PART II

FEASIBILITY STUDY

PAN AFRICAN CAPACITY BUILDING PROGRAMME

Between

THE DEVELOPMENT BANK OF SOUTHERN AFRICA
(Hereinafter referred to as the DBSA)
And

AGENCE FRANCAISE DE DEVELOPPEMENT
(Hereinafter referred to as AFD)

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The second part of the document outlines the situational analysis which justifies the rationale for the DBSA /AfD Pan African Capacity Building Program.

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GLOSSARY OF TERMS AND ABBREVIATIONS

ACAA: .... African Civil Aviation Agency
ACAC: .... Africa Civil Aviation Commission
ACBF: .... African Capacity Building Foundation
ADF: .... African Development Fund
AFD: .... Agence Françoise De Development
AfDB: .... African Development Bank
AICD: .... Africa Infrastructure Country Diagnostic
AIEDP: .... African Institution for Economic Development and Planning
APPG: .... African Project Preparation Gap
ARA: .... Autonomous Road Agencies
AREC: .... Africa Regional Energy Commission
ASANRA: .... Association of Southern African National Road Agencies
AU: .... African Union
BESTAP: .... Business Environment Strengthening and Technical Assistant
CAPP: .... Central African Power Pool
CEFEB: .... Center for Financial Economic and Banking
CESAG: .... Centre Africain d'Etudes Superieures en Gestion
COMESA: .... Common Market for Eastern and Southern Africa
DBSA: .... Development Bank of Southern Africa
DCE: .... Department of Civil Engineering
DFIs: .... Development Finance Institutions
DFRC: .... Development Finance Resource Centre

DIE:	Department of Infrastructure and Energy
EAC:	East African Community
EAPP:	Eastern African Power Pool
EC:	European Commission
ECCAS(CEEAC):	Economic Community of Central African States
ECOWAS:	Economic Community of West African States
EDF:	European Development Fund
EU:	European Union
FIDIC:	International Federation of Consulting Engineers
GREETP:	Global Renewable Energy Education Training Program
ICA:	Infrastructure Consortium for Africa
ICTs:	Information Communications Technology
IDA:	International Development Agency
IDC:	Industrial Development Corporation
IFC:	International Finance Corporation
IFLPM:	Internationally Favored Landlord Port Model
IPP:	Investment with Public Participation
IPPF:	Infrastructure Project Preparation Facility
IRRP:	Infrastructure Reform and Regulation Programme
ISF:	Improved Sanitation Facilities
IWMI:	Integrated Water Management Institute
IWPP:	International Water Policy Project
IWRM:	Integrated Water Resource Management
JICA:	Japan International Cooperation Agency
JSC:	Joint Steering Committee
KMA:	Knowledge Management Africa
PPDU:	Project Preparation and Development Unit
PPF:	Project Preparation Facility
PPI:	Public Private Investment
PPIAF:	Public Private Infrastructure Advisory Facility
PPPs:	Public, Private Partners
REC:	Regional Economic Communities
RED:	Road Economic Decision
RMF:	Road Management Financing
SADC:	Southern African Development Community
SAPP:	Southern African Power Pool
SSA:	Sub-Saharan Africa
SSATPP:	Sub-Saharan Africa Transport Policy Programme
TNAR:	Training Needs Assessment Report
TOR:	Terms of Reference
TWC:	Trans-boundary Water Cooperation
TWRM:	Trans-boundary Water Resources Management
UNECA:	United Nations Economic Commission for Africa
WAGPP:	West African Gas Pipeline Project
WAITRO:	World Association of Industrial and Technology Research Organ
WAPP:	West African Power Pool
WASEP:	West African Solar Energy Project
WB:	World Bank
WBWDI:	World Bank World Development Indicators
WSES:	Water Supply and Environmental Sanitation

1. PURPOSE OF THE DOCUMENT

Part II of the strategic framework supports the rationale for the program. It outlines the status quo of capacity building requirements from different perspectives; from the view of the implementers of infrastructure projects – utilities, government bodies, Regional Economic Communities, and others – from the sectoral view - water and sanitation, energy, and transport, from the perspective of the future requirements for infrastructure investment and development in the Continent.

2. INFRASTRUCTURE DEVELOPMENT IN AFRICA

Being endowed with abundant resources, the African continent needs to fully exploit its physical infrastructure to maximize the resultant benefits, such as lower production costs, whilst facilitating regional[1] growth and development. Infrastructure development is dependent not merely on technology and investment but on the availability of technical and managerial skills as well as equipped professionals to achieve the outcomes of the millennium development goals. In recent years a willingness to invest in the infrastructure development of Africa has been forthcoming from multilateral agencies and bilateral commitments from G-8 countries as well as China, India and some Arab nations. This has created a demand for management professionals geared towards contributing in areas related to trans-boundary development finance, particularly in the areas of water and sanitation, transport and power in the Sub-Saharan African region.

3. INFRASTRUCTURE DEVELOPMENT SKILLS SHORTAGE

The regional infrastructure investment needs cannot be overemphasized with 36% of the population without access to clean drinking water, 73% without access to improved sanitation facilities and 77% without electricity. The demand for basic amenities like water and sanitation, power and transport is likely to

[1] Any infrastructure capacity building intervention has to be designed with a regional oriented approach it if wants to remain relevant and in accordance with the fast-tracked pace of regional integration – that is where projects are focusing on, that is the priority from any perspective, NEPAD, ADB, DBSA, AFD, EIB, AU, G8, RERA, SADC, RECs, SAPP, WAPP, etc.

