BWG in this regard will provide "a coordinated business voice to review PIDA projects, prioritize a subset of those projects that can be implemented based on bankability and do-ability, and catalyze their implementation."⁵⁹ This "coordinated business voice" is – to the misgivings of civil society and communities – dominated by large transnational companies (see Appendix 5.2) and leaves social and environmental concerns largely aside.

The main objective of the BWG's selection methodology is to accelerate private sector involvement. The methodology consists of four sequential steps that result in projects being identified as worth for acceleration when sufficient data is available, the project environment is stable (politically, socially, geographically) (step 1); its technical and organizational complexity is limited (step 2); the cost-value analysis is beneficial (step 3); and the fine-tuning is done ("the project's size, timeline, risk profile matches private investor's interests and preferences") (step 4).⁶⁰

In the case of Asia and Latin America, the infrastructure development strategies have been identified in the light of economic integration efforts. Therefore, priority projects have been identified by the respective RECs

53 See: http://issuu.com/aid-for-trade/docs/proposal_for_the_establishment_of_a_multi-donor_fu, p.3.

54 See: <http://www.iadb.org/aboutus/trustfunds/Fund.cfm?Fund=MFR&Lang=en> [11/28/14, 12:09]

55 See: <http://www.caribbeanpressreleases.com/articles/410/1/IDB-Launches-US20-Million-Fund-to-Support-Infrastructure-Project-Preparation/Page1.html>

56 Callaghan, M.; Strube, D. (2014): "Submission on Behalf of Think20 to the G20 Investment and Infrastructure Working Group Meeting, 4 June 2014," p.1.

57 Submission on Behalf of Think20 to the G20 Investment and Infrastructure Working Group Meeting, 4 June 2014, p.8.

58 See: [Programme for Infrastructure Development in Africa. Interconnecting, integrating and transforming a continent](#)

59 World Economic Forum (WEF) (2013): "Strategic Infrastructure in Africa. A business approach to project acceleration," p.3.

60 Ibid. pp.16, 19.

(ASEAN and UNASUR)(for COSIPLAN’s selection criteria see Appendix 5.3).⁶¹

In terms of criteria that PPFs use to decide which projects they fund, only little information is available. However, most PPFs that have been identified as important for the regional infrastructure strategies analyzed here are MDB-hosted. As most projects funded by MDB-hosted PPFs are also funded by the respective MDB during later stages of the project cycle, their guidelines are most likely in line with those of their host institutions. However, this is not sufficient reason to give the all-clear – e.g. in the light of the World Bank softening its safeguards to mere performance standards when it comes to PPPs.⁶²

5. Conclusions

The new model of infrastructure development presents us with one fundamental question: Which way of life do we want to live? Which economic model do we carry into the future and which consequences does our decision have? Do we follow the worn-out path of pushing for economic growth no matter the cost or do we decide to support sustainable development that respects the planetary boundaries? Do we wish to foster low-carbon development with backward and forward infrastructure to local economies? Do we wish to promote value-added through sustainable industrialization including agro-processing?

The new financing facilities for infrastructure investment can contribute greatly to this decision. Pursuing the latter, sustainable vision, capital investment would be redirected from fossil fuels to focus stronger on renewable energies – meaning particularly wind and solar power, in contrast to large-scale hydropower projects that in the current framework make up most of “renewable energy” projects.

PPPs, mega-projects and greater involvement of large-scale private investors may offer short-term success, but the question is at what cost? As numerous case studies have proved, infrastructure can be a means for social and economic development consistent with environmental protection when projects with a triple bottom line are preferred over short-term, one-size-fits-all solutions. Involvement of the respective communities in project design and decision-making processes is a prerequisite in order to develop projects that actually contribute to regional integration, economic and social development.

Unfortunately, in practice the scenario looks very different. The attractiveness of projects for the private sector is the overarching criterion that dominates design, selection and preparation processes. It shows that economic value is still a dominant factor while social and environmental impacts and values are not seriously taken into account. Indeed, shrinking the project preparation time from 7 to 3 years almost ensures that local populations will not have adequate input to decision-making.

Moreover, the lack of a coherent social and environmental safeguard plan is not at all surprising when looking at who is involved in project selection – big business and the private sector (see the African example). But what are the implications of massive business involvement and the push for PPPs? Will PPPs really lead to more effective infrastructure provision as is promised? And what if projects fail? Who will bear the cost? Which risk allocation mechanisms exist? Are there tools to hold private investors accountable in case of project failure? Which transparency mechanisms are provided to allow civil society and affected communities to comprehend project selection and funding?

The new model would ensure that the public sector “de-risks” projects at the early preparation stages when so much can go wrong. However, once the project is implemented, the long-term institutional investors would rake the “cream” off the top for generations. Meanwhile, many PPP contracts and investment treaties would “handcuff” the government, prohibiting it from implementing tariff changes or social and environmental laws and regulations that could cut into investors’ profits.

The world sees a wave of new facilities focused on infrastructure investment, and cries for more do not seem to die away. To what extent will infrastructure focus on the extraction of natural resources versus “structural transformation” that brings development to the host countries and citizens? How will the facilities’ activities be harmonized and overlapping mandates be prevented? How can it be guaranteed that the global competition for quickest project realization will not negatively affect project quality? Will PPFs be strictly “top down” facilities without any processes that involve citizens and their elected representatives?

As new institutions are created, “additionality” – meaning the addition of a new perspective to the institutional landscape - should be their major characteristic. A focus on sustainable, decentralized, appropriate-scale projects - for example in the energy sector - would be a unique

61 For COSIPLAN’s selection criteria, see Appendix 5.3.

62 See also: [C20 position paper: Infrastructure](#).

feature. Although some PPFs already have a sustainability dimension in their portfolio (e.g., EU-AITF), it is not enough to influence regional infrastructure strategies.

Infrastructure investment is one pillar that contributes greatly to the economy we want in the future. All signs indicate that it is time to take the alternative, less traveled path of economic development in line with the public's interest, social and environmental boundaries. However, the thorough changes that we see in the current infrastructure investment landscape herald that the choice made is – again – to follow the traditional path in pursuit of short-term economic success and profit.

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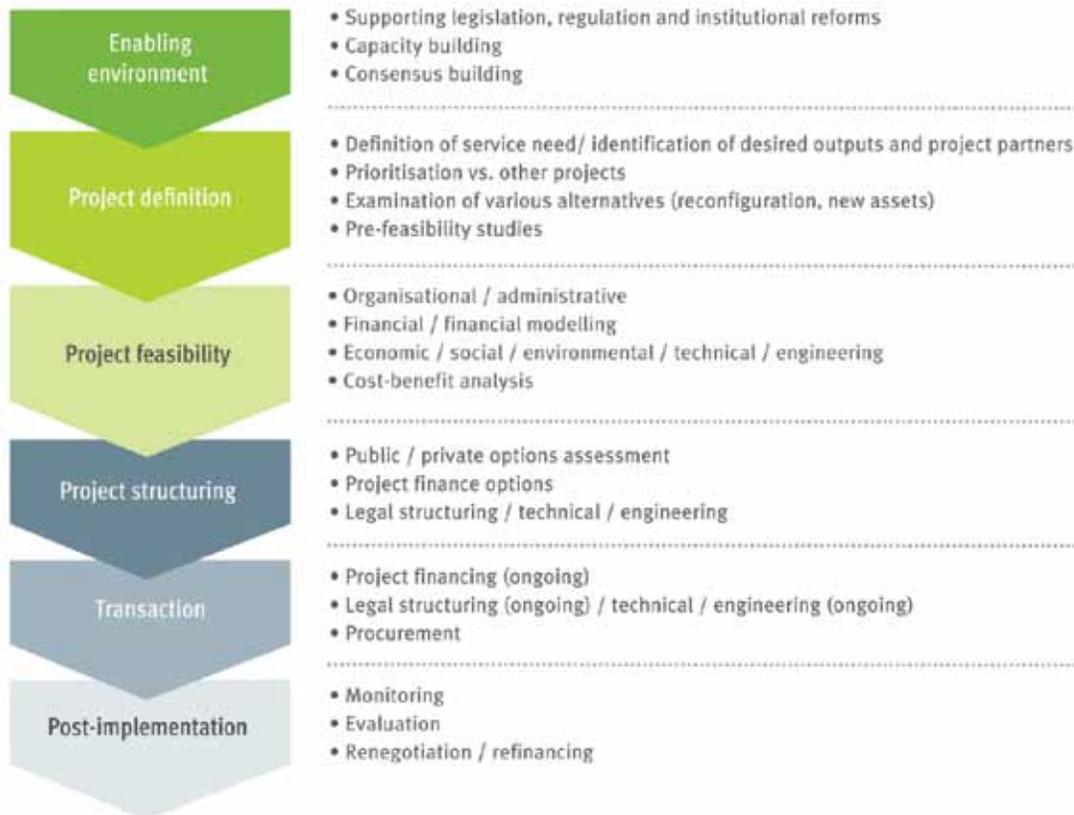
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Appendices