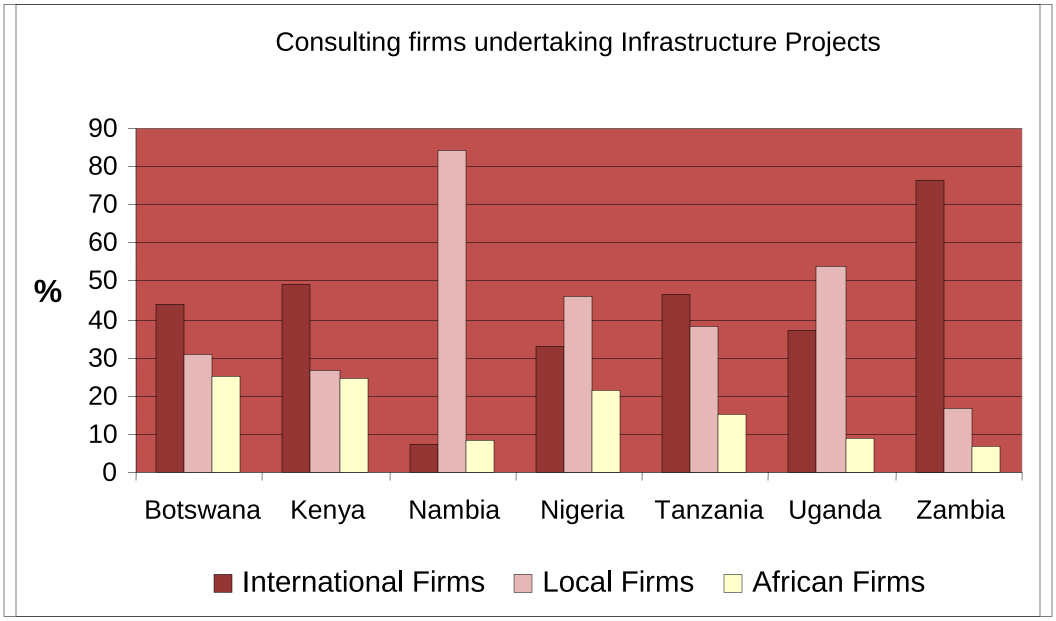
surge with the dramatic increase in urban population in the coming years and the projected increase in Africa's population from around 924 million in 2006 to 1.4 billion in 2025 and 2 billion in 2050. This alone paints a picture not only of the current need for skills but equally the future demand that will require a certain level of readiness capability.

The regional approach in tackling the issue of infrastructure development has been accepted by the African Union (AU), the New Partnership for Africa's Development (NEPAD) and the Infrastructure Consortium for Africa (ICA)[2] as more desirable; the design of the PAMDF will have to take this into account that although regional projects are more cost-effective they are also difficult to design and implement. This is probably one of the reasons why regional infrastructure development has not made as much progress as anticipated. Despite key Africa-wide institutions like the AU (Department of Infrastructure and Energy DIE), NEPAD, and ICA's support of regional cooperation in infrastructure, there is still a shortage of capacity in regional bodies to promote, develop and lead infrastructure project implementation.

While capacity building needs of DIE are met by the EU support programs, other specialized infrastructure agencies of the AU like African Regional Energy Commission, African Civil Aviation Commission etc. require capacity building support. According to the Public Private Infrastructure Advisory Facility (PPIAF) report "The African Project Preparation Gap" 2006, one of the main issues limiting regional infrastructure development is the lack of packaged bankable projects. It is therefore imperative to enhance capacity building within Regional Economic Communities to be more effective in this regard. According to the FIDIC Draft report of GAMA Taskforce 2006, African countries rely heavily on international consulting firms for execution and management of infrastructure projects, which was highlighted by some of the stakeholders in the inception meeting and during discussions. The table below portrays the picture:

[2] Their relevance lies in the fact that they are the key institutions operating at the continent-wide level in support of regional cooperation in infrastructure.

Figure 1: Consulting firms undertaking infrastructure projects



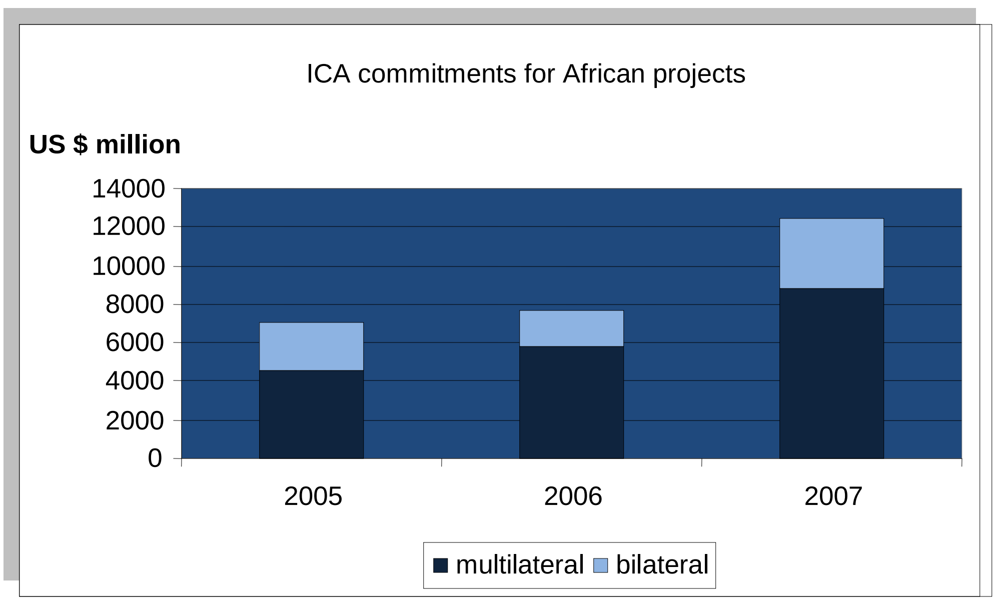
Source: FIDIC, Draft report of GAMA Taskforce 2006

This is supported by a recent PPIAF funded Training Needs Assessment Report prepared for SADC-DFRC, DBSA, and the World Bank, which showed a severe lack of capacity for conducting sound financial and economic appraisals for investment projects. The study found that the appraisals that are done are generally carried out by consultants – usually transaction advisors. Government employees lack adequate skills to adequately assess the consultants' reports or even the ability to ask their advisors the right questions. A study conducted in Malawi, Tanzania, Mozambique, and South Africa revealed strong interest in Project Preparation courses to assist them in the process of preparing sound Public Private Partnership (PPI) projects. It acknowledges that deficiencies exist in discounted cash flow analysis, project appraisal process and the risk allocation for such projects.

4. INFRASTRUCTURE FINANCE NEEDS AND SKILLS SHORTAGE

The estimates on the infrastructure financial needs in Africa vary from $20 billion a year according to the report of the Commission for Africa in 2005 to $40 billion per year by a more recent study in 2008 by Africa Infrastructure Country Diagnostic. According to the ICA annual report 2007, African countries received a minimum of $40 million in external financial support to infrastructure in 2007. Commitments to infrastructure projects have been on the rise in the region with the Infrastructure Consortium for Africa (ICA) committing 12.4$ billion in 2007 which is an increase of 61% over the previous year. Multilateral agencies account for over 70% of the commitments and record replenishments of IDA, ADF and EDF along with the launch of the EU-Africa Infrastructure Trust fund in 2007 will guarantee that the upward trend in commitments will continue.

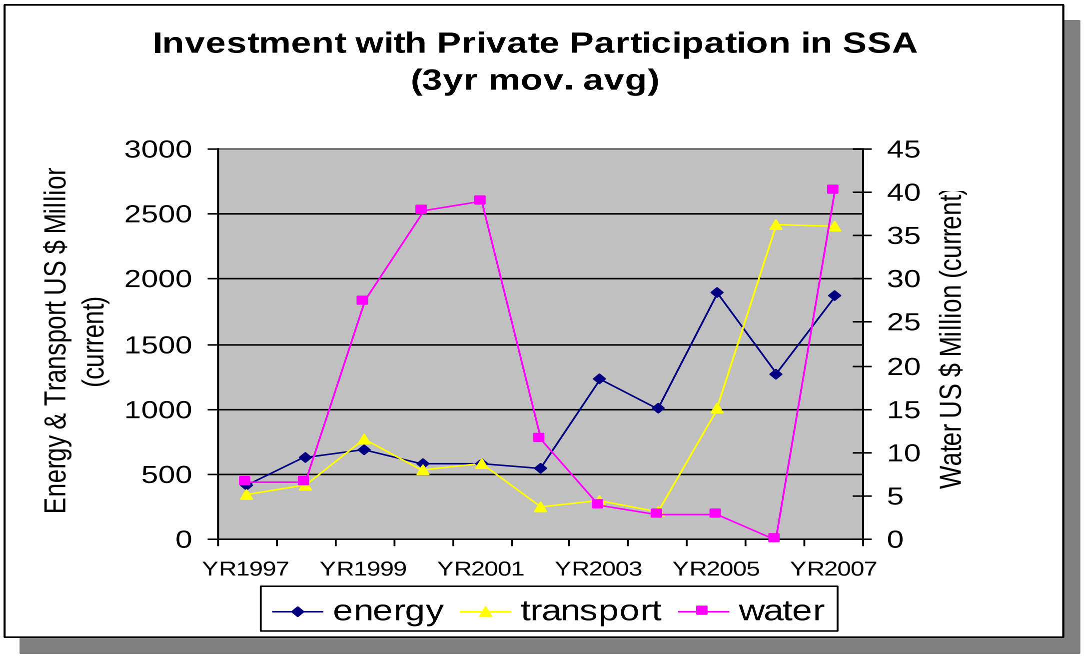
Figure 2: ICA commitments to Africa



Source: ICA annual Report 2007

Private participation in infrastructure investment in the region has been on the rise. It is evident that although infrastructure investment shows an upward trend, sectoral differences exist. Water and sanitation shows the least encouraging figures with the exception of last year. Investments in energy and transport sector have been showing encouraging trends since the beginning of this decade.

Figure 3: Investment with private participation in Sub-Saharan Africa



Source: World Bank World Development Indicators database.

Greenfield projects are the preferred mode of private sector investment in energy and water sectors while concession takes the lead in the transport sector.

Table 1: Total projects by primary sector and type: Sub-Saharan Africa (US$ million)

Primary Sector	**Type of PPI**	**Total Investment**	**% of investment**
Energy	Concession	1,899	21
	Divestiture	1,358	15
	Greenfield project	5,579	63
	Management and lease contract	5	0
Total Energy		8,841	100
Transport	Concession	5,293	52
	Divestiture	169	2
	Greenfield project	4,694	46
	Management and lease contract	42	0.41
Total Transport		10,199	100
Water and sewerage	Concession	76	29
	Greenfield project	133	50
	Management and lease contract	57	21
Total Water and Sewg		266	100