Appendix 1: Project Preparation Facilities

Appendix 1.1: Development Process



Source: ICA (2012): "Assessment of Project Preparation Facilities for Africa. Volume A: Diagnostics and Recommendations," p.31.

Appendix 2: Infrastructure Development in Africa

Appendix 2.1: PIDA PAP Projects

PIDA PAP - Energy Sector							
Program	Description	Stage	Cost (US\$ millions)	Countries	REC	Region	
1	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	concept stage	10.500	South Africa, Angola, Gabon, Namibia, Ethiopia	ECCAS	Central
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	feasibility stage	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	feasibility stage	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	feasibility stage	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	feasibility stage	6.000	DRC Congo River	ECCAS	Central
6	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	feasibility stage	1.200	Guinea, Guinea Bissau, Gambia, Sierra Leone, Liberia, Côte d'Ivoire, Ghana	ECOWAS	Western
7	North Africa Transmission	2,700 km line from Morocco to Egypt through Algeria, Tunisia and Libya	feasibility stage	1.200	Morocco, Algeria, Tunisia, Libya, Egypt	AMU	Northern
8	Nigeria-Algeria pipeline	4,100 km gas pipeline from Warri to Hassi R'Mel in Algeria for export to Europe	feasibility stage	NA	Nigeria, Niger, Algeria	UMA/ ECOWAS	Northern, Western
9	Sambagalou	128 MW of hydropower capacity, 930 km from the mouth of the Gambia River to supply Senegal, Guinea, Guinea Bissau and Gambia	structuring and financing stage	300	Senegal, OMVG	ECOWAS	Western
10	Kaleta	Hydropower generation of 117 MW	structuring and financing stage	179	Guinea - OMVG	ECOWAS	Western
11	Batoka	Hydroelectric plant with a capacity of 1,600 MW to enable export of electricity	structuring and financing stage	2.800	Zambia/Zimbabwe, Zambezi basin	COMESA/ EAC/SADC/ IGAD	Eastern
12	Ruzizi III	Hydroelectric plant with a capacity of 145 MW to share power among Rwanda, Burundi and DRC promoted by CEPGL	structuring and financing stage	450	Rwanda/DRC	COMESA/ EAC	Eastern

13	Rusumo Falls	Hydropower production of 61 MW for Burundi, Rwanda and Tanzania	structuring and financing stage	360	Nile River basin	COMESA/EAC	Eastern
14	Great Millennium Renaissance Dam	Develop a 5,250 MW plant to supply domestic market and export electricity on EAPP market	implementation and operation stage	8.000	Ethiopia, Nile basin	COMESA/IGAD	Eastern
15	Uganda-Kenya Petroleum Products Pipeline	300 km long pipeline for a lower cost mode of transport of petroleum products	implementation and operation stage	150	Uganda, Kenya	COMESA/EAC	Eastern
Total Value (US\$ millions)				40.189			

PIDA PAP - Transport Sector							
Program	Description	Stage	Cost (US\$ millions)	Countries	REC	Region	
1	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	concept stage	2140,00	15 countries, PWAACA	ECOWAS	Western
2	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	concept stage	420,00	15 countries	ECOWAS	Western
3	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	concept stage	100,00	Africa	Continental	Continental
4	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	concept stage	2270,00	REC members	SADC	Southern
5	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	concept stage	420,00		ECCAS	Central
6	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	concept stage	1400,00	Cameroon/Chad/Central African Republic/Congo/DRC/Gabon/Burundi/PMAWCA	ECCAS	Central

7	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	feasibility stage	1650,00	Congo/DRC	ECCAS	Central
8	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	feasibility stage	800,00	Cameroon/Chad/Central African Republic/Congo/DRC/Gabon/Burundi/Angola	ECCAS	Central
9	Praia-Dakar-Abidjan Multimodal Corridor	This programme would improve marine transport and the connection between the 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	feasibility stage to implementation and operation stage	150,00	Cape Verde, Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, Côte d’Ivoire	ECOWAS	Western
10	TAH Programme	This is phase I of the continental connectivity programme that focuses on completion and standardization of the TAH missing links by 2030	feasibility stage / structuring and financing stage	2150,00	Africa	Continental	Continental
11	Single African Sky phase I (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	structuring and financing stage	275,00	Africa	Continental	Continental
12	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 Central African Republic	structuring and financing stage	290,00	Cameroon/Central African Republic/Chad	ECCAS	Central

13	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	structuring and financing / implementation and operation stage	1000,00	Kenya, Uganda, Rwanda, Burundi	COMESA/ EAC	Eastern
14	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	structuring and financing / implementation and operation stage	2325,00	DRC, Zambia, Zimbabwe, South Africa, Mozambique	COMESA/ EAC/SADC	Eastern
15	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	structuring and financing / implementation and operation stage	1000,00	Djibouti, Ethiopia	COMESA/ IGAD	Eastern
16	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	structuring and financing / implementation and operation stage	840,00	Tanzania, Uganda, Rwanda, Burundi, DRC	COMESA/ EAC	Eastern
17	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	structuring and financing / implementation and operation stage	450,00	Mozambique, Malawi, Zimbabwe	COMESA/ SADC	Eastern
18	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	structuring and financing / implementation and operation stage	5900,00	Kenya, Uganda, Rwanda, Burundi	COMESA/ SADC/EAC	Eastern

“Assembly Lines” for Project Development: The Role of Infrastructure Project Preparation Facilities (PPFs)