Source: World Bank, Private Participation in Infrastructure Database

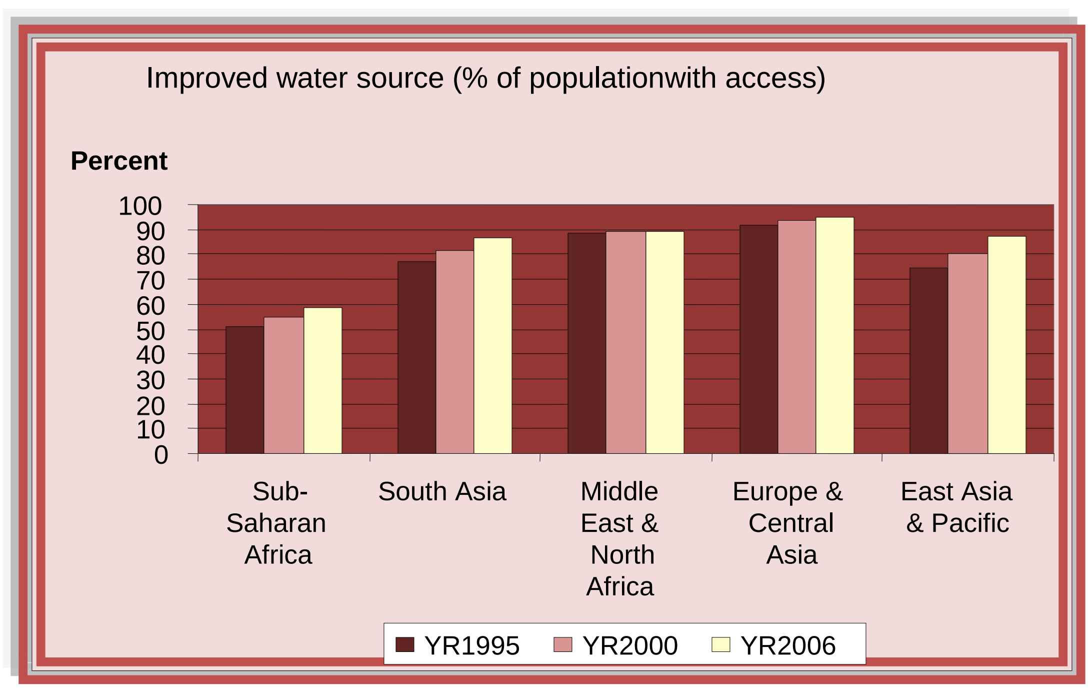
5. SECTOR ANALYSIS

Given the differing nature and potential of the sectors brought out in the situation analysis, a closer look at each of these sectors was essential to determine the sector to take precedence in the program intake and approach.

6. WATER & SANITATION

Given the differing nature and potential of the sectors brought SSA (excluding South Africa) has the world's lowest water storage capacity at around 43m3 per person per year and has developed less than 7% of its hydropower potential. It is therefore not surprising that despite some improvement in the last 10 years SSA continues to compare unfavorably to all other regions in the world in terms of access to improved water source. Investment in water has not been showing upward trend as other infrastructure sectors. At the current rate of progress, SSA is not likely to meet the MDG of halving by 2015 the proportion of people without access to water.

Figure 4: Percentage of population with access to water



Source: World Bank World Development Indicators database.

The picture is mixed across the continent with some countries doing better than others. Countries like Equatorial Guinea, Congo, Chad, Madagascar, Angola, Tanzania, and Zambia are seen to be below the region average while South Africa, Namibia and Gabon has respectable proportion of population with access to improved water source. This calls not only for enhanced capacity building in this sector but also for regional cooperation between countries especially those that share common resources to harness and share water resources.

Table 2: Improved water source (% of population with access)

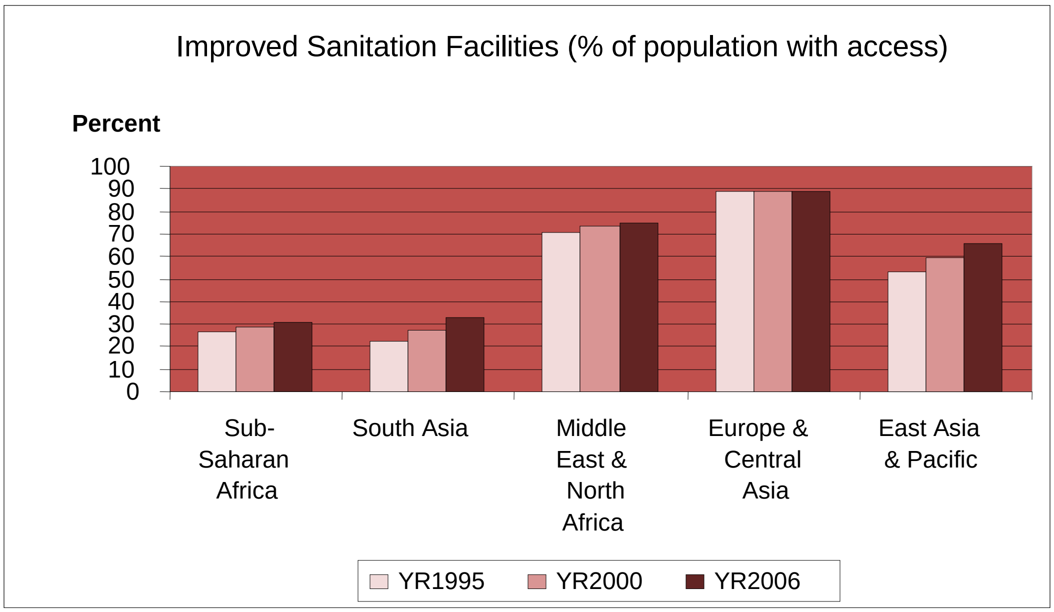
Country	2000	2006	Country	2000	2006
Angola	44	51	Equatorial Guinea	43	43
Benin	64	65	French Polynesia	100	100
Botswana	95	96	Gabon	85	87
Burkina Faso	56	72	Lesotho	77	78
Burundi	71	71	Madagascar	45	47
Cameroon	63	70	Malawi	63	76
Cape Verde	80	..	Mali	51	60
Central African Republic	63	66	Namibia	81	93
Chad	34	48	Rwanda	65	65
Congo, Rep.	70	71	South Africa	89	93
Cote d'Ivoire	75	81	Tanzania	53	55
Zimbabwe	80	81	Uganda	56	64
Congo, Dem. Rep.	45	46	Zambia	54	58

Source: World Bank World Development Indicators database.