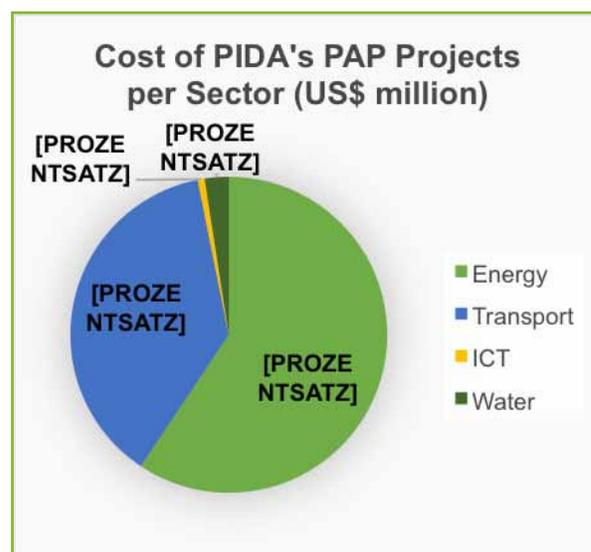
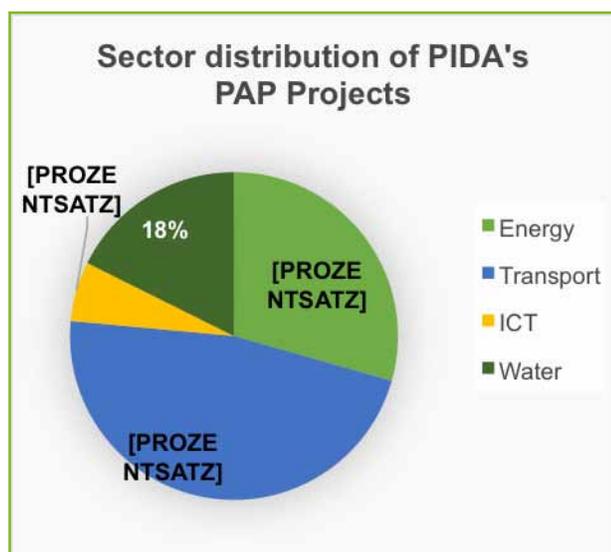
19	Abidjan-Lagos Coastal Corridor	This programme would modernize the most heavily travelled ARTIN corridor in West Africa (trade facilitation, OSBPs, capacity enhancement and implementation of PPP) for five countries: Côte d'Ivoire, Ghana, Togo, Benin and Nigeria	structuring and financing / implementation and operation stage	290,00	Nigeria, Benin, Togo, Ghana, Côte d'Ivoire	ECOWAS	Western
20	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	structuring and financing / implementation and operation stage	590,00	Senegal, Mali, Burkina Faso, Niger	ECOWAS	Western
21	Abidjan-Ouagadougou/Bamako	This programme would modernize and rehabilitate the multimodal corridor that suffered during civil war in Côte d'Ivoire	structuring and financing / implementation and operation stage	540,00	Côte d'Ivoire, Burkina Faso, Mail	ECOWAS	Western
22	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	structuring and financing / implementation and operation stage	300,00	Congo/DRC/Central African Republic	ECCAS	Central
23	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	structuring and financing / implementation and operation stage	75,00	Morocco to Egypt through Algeria, Tunisia and Libya	AMU	Northern
24	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	implementation and operation stage	5,00	Africa	Continental	Continental
Total Value (US\$ millions)				25.380			

PIDA PAP - Transboundary Water Resources Sector							
Program	Description	Stage	Cost (US\$ millions)	Countries	REC	Region	
1	Multisectoral Investment Opportunity Studies	Identification and preparation of investment programmes in the basin	concept stage	1	Okavango River Basin	SADC	Southern
2	Noumbiel	Multipurpose dam with hydropower generation (for Burkina Faso and Ghana) component	concept stage / feasibility stage	NA	Volta River Basin	ECOWAS	Western
3	Palambo	Regulation dam to improve navigability of Obangui River with added hydropower component	feasibility stage	155	Congo River Basin	ECCAS	Central
4	Gourbassy	Multipurpose dam located in Guinea: regulation of the Senegal river (four countries)	feasibility stage	NA	Senegal River Basin	ECOWAS	Western
5	North-West Sahara Aquifer System	Prefeasibility studies for improved use of the aquifer system	feasibility stage	2,5	North West Sahara Aquifer System	UMA	Northern
6	Lullemeden Aquifer System	Prefeasibility studies for improved use of the aquifer system	feasibility stage	10	Lullemeden and Taoudeni/ Tanezrouft Aquifer System	UMA	Northern
7	Fomi	Hydropower station in Guinea with irrigation water supply for Mali and regulation of the Niger river (nine countries)	structuring and financing stage	384	Niger River Basin	ECOWAS	Western
8	Lesotho HWP Phase II - water transfer component	Water transfer programme supplying water to Gauteng Province in South Africa	structuring and financing stage	1.100	Orange-Senqu River basin	SADC	Southern
9	Nubian Sandstone Aquifer System	Implementation of regional strategy for the use of the aquifer system	implementation and operation stage	5	Nubian Sandstone Aquifer System	UMA	Northern
Total Value (US\$ millions)				1657,5			

PIDA PAP - ICT Sector							
Program	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	feasibility stage	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	structuring and financing stage	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	structuring and financing stage	130	Continental	Continental	Continental
Total Value (US\$ millions)				475			

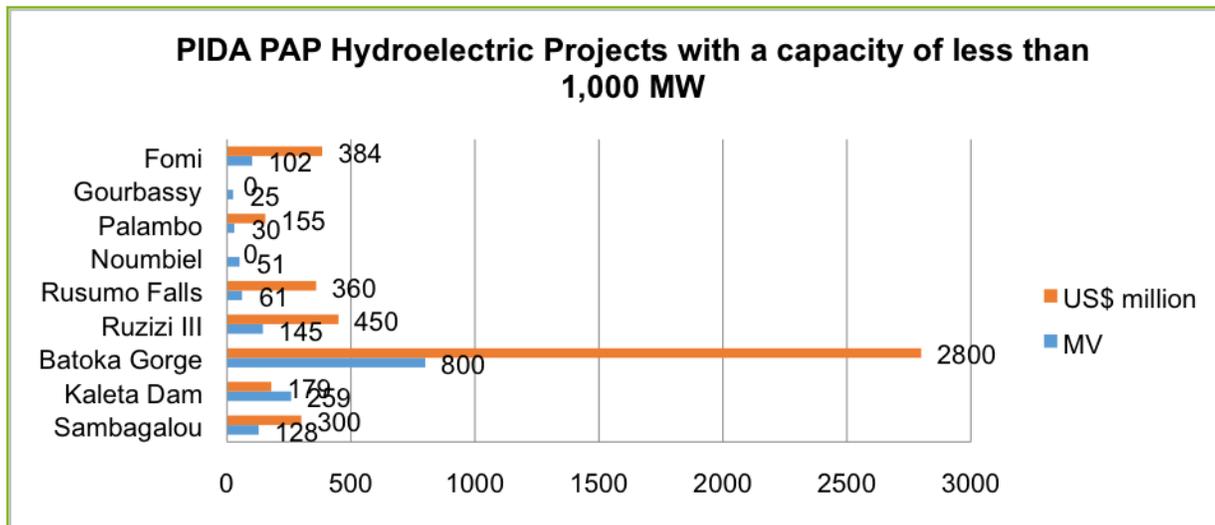
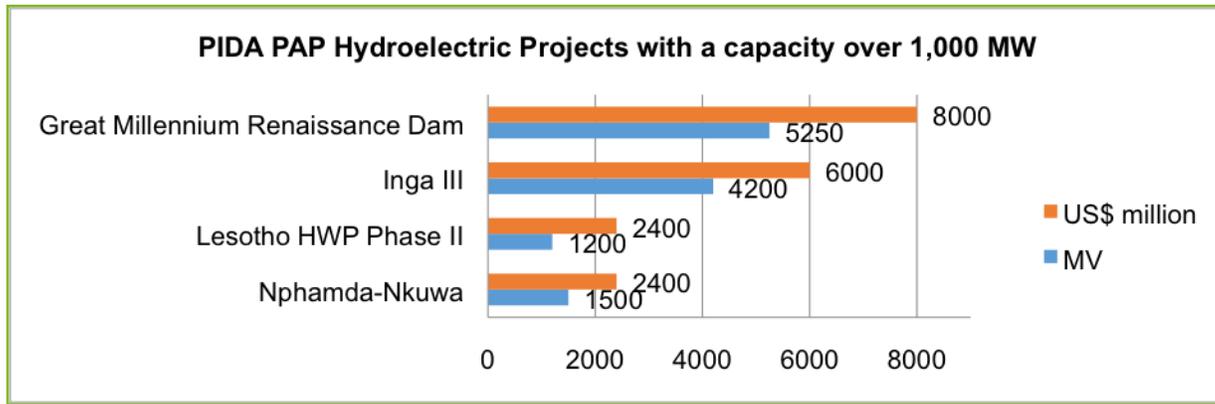
Source: [Programme for Infrastructure Development in Africa. Interconnecting, integrating and transforming a continent.](#)

Appendix 2.2: Sector Distribution and Cost per Sector of PIDA’s PAP Projects



Source: Data taken from [Programme for Infrastructure Development in Africa. Interconnecting, integrating and transforming a continent.](#)

Appendix 2.3: PIDA PAP Hydroelectric Projects – Capacity and Cost



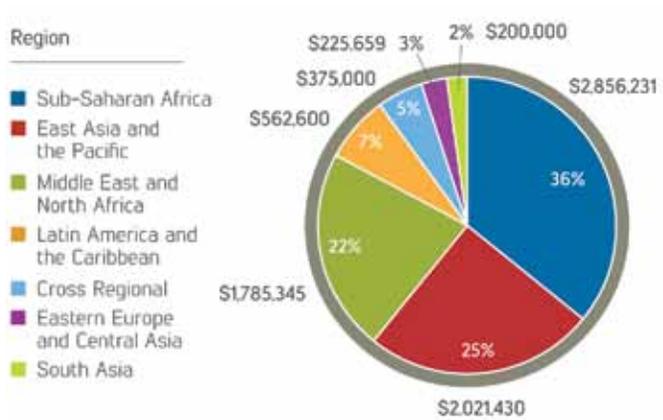
Source: Data taken from [Programme for Infrastructure Development in Africa. Interconnecting, integrating and transforming a continent.](#)

Appendix 2.4: PPFs Reviewed in ICA Assessment of Project Preparation Facilities for Africa

PPF	Year Established	Total Funding (US\$m)	Infrastructure Project Preparation in African (US\$m to Date) (% of Total Project Commitments to Date)	Rationale
Active facilities				
AWF	2004	167	52 (46%)	The AWF was established to attract increased investment to meet national and regional water sector targets in Africa. This was to be achieved through improving the enabling environment and providing direct capital investments.
DEVCo	2003	82	22 (52%)	DEVCo was established to provide governments with advisory support on divestitures and PPP transactions.
ESMAP ²¹	1983	113	25 (22%)	ESMAP was set up to encourage the knowledge exchange and institutional capacity building required for adoption of environmentally sustainable energy practices in low- and middle-income countries.
EU-AITF	2006	486	103 (24%)	EU-AITF was set up to attract and leverage resources and technical expertise to support cross-border infrastructure investments in SSA.
InfraCo Africa ²²	2004	65	50 (100%)	InfraCo Africa was set up to de-risk early stage infrastructure project development for projects across SSA.
InfraVentures	2008	100	16 (50%)	InfraVentures was established to support and proactively develop private and PPP infrastructure projects in IDA countries.
NEPAD IPPF	2004	46	35 (97%)	NEPAD IPPF was established to assist African countries and regional economic communities (RECs) to prepare high quality regional infrastructure projects in the energy, water, transport, and ICT sectors.
NEPAD PPFs	2003	12	12 (100%)	The PPFs was set up to facilitate AFD and DBSA financing of NEPAD projects, through the provision of grants to project promoters to advance preparation studies.
PPIAF	1999	260	80 (37%)	PPIAF was established to support the creation of a sound enabling environment for the provision of infrastructure services by the private sector.
PPIU	2011	20	10 (50%)	The PPIU was set up to help accelerate the preparation and coordination of infrastructure projects in the Tripartite region (COMESA-EAC-SADC), particularly on the North-South Corridor.
TAF	2003	40	19 (96%)	TAF supports the work of other Private Infrastructure Development Group (PIDG) facilities through the provision of technical assistance and capital grants.
USAID AIP	2008	35	25 (100%)	AIP was established in response to needs in the electricity sector throughout Africa. The programme facilitates the closure of late stage electricity projects.
Inactive, or yet to commit material amounts				
AFFI-TAF	2011	5t	-	AFFI-TAF was set up to support the AFFI’s goal of providing advisory services to the public sector for feasibility studies and other project preparation activities.
DBSA-EIB PDSF	2010	7	-	The PDSF was set up as an experiment where EIB could offer technical expertise and DBSA could provide on-the-ground expertise to infrastructure projects, whether public or private, in its target countries.
ECOWAS PPDU	2008	6	-	Aims to support project preparation in the West African region.
SADC PPDF	2008	6	-	The PPDF was established to finance the preparation of regional co-operation and integration projects.
SEFA Project Preparation Window	2012	14	-	SEFA’s objective is to scale up renewable energy and support the delivery of universal power in Africa. One of its three windows provides project preparation grants for small and medium-scale renewable energy infrastructure.

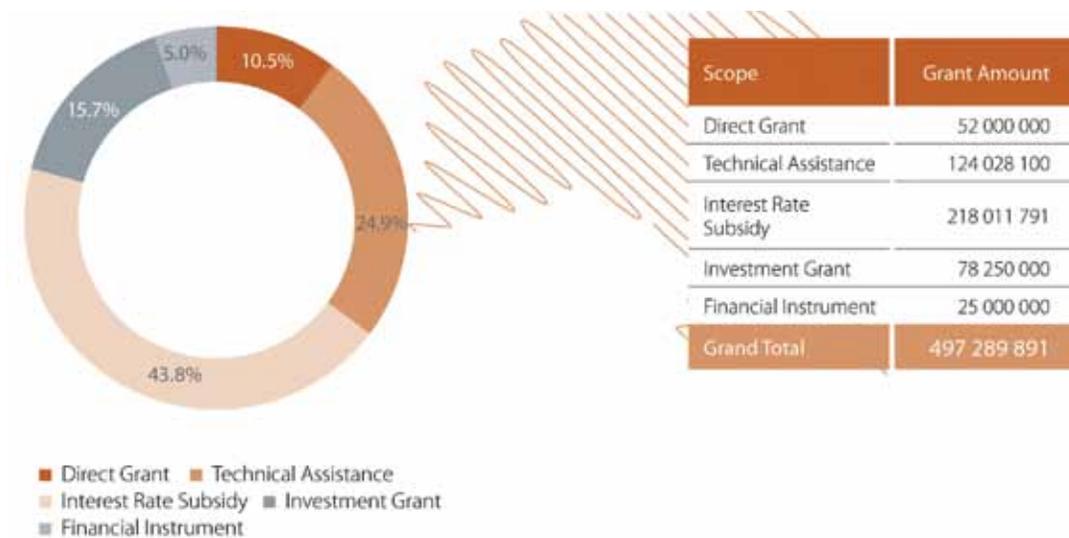
Source: ICA (2012): “[Assessment of Project Preparation Facilities for Africa. Volume A: Diagnostics and Recommendations.](#)”

Appendix 2.5: PPIAF Country- and Region-Specific Funding by Region, Fiscal Year 2013



Source: [PPIAF Annual Report 2013](#), p.15.

Appendix 2.6: EU-AITF Funding in 2013 (in EURO)



Source: [Annual Report EU-Africa Infrastructure Trust Fund 2013](#), p.7.

Appendix 3: Infrastructure Development in Asia

Appendix 3.1: Infrastructure Investment Needs in Asia (2010 – 2020)

Sector	Expenditure (US\$'000 billion, 2008 prices)		
	New Capacity	Replacement	Total
Energy (Electricity)	3.2	0.9	4.1
Telecommunications	0.3	0.7	1.1
Transport	1.8	0.7	2.5
Water & Sanitation	0.2	0.2	0.4
Total	5.4	2.6	8.0

Source: Adam Smith International (2014): “[Assessment of the Effectiveness of Project Preparation Facilities in Asia](#),” p.8.