Donor support is therefore seen to be increasing in trans-boundary water cooperation emphasizing the need for Trans-boundary Water Resource Management (TWRM). Results of a G-8 initiative survey 2004-07 show that financial support is extended to 17 out of 59 trans-boundary basins in Africa. Although SADC is found to be by far the most major recipient, donors have diversified their support for other river and lake basins as well. According to GTZ International Water Policy Project report on Donor Activity in Trans-boundary Water Cooperation in Africa 2008, financial support is increasing to various basins like Senegal, Lake Malawi, Okavango, Orange-Senqu, Volta, Pungwe, Congo, and Lake Tanganyika.

The picture regarding sanitation is similar to that of water. Far from meeting MDG of halving the proportion of people without access to improved sanitation, if the current trends continue up to 2015, SSA will have 91 million more unsaved people than in 2004. An inter-regional comparison indicates that while Sub-Saharan Africa (SSA) figured better than South Asia in 1995, the latter was able to improve its position substantially by 2006 while SSA recorded only marginal improvement.

Figure 5: Percentage of population with access to sanitation



Source: World Bank World Development Indicators database.

TABLE 3: PERCENTAGE OF POPULATION WITH ACCESS TO SANITATION

Country	2000	2006	Country	2000	2006
Angola	40	50	Cote d'Ivoire	22	24
Benin	24	30	Equatorial Guinea	51	51
Botswana	45	47	French Polynesia	98	98
Burkina Faso	9	13	Gabon	36	36
Burundi	42	41	Lesotho	34	36
Cameroon	47	51	Madagascar	11	12
Cape Verde	41	..	Malawi	55	60
Central African Republic	22	31	Mali	42	45
Chad	7	9	Namibia	32	35
Congo, Rep.	20	20	Rwanda	25	23
Tanzania	34	33	South Africa	57	59
Uganda	32	33	Zambia	49	52

Congo, Dem. Rep.	25	31	Zimbabwe	45	46

Source: World Bank World Development Indicators database

The need for coordinated policies and increased investment in water and sanitation infrastructure is brought out by the data; the increased investment in water will result in an increase in the demand for skills. This in turn points to the need to build up capacity in visualizing and implementing infrastructure projects in this sector.

7. TRANSPORT SECTOR

An efficient network of roads, rail, air and other modes of transport is essential to enhance competitiveness, industrial development and facilitate trade promotion. The lack of adequate and efficient mode of transportation is a huge constraint towards optimal utilization of the natural resources of the continent. According to an AICD Study (2007), Africa requires $14.2bn per year for its transport infrastructure investment and maintenance.

TABLE 4: FINANCING REQUIREMENT FOR TRANSPORT INFRASTRUCTURE (US$ MILLION PER YEAR)

Country	Regional Connectivity	National Connectivity	Rural Connectivity	Urban Connectivity	Airports, Ports And Railways	Total
Benin	25.5	25.2	85.4	14.6	26.7	177.4
Burkina Faso	40.6	37.9	197.6	11.8	13.3	301.2
Cameroon	78.8	62.2	281.1	12.5	52.5	487.1
Cote D'ivoire	47.6	124.6	155.1	24.4	72	423.7
Congo-DRC	155.8	196.3	968.7	29.6	70.5	1420.9
Ethiopia	89.2	66.7	457.7	38.1	27.4	679.1
Ghana	53.6	65.7	173.5	41.8	58.4	393
Kenya	71.9	80.5	215.3	72.4	133	573.1
Lesotho	0.1	24.3	8.3	2.6	29.7	65
Madagascar	62.3	90.1	490.4	16.9	31.2	690.9
Malawi	30	38.8	70.2	10.2	21.6	170.8
Mozambique	97.1	49.8	383.6	22	67.2	619.7
Namibia	91.8	25.3	250.9	3.3	59.5	430.8
Source: AICD, 2008						

While access to transport in rural areas in many parts of the continent continues to be dismal, transport in the urban areas of most African countries is characterized by declining standards of public transport and deteriorating infrastructure due to poor maintenance and management. New developments in road, rail, and port or air infrastructure must also be coordinated and harmonized as it can be only as good as its interfacing infrastructure. UNECA and the AfDB estimate that $4.3 billion is required for the completion of key missing links in the transport sector, making this sector an essential area of focus. In order to facilitate strong regional economic cooperation, countries should plan their investments in the transport sector holistically instead of individually ensuring uniform infrastructure standards that will allow carriers to move without barriers. Differing standards for road pavement and bridge structures and differing railway gauge track standards stand in the way of inter-regional transportation.

Roads are the most important mode of transport in the continent. 80% to 90% of freight and passenger transport is dependent on roads. But as table shows the quality of road infrastructure is very much lacking with most countries having a very small proportion of paved roads. Poor roads lead to delayed and costlier transportation, higher vehicle maintenance costs as well as higher road casualties. This might be indicative of the need to emphasize road infrastructure capacity building as they may have an urgent higher need for development.