Appendix 3.2: ASEAN Master Plan on Connectivity Priority Projects for Physical Integration

Physical Connectivity				
No	Project Title	Project Description	Type of Intervention/ Sources of Financing	Remarks/Justifications
1	Completion of the ASEAN Highway Network (AHN) Missing Links and Upgrade of Transit Transport Routes [Land Transport]	<p>The ASEAN Highway Network (AHN) is a flagship land transport infrastructure project which forms the major road (interstate highway) component of the overall trans-ASEAN transportation network. The AHN will help provide access to an enlarged market, reduce transportation and trade cost, establish linkages with regional and global supply chains, and facilitate greater regional economic cooperation and integration. The AHN’s current implementation state still shows missing links and ‘below Class III’ roads within ASEAN’s designated Transit Transport Routes (TTRs). The subset of projects below will complete these missing links and prioritise the upgrade of ‘below Class III’ roads in designated TTRs by 2015.</p> <p>Missing links:</p> <p>(i) Myanmar: AH112 (Thaton – Mawlamyine – Lahnya – Khlong Loy, 60 km)</p> <p>(ii) Myanmar: AH 123 (Dawei – Maesamepass, 141 km)</p> <p>Upgrading of ‘Below Class III’ TTRs:</p> <p>(i) Lao PDR: AH12 (Vientiane – Luang Prabang, 393 km)</p> <p>(ii) Lao PDR: AH15 (Ban Lao – Namphao, 98 km)</p> <p>(iii) Myanmar: AH1 (Tamu – MDY – Bago – Myawadi, 781 km)</p> <p>(iv) Myanmar: AH2 (Meikthila – Loilem – Kyaington – Tachikeik, 593 km)</p> <p>(v) Myanmar: AH3 (Kyaington – Mongla, 93 km)</p>	<p>CAPITAL ASSISTANCE</p> <p>POSSIBLE SOURCES OF FINANCING:</p> <p>Multilateral Development Banks (MDBs), Bilaterals, National Budgets, China-ASEAN Investment Cooperation Fund and the US\$15b China-ASEAN credit, Japan</p>	<p>The AHN sections identified for priority implementation here are those that will result in the completion of the missing links in the AHN and will upgrade designated TTRs to the barest minimum road class standards. Focus on implementing this subset of projects appears to be more achievable by 2015, as compared to the completion of all the construction and/or upgrading required for the entire AHN by 2015. Moreover, priority to the completion of the AHN by 2015 is stipulated in the ASEAN Leaders’ Statement on ASEAN Connectivity (October 2009) as well as the AEC Blueprint.</p> <p>Completion of the missing links and other infrastructure projects could contribute towards the development of economic corridors which are already in progress in ASEAN.</p>

2	<p>Completion of the Singapore Kunming Rail Link (SKRL) Missing Links [Land Transport]</p>	<p>The Singapore Kunming Rail Link (SKRL) is another flagship project for land transport infrastructure intended to link seven ASEAN Member States and China through Singapore–Malaysia–Thailand–Cambodia–Viet Nam–China (Kunming) and spur lines in Thailand–Myanmar and Thailand–Lao PDR. To complete the mainline SKRL and to demonstrate ASEAN’s resolve to complete this rail link, the following links need to be prioritised for construction:</p> <p>(i) Thailand: Aranyaprathet – Klongluk, 6 km</p> <p>(ii) Cambodia: Poipet – Sisophon, 48 km</p> <p>(iii) Cambodia and Viet Nam: Phnom Penh – Snuol – Loc Ninh, 254 km</p> <p>(iv) Viet Nam: Loc Ninh – Ho Chi Minh City, 129 km</p>	<p>CAPITAL ASSISTANCE</p> <p>POSSIBLE SOURCES OF FINANCING:</p> <p>MDBs, Bilaterals, ASEAN Member States’ (AMS) assistance to other AMS, National Budgets, Private Sector Participation (PSP), ASEAN Infrastructure Fund (AIF), China-ASEAN Investment Cooperation Fund and the US\$15b China-ASEAN credit</p>	<p>The railway sections prioritised here correspond to the sections that will complete the mainline SKRL. The first three - items (i), (ii) and (iii) - are scheduled for completion by 2015. Item (iv), which is a 129 km connection between Loc Ninh and Ho Chi Minh City, is currently scheduled for completion by 2020. The full benefits of SKRL will only be realised if all the links - (i), (ii), (iii) and (iv) - are completed by 2015.</p>
3	<p>Establish an ASEAN Broadband Corridor (ABC) [ICT]</p>	<p>The ASEAN Broadband Corridor (ABC) project has two main objectives: (i) to provide the infrastructure backbones to enable ICT services to all communities in ASEAN; and (ii) to put in place the required enabling policies and legislation to attract businesses and investments to the region.</p> <p>The project will focus on development of the “next generation infrastructure” (which refers to both wired and wireless technologies) and set the minimum standards and quality of broadband connectivity in ASEAN. It will also identify and develop the locations in each ASEAN Member State which offer quality broadband connectivity and enabling environment for the seamless usage and ICT applications across ASEAN and enhance the development of ICT and other sectors (e.g. broadband to all schools), and promote the diversity of international connectivity among ASEAN Member States. [2015]</p>	<p>CAPITAL/ TECHNICAL ASSISTANCE</p> <p>POSSIBLE SOURCES OF FINANCING:</p> <p>AIF, PSP, Dialogue Partners, Bilaterals, MDBs, National Budgets</p>	<p>As information infrastructure is fundamental to improving economic efficiency through providing access to information and knowledge, it is necessary to establish an ABC. The ABC will be significant as it can boost business and social development throughout the region. It also can allow individuals to build a sense of community and awareness beyond their immediate surroundings.</p>

4	Melaka-Pekan Baru Interconnection (IMT-GT: Indonesia) [Energy]	<p>This project involves a 600 MW high voltage direct current (HVDC) interconnection between Peninsular Malaysia and Sumatra, Indonesia consisting of:</p> <ul style="list-style-type: none"> (i) Submarine cable (52 km) through the Straits of Malacca from Telok Gong in Malaysia to the Island of Rupert in Indonesia; (ii) Overhead transmission lines (30 km) crossing the Rupert Island; (iii) Submarine cable (5 km) crossing the Rupert Straits up to Dumai; (iv) 275 kV overhead transmission lines (200 km) from Dumai to Garuda Sakti in Central Sumatra to be built by Indonesia’s state electricity firm – Perusahaan Listrik Negara (PLN); and, (v) Converter stations in Telok Gong and Garuda Sakti including harmonic filters and other necessary transmission facilities. <p>The project will be implemented in two phases. The first phase will consist of a 300 MW single pole configuration and the second phase will add a second 300 MW pole allowing the interconnection to operate on a bipolar configuration. [2012]</p>	<p>CAPITAL ASSISTANCE</p> <p>POSSIBLE SOURCES OF FINANCING:</p> <p>AIF, Asian Development Bank (ADB)</p>	<p>The rationale for the project is based on a win-win deal where each country will share their peaking capacity and the spinning reserve due to (i) the one hour time difference between the two countries; and (ii) the difference in peak hours and load curve pattern (Malaysia has a day peak, while Sumatra has a night peak).</p>
5	West Kalimantan-Sarawak Interconnection (BIMP-EAGA: Indonesia) [Energy]	<p>The project will consist of 120 km high voltage 275kV AC interconnection called the West Kalimantan-Sarawak Interconnection and Bengkayang substation. The line will connect Bengkayang Substation in West Kalimantan to ambong Substation in Sarawak. PLN will build an 82 km line in West Kalimantan side while the length of line in Sarawak side will be around 38 km. In addition, to allow the power to reach the load centre in West Kalimantan, PLN will build 60 km of 150 kV AC line from Bengkayang substation to Singkawang substation. [2013]</p>	<p>CAPITAL ASSISTANCE</p> <p>POSSIBLE SOURCES OF FINANCING:</p> <p>AIF, ADB</p>	<p>The interconnection will increase the reliability of the West Kalimantan system. The rationale for the project is based on a win-win deal where: (i) West Kalimantan will reduce the oil consumption since most of the existing plants are diesel-based; and (ii) each country will share their peaking capacity and the spinning reserve due to (a) the one hour time difference between the two countries; and (b) the difference in peak hours and load curve pattern (Sarawak has a day peak, while West Kalimantan has a night peak).</p>
6	Study on the Roll-on/roll off (RoRo) Network and Short-Sea Shipping [Maritime Transport]	<p>The project will involve a technical and feasibility study on adopting a roll-on/rolloff (RoRo) network in ASEAN and an assessment of options available for ASEAN Member States to encourage the development of short-sea shipping.</p>	<p>TECHNICAL ASSISTANCE</p> <p>POSSIBLE SOURCES OF FINANCING:</p> <p>National Budgets, USAID, Asia Foundation</p>	<p>This study will be a first step in exploring one of the options to implement one of the key principles in the Master Plan on ASEAN Connectivity on bridging archipelagic ASEAN with mainland ASEAN.</p>

Source: [Master Plan on ASEAN Connectivity \(2010\)](#), pp.74ff.