Table 5: Roads paved as % of total roads

Country	1997	2004	Country	1997	2004
Chad	0.8	..	Lesotho	16.8	..
Tanzania	4.2	..	Malawi	19	..
Congo, Rep.	9.7	5	South Africa	19.7	..
Cote d'Ivoire	9.7	8.12	Benin	20	9.5
Gabon	9.9	10.21	Zimbabwe	47.4	..
Mali	12.1	18	Botswana	54	33.2
Cameroon	12.5	10	Cape Verde	78	..
Namibia	13.2	..	Angola	10.4*	..
Burkina Faso	16	4.17	Burundi	7.1*	10.44
Congo, Dem. Rep.	..	1.82	Rwanda	8.3*	19

* Data is for year 2000

Source: World Bank World Development Indicators

Recognizing the critical importance of road maintenance, 30 SSA countries have established Road Funds under the aegis of the Road Management and Financing Theme of the Sub-Saharan Transport Policy Program (SSTPP)3. According to the SSTPP Annual Report 2007, the new road board members and staff (this team should possibly be among the first intake in the pilot implementation phase – it is an identified team) need to be trained better to fulfill their role and responsibilities and to reap the benefits of international best practices and to effectively internalize the key lessons of experience.

The report also calls for providing support for the establishment of autonomous road agencies (this is a critical success factor for roads agencies in the transport sector for additional support) in Francophone Africa where only four road agencies have been established so far – an additional regional target market). With additional budgetary allocation, about a dozen countries are engaging in new innovative contracts that involve output based maintenance systems (training in this sub-sector must include this thematic area) where private sector is paid to maintain roads.

SSA has one of the lowest densities of rail system in the world with a mean of 2.9km per 1000sq.km. In other parts of the developed and developing world, railways are heavily relied on for transport of both passengers and freight. However, the poor state of many national railways in the region acts as a deterrent against its utilization for freight and passenger services (rail maintenance, operational efficiency and sustainability tools and technological investments – additional training requirements and critical success factors in this sub-sector).

[3] The Sub-Saharan Africa Transport Policy Program (SSATP) is a partnership of 35 African countries, 8 regional economic communities, 3 African institutions - AU/NEPAD and UNECA, national and regional organizations as well as international development partners to ensure that transport plays its full part in achieving the developmental objectives of Sub-Saharan Africa.

TABLE 6: RAIL LINE (TOTAL ROUTE-KM/1000 SQ.KM)

Country	1997	2005	Country	1997	2005
Benin	..	5.23	Malawi	7.55	..
Botswana	..	1.57	Mali	0.6	..
Burkina Faso	..	2.27	South Africa	16.62	16.67
Cameroon	2.16	2.18	Tanzania	..	5.17
Congo, Rep.	..	2.33	Uganda	6.34	..
Cote d'Ivoire	2.01	..	Zambia	1.71	1.71
Gabon	3.16	3.14	Zimbabwe	7.13	..
Madagascar	..	1.26	Congo, DRC.	2.1	1.61

Source: World Bank World Development Indicators

Effort to attract private investment in railways has had mixed results. While the Asian countries have invested in Angola, Nigeria, Sudan and Zambia, the impact of this on regional inter-connectivity is yet to be seen. Also railway concessioning is being experimented largely with freight to involve private participation in expanding the rail infrastructure; the increase in concessioning might imply a focus on contract (incl bilateral) management and service level agreements and monitoring and evaluation because that might be the main government role.

Development of Ports and maritime infrastructure is critical for international trade. Port infrastructure capacity is stretched in the region with Southern Africa and West Africa experiencing 431% and 164% increase respectively in general cargo since 2005 (ICA Annual report, 2007). This underlines the need for expansion of capacity and institutional reform to do away with port congestion and enhance efficiency. Only two countries have adopted the internationally favored Landlord Port Model which aims to strike a balance between public (Port Authority) and private (port industry) interests. Herein the public sector is responsible for regulation of the sector and port planning, as well as remaining owner of port land and infrastructure. The private sector would be responsible for marine and terminal operations, superstructure and equipment. This underlines the need for transferring technical know-how and more efficient terminal management.

Africa's inland waterways offer an efficient alternative to tackle the transport requirements of the region. The governments of Zambia, Malawi and

Mozambique signed an agreement in 2007 to promote shipping on the Zambezi-Shire water system. COMESA and the EC have agreed to fund a full feasibility study of the project. The project will examine re-opening of the Shire and Zambezi Rivers to navigation cutting the distance between Nsanje in Malawi and the port of Chinde from approximately 1200km to 238 km. In addition, the project will provide a multi modal inland transport linkage for Malawi and within the region.

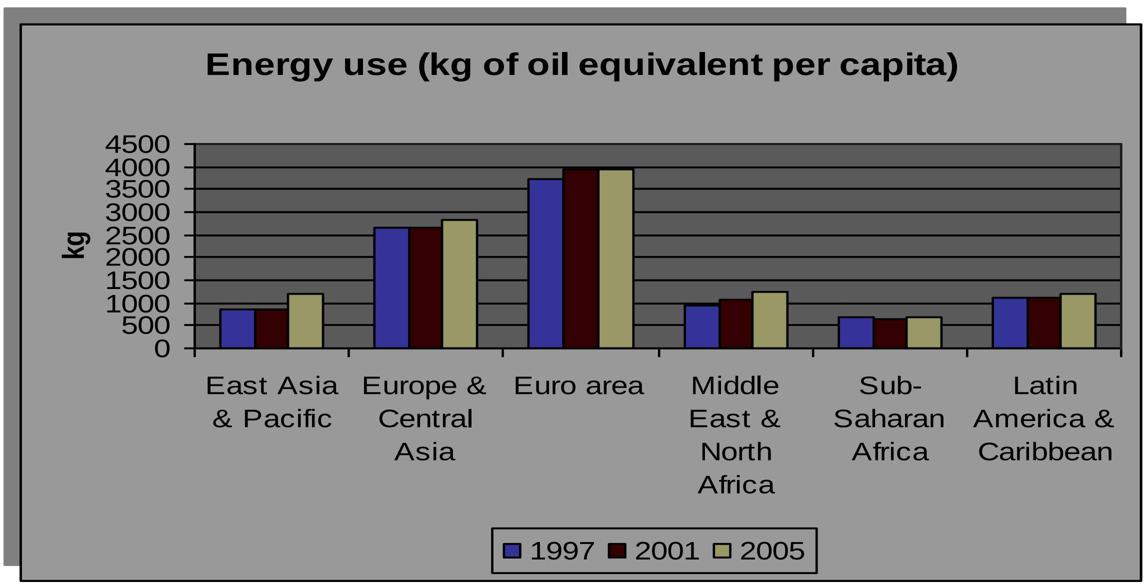
Air transport which is the most depended upon means of international transport for long haul has become a crucial element for facilitating economic activities and speeding up the integration of Africa. African countries have been modernizing their fleets and pursuing liberalization of intra-African air transport as stipulated in the AU’s Yamoussoukro Declaration since 1999. New aircrafts, a rise in low cost airlines flying to the continent, and the launch of new services will help to create a more comprehensive network of air travel across Africa. Some African airports are seeing record levels of investment. In Senegal a consortium of companies recently won a 25-year operating contract for the planned new 5 million passengers-per-year capacity airport in Dakar, Senegal.

However serious concerns remain regarding the safety of air transport in the region. While Africa’s share of the world air traffic is only 4.5 %, its share of the accidents was 25% in 2005 (OECD & ADB African Economic Outlook, 2006). In an important effort to improve performance the African Civil Aviation Agency was set up in 2007 specifically to improve safety in the industry. A major challenge will be to harmonize regulation on the continent. The concept note at the Meeting of African Ministers Responsible for Air Transport in 2005 underlined the need to improve the infrastructure and management and called for the need for a consolidated airspace management program to augment national and regional safe skies initiatives.

8. ENERGY SECTOR

Energy infrastructure in SSA is not only meager compared with other regions' but electricity service is costly and unreliable. Indeed, in recent years more than 30 of the 48 countries in the SSA region have suffered acute energy crises. 77% of the households in SSA are without electricity. The urban rural difference is also wide with respect to access to electricity. The per capita energy consumption in the region ranks among the lowest in the world. This is despite the fact that there are abundant and untapped energy resources across the continent, including hydropower and geothermal energy. Over 80% of Africa's electricity is produced from fossil fuels, in the north mainly gas and in the south, coal. Africa currently exploits around only 8% of its possible gross hydropower. Several large-scale solar power facilities are under development in Africa.

Figure 6: Energy use per capita



Source: World Bank World Development Indicators database

The mismatch between growth in electricity demand and supply has been widening with serious consequences for the economic growth of the region. The demand for power in Southern Africa is increasing at a rate of about 3% per annum due to increased economic activities resulting in diminishing generation surplus capacity. Sub-Saharan Africa needs an additional capacity of some 270 Giga-watts by 2030 which will require an investment of $300 billion by 2030.

The main causes of the crisis are arguably lack of long-term planning, insufficient investment, poor maintenance, corruption and the inefficiency of power utilities. Investment in both generation and transmission infrastructure is required to cope with increased demand. An improved regulatory capacity is also necessary to make the sector efficient. In the last decade, a number of power pools have been set up in Africa, starting with the Southern African Power Pool (SAPP) created in August 1995 through a Southern African Community Development (SADC) treaty and aimed at optimizing the use of available energy resources in the SADC region. Since then, other power pools have been created such as the West African Power Pool (WAPP), Central African Power Pool (CAPP), East African Power Pool (EAPP), and the Nile Basin Initiative (NBI).

Although the SADC Energy Sector policy framework is comprehensive and addresses the broader SADC objectives and strategic priorities, the programs on the ground fall short of addressing some of the objectives of the Protocol. The challenges include the need to develop programs that will address gender issues, and research and technology development. In addition, there is need to secure funding for projects/programs dealing with grid interconnections, joint exploration, rural electrification, new and renewable sources of energy, and energy efficiency and conservation. Overcoming these challenges would not only add momentum to the longer-term vision of full economic integration, but would also contribute considerably towards increased economic growth and poverty reduction.

The Economic Community of West African States (ECOWAS) has two main ongoing energy projects, namely the West African Power Pool (WAPP) that aims to connect all the electricity grids of member countries and the West African Gas Pipeline project (WAGPP) that aims at connecting three countries to Nigeria's natural gas supply. In addition, there is the West African Solar Energy Project (CILES) that undertakes several renewable energy projects in nearly all the countries in the Sahel. Governments and companies from the Central Africa Power Pool (CAPP) countries are considering the options of strengthening power networks with the Inga site which has the potential to generate around 40,000MW in total (total current total installed capacity in SSA is around 68,000MW). Within the Eastern Africa Power Pool (EAPP) set up in 2005, Ethiopia with its abundant hydro resources is playing a significant role. Ethiopia's planned hydropower projects up to 2015 total additional capacity of about 3 600 megawatt against the current installed capacity of 810 MW.

To avoid generation deficit SAPP has developed plans for rehabilitation and expansion of existing plants and has come up with plans for short term and long term generation and transmission projects. Capacity building becomes extremely critical in this context and SAPP lists this as an important challenge for utilities.