Appendix 3.3: Progress of ASEAN Power Grid Interconnection Projects (May 2013)

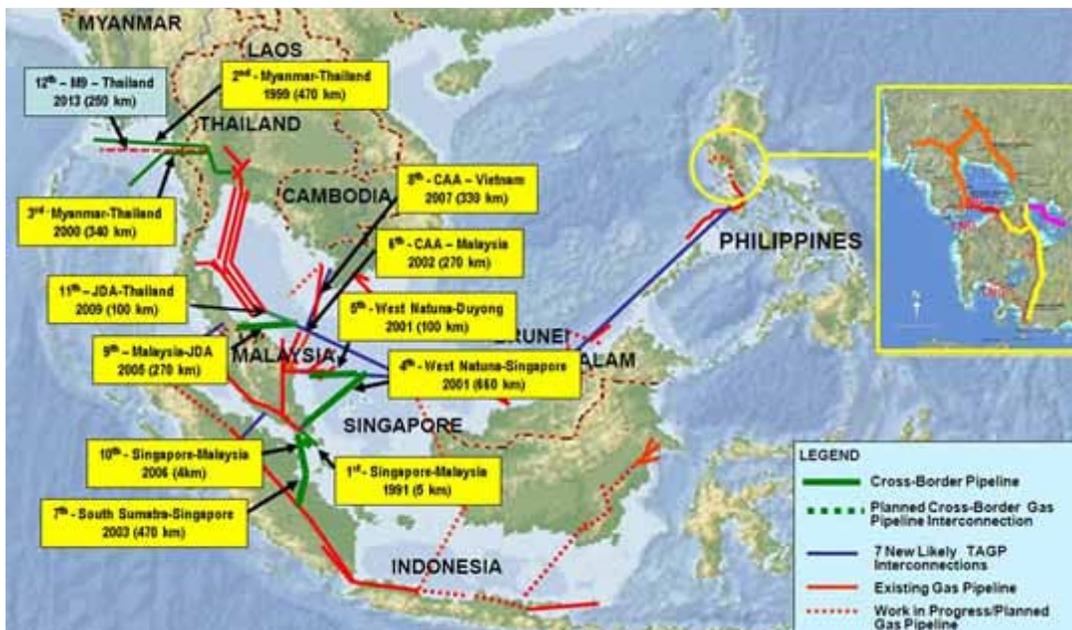


Priority Projects

	Earliest COD
1) P. Malaysia - Singapore (New)	2018
2) Thailand - P. Malaysia	
• Sadao - Bukit Keteri	Existing
• Khlong Ngae - Gurun	Existing
• Su Ngai Kolok - Rantau Panjang	2015
• Khlong Ngae - Gurun (2 nd Phase, 300MW)	2016
3) Sarawak - P. Malaysia	2015-2021
4) P. Malaysia - Sumatra	2017
5) Batam - Singapore	2015-2017
6) Sarawak - West Kalimantan	2015
7) Philippines - Sabah	2020
8) Sarawak - Sabah - Brunei	
• Sarawak - Sabah	2020
• Sabah - Brunei	Not Selected
• Sarawak - Brunei	2012, 2016
9) Thailand - Lao PDR	
• Roi Et 2 - Nam Theun 2	Existing
• Sakon Nakhon 2 - Thakhek - Then Hinboun (Exp.)	Existing
• Mae Moh 3 - Nan - Hong Sa	2015
• Udon Thani 3- Nabong (converted to 500KV)	2018
• Ubon Ratchathani 3 - Pakse - Xe Pian Xe Namnoy	2018
• Khon Kaen 4 - Loei 2 - Xayaburi	2019
• Thailand - Lao PDR (New)	2015-2023
10) Lao PDR - Vietnam	2011-2016
11) Thailand - Myanmar	2016-2025
12) Vietnam - Cambodia (New)	2017
13) Lao PDR - Cambodia	2016
14) Thailand - Cambodia (New)	2015-2020
15) East Sabah - East Kalimantan	2020
16) Singapore - Sumatra	2020

Source: Srisuping, K. (2013): Presentation "ASEAN Power Grid," slide 18.

Appendix 3.4: Progress of trans-ASEAN gas pipeline (2013)



Source: <http://ascope.org/component/content/article/6-projects/28-tagp.html>.

Appendix 4: Infrastructure Development in Latin America

Appendix 4.1: IIRSA Integration and Development Hubs

Integration and Development Hubs

- Andean Hub
- Southern Andean Hub
- Capricorn Hub
- Paraguay-Paraná Waterway Hub
- Amazon Hub
- Guianese Shield Hub
- Southern Hub
- Central Interoceanic Hub
- MERCOSUR-Chile Hub
- Peru-Brazil-Bolivia Hub

Source: <http://www.iirsa.org/Page/Detail?menuItem=68>.



Appendix 4.2: COSIPLAN API Projects

No	Hub	Structured Project Name	Countries	API Amount (Million US\$)	Code	Name of Individual Project	Project Stage	Amount US\$
1	AMA	Paita-Tarapoto-Yurimaguas Road, Ports, Logistics Centers and Waterways	Peru	471.9	AMA16	Tarapoto – Yurimaguas Road*	Completed	0
					AMA20	Paita Logistics Center	Profiling	47,650,000
					AMA21	Yurimaguas Logistics Center	Profiling	15,000,000
					AMA24	Paita Port	Completed	266,922,000
					AMA25	Paita – Tarapoto Road*	Completed	0
					AMA40	Improvement of navigation conditions on the Huallaga River waterway, between Yurimaguas and the confluence with Marañón River	Pre-Execution	33,000,000
					AMA41	Improvement of navigation conditions on the Marañón River waterway, between Sarameriza and the confluence with Ucayali River	Pre-Execution	11,000,000
					AMA44	Iquitos Logistics Center	Profiling	15,000,000
					AMA56	Modernization of Iquitos Port	Pre-Execution	39,550,000
					AMA102	Construction of new Yurimaguas Port	Execution	43,730,000

2	AMA	Callao-La Oroya-Pucallpa Road, Ports, Logistic Centers and Waterways	Peru	2,761.8	AMA104	Construction of new Pucallpa Port	Pre-Execution	54,959,720
					AMA26	Improvement of Tingo María – Pucallpa Road	Execution	438,352,770
					AMA30	Pucallpa Intermodal Logistics Center	Profiling	15,000,000
					AMA31	Modernization of El Callao Port (New Container Dock)	Execution	704,835,670
					AMA32	Lima – Ricardo Palma Expressway	Pre-Execution	242,000,000
					AMA43	Improvement of navigation conditions on the Ucayali River waterway, between Pucallpa and the confluence with Marañón River	Pre-Execution	19,000,000
					AMA63	IIRSA Center, Section 2: Ricardo Palma – La Oroya – Turn off to Cerro de Pasco / La Oroya – Huancayo	Pre-Execution	100,000,000
					AMA64	IIRSA Center, Section 3: Turn off to Cerro de Pasco – Tingo María	Pre-Execution	115,606,060
					AMA65	El Callao Logistics Activities Zone (ZAL Callao)	Profiling	68,300,000
					AMA66	El Callao Multi-Purpose Northern Terminal	Execution	883,482,448
	AMA67	El Callao Mineral Shipping Terminal	Completed	120,300,000				
3	AMA	Northeastern Access to the Amazon River	Brazil, Colombia, Ecuador, Peru	52.8	AMA38	Improvement of navigation conditions on the rivers Putumayo and Içá	Pre-Execution	15,000,000
					AMA39	Improvement of navigation conditions on the Morona River	Pre-Execution	2,000,000
					AMA42	Improvement of navigation conditions on the Napo River	Profiling	5,759,000
					AMA45	Morona Freight Transfer Port	Pre-Execution	5,000,000
					AMA71	Providencia Port	Pre-Execution	25,000,000
4	AND	Caracas-Bogotá-Buenaventura/Quito Road Corridor	Colombia, Ecuador, Venezuela	3,350.0	AND05	Bogotá – Cúcuta Road Corridor	Execution	1,559,000,000
					AND07	Bogotá – Buenaventura Road Corridor	Execution	1,791,000,000

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5	AND	Colombia-Ecuador-Border Interconnection	Colombia, Ecuador	227.7	AND31	Binational Border Service Center (CEBAF) at San Miguel	Pre-Execution	25,000,000
					AND79	Improvement and paving of the Mocoa – Santa Ana – San Miguel Road Section	Execution	133,629,000
					AND82	Implementation of the Binational Border Service Center (CEBAF) at the Tulcán – Ipiales (Rumichaca) Border Crossing	Pre-Execution	65,000,000
					AND91	Construction of the new international Rumichaca Bridge and improvement of the existing bridge	Execution	4,100,000
6	AND	Colombia-Venezuela Border Crossings Connectivity System	Colombia, Venezuela	4.0	AND02	Binational Border Service Center (CEBAF) at Paraguachón	Execution	2,000,000
					AND13	Improvement of José Antonio Páez Bridge*	Completed	0
					AND19	Puerto Carreño Border Crossing	Profiling	1,000,000
					AND81	Improvement of the border crossings in the northern department of Santander and the Táchira state	Pre-Execution	2,000,000
7	AND	Desaguadero Binational Border Service Center (CEBAF)	Bolivia, Peru	40.2	AND47	Desaguadero Binational Border Service Center (CEBAF)	Execution	40,231,927
8	AND	Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana-Aguas Verdes Section (Including Tumbes Bypass)	Peru	515.5	AND28	Autopista del Sol Expressway: Improvement and Rehabilitation of the Sullana-Aguas Verdes Section (Including Tumbes Bypass)	Execution	515,478,715
9	CAP	Construction of the Salvador Mazza-Yacuiba Binational Bridge and Border Center	Argentina, Bolivia	45.0	CAP10	Construction of the Salvador Mazza – Yacuiba Binational Bridge and Border Center	Pre-Execution	45,000,000
10	CAP	Argentina-Bolivia West Connection	Argentina, Bolivia	477.0	CAP11	Rehabilitation of Jujuy – La Quiaca Railway	Pre-Execution	62,000,000
					CAP50	Paving of National Route No. 40, Mining Corridor Path (Border with Bolivia)	Pre-Execution	400,000,000
					CAP81	La Quiaca – Villazón Bridge and Border Center	Profiling	15,000,000

11	CAP	Paranaguá-Antofagasta Bioceanic Railway Corridor	Argentina, Brazil, Chile, Paraguay	5,102.2	CAP20	Cascavel – Foz do Iguaçu Bioceanic Railway Corridor	Profiling	324,000,000
					CAP23	Optimization of the Ñeembucú – Bermejo Bridge Node	Pre-Execution	61,206,392
					CAP29	Construction of the Ciudad del Este – Pilar Railway	Pre-Execution	2,800,000,000
					CAP37	Rehabilitation of the C3 Railway Branch Line: Resistencia – Avia Terai – Pinedo	Pre-Execution	104,000,000
					CAP38	Rehabilitation of the C12 Railway Branch Line: Avia Terai – Metán	Pre-Execution	212,000,000
					CAP39	Rehabilitation of the C14 Railway Branch Line: Salta – Socompa	Pre-Execution	60,000,000
					CAP52	Railway Bridge with Freight Yard (Ciudad del Este – Foz do Iguaçu)	Profiling	40,971,000
					CAP53	Bioceanic Railway Corridor: Paranaguá – Cascavel Section and Guarapuava – Ingeniero Bley Railway Bypass	Pre-Execution	1,500,000,000
					CAP91	Bioceanic Railway Corridor, Chilean Section (Antofagasta – Socompa)*	Completed	0
12	CAP	Foz do Iguaçu-Ciudad del Este-Asunción-Clorinda Road Connection	Argentina, Brazil, Paraguay	774.2	CAP07	Optimization of the Clorinda – Asunción Node	Pre-Execution	101,206,392
					CAP14	New Puerto Presidente Franco – Porto Meira Bridge, with a Paraguay – Brazil Integrated Control Area	Execution	713,000,000
					CAP18	Concession for the improvement of Routes No. 2 and 7 (Asunción – Ciudad del Este)	Pre-Execution	500,000,000
13	CAP	Itaipu-Asunción-Yacyretá 500-kV Transmission Line	Paraguay, Brazil	852.0	CAP67	500–kV Transmission Line (Itaipu – Villa Hayes)	Completed	555,000,000
					CAP68	500-kV Transmission Line (Yacyretá – Villa Hayes)	Execution	297,000,000
14	GUY	Rehabilitation of the Caracas-Manaus Road	Brazil, Venezuela	407.0	GUY01	Rehabilitation of the Caracas – Manaus Road	Execution	407,000,000
15	GUY	Boa Vista-Bonfim-Lethem-Linden-Georgetown Road	Brazil, Guyana	250.0	GUY09	Lethem – Linden Road	Pre-Execution	250,000,000
					GUY42	Boa Vista – Bonfim Road*	Completed	0
					GUY43	Linden – Georgetown Road*	Completed	0

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16	GUY	Routes Interconnecting Venezuela (Ciudad Guayana)-Guyana (Georgetown)-Suriname (South Drain-Apura-Zanderij-Moengo-Albina), including the construction of the bridge over the Corentyne River	Guyana, Suriname, Venezuela	301.8	GUY18	Routes Interconnecting Venezuela (Ciudad Guayana) – Guyana (Georgetown) – Suriname (Apura – Zanderij – Paramaribo)	Profiling	300,800,000
					GUY24	Construction of the bridge over the Corentyne River	Profiling	1,000,000
17	HPP	Improvement of Navigation Conditions on the Rivers of the Plata Basin	Argentina, Bolivia, Brazil, Paraguay, Uruguay	1,170.0	HPP07	Improvement of navigation conditions on the Paraguay River (between Apa and Corumbá)	Pre-Execution	39,000,000
					HPP09	Improvement of navigation conditions on the Paraguay River (Asunción – Apa)	Pre-Execution	110,000,000
					HPP19	Improvement of navigation conditions on the Tietê River	Execution	800,000,000
					HPP42	Binational project for the improvement of navigation conditions on the Paraguay River, from Confluencia to Asunción	Execution	45,498,216
					HPP44	Deepening of the fairway in the Paraná River from Confluencia to the Plata River	Execution	110,000,000
					HPP72	Binational project for the improvement of navigation conditions on the Alto Paraná River	Profiling	0
					HPP88	Binational project for the improvement of navigation conditions on the Uruguay River	Execution	40,000,000
					HPP106	System for water level prediction in the Paraguay River (Apa – Asunción)	Pre-Execution	0
					HPP108	Improvement of navigation conditions on the Alto Paraná River (upstream of Saltos del Guairá)	Execution	15,000,000
					HPP122	Rehabilitation and maintenance of the Tamengo Canal	Profiling	10,500,000

18	HPP	Paraguay-Argentina-Uruguay Railway Interconnection	Argentina, Paraguay, Uruguay	577.3	HPP65	Rehabilitation and improvement of the Piedra Sola – Salto Grande Section	Execution	127,300,000
					HPP82	Rehabilitation of the Zárate – Posadas Railway Branch Line	Profiling	0
					HPP103	Construction and rehabilitation of the Asunción – Artigas Railway	Pre-Execution	300,000,000
					HPP76	Construction and rehabilitation of the Artigas – Posadas Railway	Pre-Execution	150,000,000
19	HPP	Rehabilitation of the Chamberlain-Fray Bentos Railway Branch Line	Uruguay	100.0	HPP120	Rehabilitation of the Algorta – Fray Bentos Railway Branch Line	Pre-Execution	100,000,000
20	HPP	Nueva Palmira Beltway and Port Access Roads Network	Uruguay	15.0	HPP97	Nueva Palmira Beltway and Port Access Roads Network	Pre-Execution	15,000,000
21	IOC	Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)	Bolivia	20.0	IOC78	Passenger and Cargo Hub Airport for South America (Viru Viru, Santa Cruz, International Hub Airport)	Profiling	20,000,000
22	IOC	Improvement of Road Connectivity in the Central Interoceanic Hub	Bolivia, Brazil	431.5	IOC14	Campo Grande Bypass	Execution	30,000,000
					IOC25	Puerto Suárez – Corumbá Integrated Control Area	Execution	2,000,000
					IOC32	Toledo – Pisiga Road	Execution	130,500,000
					IOC80	Upgrade of La Paz – Santa Cruz Route to a four-lane road	Execution	269,000,000
23	IOC	Infante Rivarola-Cañada Oruro Border Crossing	Bolivia, Paraguay	1.9	IOC09	Infante Rivarola – Cañada Oruro Border Crossing	Execution	1,900,000
24	IOC	Central Bioceanic Railway Corridor (Bolivian Section)	Bolivia	6.7	IOC81	Central Bioceanic Railway Corridor	Pre-Execution	6,700,000
25	MCC	Northeastern Argentina Gas Pipeline	Argentina, Bolivia	1,000	MCC68	Northeastern Argentina Gas Pipeline	Pre-Execution	1,000,000,000
26	MCC	Construction of the Jaguarão-Río Branco International Bridge	Brazil, Uruguay	93.5	MCC22	Construction of the Jaguarão - Río Branco International Bridge	Pre-Execution	93,500,000

27	MCC	Multimodal Transportation in the Laguna Merín and Lagoa dos Patos System	Brazil, Uruguay	40.4	MCC85	Dredging of Merín Lake	Pre-Execution	25,000,000
					MCC157	Dredging of the Tacuarí River	Execution	1,350,000
					MCC158	Dredging of and installation of signs, markers and aids to navigation in the Mirim Lake – Dos Patos Lake system	Profiling	0
					MCC159	La Charqueada Port Terminal and dredging of the Cebollati River	Execution	7,000,000
					MCC160	Port Terminal and dredging of Tacuarí	Pre-Execution	7,000,000
28	MCC	Montevideo-Cacequi Railway Corridor	Brazil, Uruguay	139.9	MCC30	Rehabilitation of the Montevideo – Rivera Railway	Execution	134,900,000
					MCC115	Rehabilitation of the Rivera – Santana do Livramento – Cacequi Railway Section	Completed	5,000,000
29	MCC	Optimization of the Cristo Redentor	Argentina, Chile	258.0	MCC151	Integrated Freight Control Center at Uspallata	Pre-Execution	90,000,000
					MCC152	Passenger Control Center at Los Horcones	Pre-Execution	80,000,000
					MCC153	New Los Libertadores border complex	Pre-Execution	70,000,000
					MCC154	Rehabilitation of the Cristo Redentor Tunnel and Caracoles	Pre-Execution	4,000,000
					MCC155	Binational management control system at the Cristo Redentor border crossing	Pre-Execution	14,000,000
30	MCC	Border Crossing System Agua Negra Binational Tunnel	Argentina, Chile	1600.0	MCC110	Agua Negra Binational Tunnel	Pre-Execution	1,600,000,000
31	PBB	Porto Velho-Peruvian Coast Connection	Brazil, Peru	85.4	PBB64	Bridge over the Madeira River in Abuña	Pre-Execution	85,350,000

*Individual project completed before the creation of API and incorporated into the Agenda because it supplements the connectivity network of the structured project. Source: UNASUR/COSIPLAN (2013): “[Informe de Avance API 2014](#),” pp.281ff.

Appendix 4.3: Total investment in API Project per Development Hub



Source: Data taken from UNASUR/COSIPLAN (2014): "[Informe de Avance API 2014.](#)"

Appendix 5: Competing Visions of Infrastructure Development

Appendix 5.1: G20 High Level Panel on Infrastructure Selection Criteria

Selection Criteria	
1	The extent to which the project brings about regional integration, considering the number of direct and indirect beneficiary countries. This criterion is met when the project consists in inter-connecting two or more countries or in providing a regional public good.
2	The extent of political support available to the project, considering both concerned countries and regional organisations. This criterion is met when official documents or statements identify it as a priority.
3	The potential transformational impact of the project on sub-regions' growth (see MDB Infrastructure Action Plan), considering its economic area of influence. This criterion is met when the material economic impact on the lives affects a large number of people (including reducing the cost of a key service, improving its quality or availability). This criterion also implies sustainable development dimension and is particularly met in green growth related projects.
4	The maturity of the project, considering how advanced project preparation is. This criterion is met when substantial preparatory work has been made on the road to financial closure and project implementation (including pre-feasibility and feasibility studies).
5	The institutional capacity, considering technical capacity of the implementing institutions (political independence, financial solidity, quality of technical staff, track record in successfully completing complex infrastructure projects). This criterion is met when the assessment of governance and institutional framework at country level (on the basis of indicators such as the IDA country policy and institutional assessment) and of the quality of local project management is positive.
6	The potential attractiveness for the private sector, considering it in terms of funding and creditworthiness. This criterion is met when the project generates adequate and reliable flows of financial revenues and when risks are carefully designed allocated and as far as possible mitigated.

Source: [High Level Panel on Infrastructure Recommendation to the G20 – Final Report \(2011\)](#), p.13f.

Appendix 5.2: WEF Business Working Group for PIDA

Businesses	Infrastructure & Urban Development/Mobility <ul style="list-style-type: none"> • Arup • SNC-Lavalin • Transnet • A.P. Møller-Maersk 	Energy <ul style="list-style-type: none"> • Oando • ABB • GE 	Chemicals <ul style="list-style-type: none"> • Sasol • United Phosphorus
	Mining & Metals <ul style="list-style-type: none"> • African Rainbow Minerals • AngloGold Ashanti • Rio Tinto • ArcelorMittal • Sun Group • Vale 	Investors & Fin. services <ul style="list-style-type: none"> • Dev. Bank of S. Africa • Prudential • First Bank Nigeria • Standard Chartered • Actis • Absa Capital • IDC of S. Africa • Old Mutual 	Other <ul style="list-style-type: none"> • Phillips • Grow Africa Secretariat • Etisalat Group
Multilateral Organizations, Development Banks and Experts	ML/Development Bank <ul style="list-style-type: none"> • African Development Bank (Incl. ICA) • African Union Commission • IFC • NEPAD Planning & Coordinating Agency (NEPAD Agency) • World Bank 		Experts <ul style="list-style-type: none"> • Africa Capacity Building Foundation • Mo Ibrahim Foundation • NEPAD Business Foundation • The Office of Gordon & Sarah Brown

Source: World Economic Forum (WEF) (2013): “[Strategic Infrastructure in Africa. A business approach to project acceleration](#),” p.14.

Appendix 5.3: COSIPLAN’s Selection Criteria

Selection Criteria	
1	The projects should belong to the COSIPLAN Project Portfolio and be a priority in government action, and there should be a commitment to accomplish them (evidenced by the allocation of funds through multi-year financing programs, by the legislation passed, the budget measures taken, etc.).
2	Feasibility studies should be available, or the country should have the funds allocated to start their execution.
3	The projects should strengthen connectivity networks that are regional in scope, and involve cross-border synergies
4	There should exist an opportunity or a need for taking complementary actions intended to promote efficient service provision and the sustainable development of the territory, according to the characteristics and modality of each specific project

Source: <http://iirsa.org/Page/Detail?menuItem=94>.