TABLE 7: ANNUAL POWER SECTOR EXPENDITURE REQUIREMENTS TO 2015 (US$ BILLION PER YEAR)

Power Pool	Total	Investment	Operating Expenditure	Generation	Transmission & Distribution
CAPP	N/A	N/A	N/A	N/A	N/A
EAPP	13.2	6.6	6.5	10	3.2
SAPP	17.7	9.4	8.3	11	6.7
WAPP	N/A	N/A	N/A	N/A	N/A
TOTAL (EST.)	47.8	24.7	23	32.4	15.3

Source: AICD, 2008

9. SUPPLY-SIDE ANALYSIS: SHORT-TERM INFRASTRUCTURE CAPACITY BUILDING PROGRAMS

The NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF) was established in 2003 to assist African countries, Regional Economic Communities (RECs) and related infrastructure development institutions, to prepare high quality, viable regional infrastructure projects in energy, trans-boundary water resource management, transport, and ICTs. This includes support for capacity building of RMCs, RECs and Specialized infrastructure development institutions. The need for a capacity building initiative targeted at regional infrastructure development was proposed at the G8 summit in Berlin in 2007. The G-8 facility aims at building capacity in the 8 RECs and in other regional institutions involved in infrastructure development and packaging. An extensive survey report submitted to ICA entitled Mapping of Donor and Government Capacity Building Support to African Regional Economic Communities and Other Regional Bodies engaged in Infrastructure Development and Delivery (2008) summarizes the capacity building requirements and support available in the region.

The East African Community (EAC), with its emphasis on the transport sector reported that its staff attended courses run by East and Southern African Management Institute and was assisted by Japan International Cooperation Agency in monitoring and evaluation of infrastructure projects. EAC reported 5 unfulfilled infrastructure posts. Economic community of Central African States (CEEAC/ECCAS) reported training needs on project management, financing of infrastructure projects, feasibility studies, project preparation, management of water resources, environmental impact assessment etc. Presently it envisages the recruitment of 3 expert staff to augment its capacity. Funding restriction was reported as a constraint to capacity building programmes. Economic Community of Western African States (ECOWAS) reported 5 unfulfilled posts. A comprehensive capacity building programme is being drawn up for ECOWAS including a new Project Preparation and Development Unit (PPDU) to spearhead the identification and preparation of infrastructure projects in the area of energy (excluding electricity), telecommunications and transport.

There is likely to be a demand for initial training needs from the PPDU once it is established. CENSAD reported the need for additional expertise in the energy sector as also in economic and financial analysis. Currently capacity building is undertaken through participation in training programmes of the African Institute for Economic Development and Planning on roads and telecommunications. Plans to attend courses on renewable energy provided under the Global Renewable Energy Education and Training program was reported. COMESA reported the need for creation of additional posts to handle workload in infrastructure with special emphasis on road, water and environmental issues. There are plans to establish Project Preparation Facility (PPF) to 'mobilize resources and oversee the task of project development by outsourcing capacity from consulting firms as appropriate'. East African Power Pool was established in 2005 and is in the process of recruiting technical staff indicating demand for skilled personnel in the area of energy. SAPP members (the utilities) are reported to have capacity building needs which are partly satisfied by the Coordination Centre of SAPP through short courses. Other power pools also have been attending short training programmes offered by the Infrastructure Reform and Regulation Programme at the University of Cape Town.

Public Private Infrastructure Advisory Facility (PPIAF) has been facilitating public-private partnerships for financing, owning, operating, rehabilitating, maintaining, or managing eligible infrastructure services in a variety of sectors in various regions of the world with Sub-Saharan Africa accounting for 44% of its total funding. PPIAF has been undertaking capacity building activities in quantitative aspects of project appraisal and cost-benefit analysis of Private-Public partnership (PPP) and strengthening regulatory governance for the African region utility regulators. It has also undertaken country specific capacity building in electricity sector regulation and in drafting of legal documents in Cameroon and Mozambique respectively.

Sub-Saharan Africa Transport Policy Program (SSATPP) Annual reports emphasize promoting Road Management and Financing (RMF) and Appropriate Transport Services capacity building, knowledge sharing, through support to regional institutions and national SSATP coordinators or groups. RMF courses run for 4 consecutive years in Paris and Birmingham benefiting over 300 participants. African based RMF courses launched in Nairobi and Ouagadougou benefited 70 participants. Workshops on Low Volume Sealed Roads (LVSR) and Road Economic Decision Model (RED) held in Mali, Nairobi and Accra benefitted about 175 participants. SSATP module introduced to a transport postgraduate course at the University of Yaoundé. Also SSATP and Association of Southern African National Road Agencies (ASANRA) have developed a partnership work program which focuses on building the capacity of managers and practitioners of road agencies.

World Association of Industrial and Technological Research Organizations (WAITRO) has also been involved in capacity building initiatives in the region especially in the integrated water resource management. The sub-regional and national development banks in the SADC DFI network received capacity building support from SADC Development Finance Resource Centre (DFRC). SADC DFRC capacity building activities included short duration seminars and workshops on investment appraisal & Risk Management, Project Management and tailor-made made training programs for specific DFIs. The Centre Africain d'Etudes Superieures en Gestion (CESAG) placed at Dakar Senegal provides short duration courses in project management and financial analysis. The Department of Civil Engineering (DCE) in the Kwame Nkrumah University of Science and Technology (KNUST), Ghana with the support of UNESCO-IHE Institute for Water Education offers MSc programmes in Water Resources Engineering and Management and MSc programme in Water Supply and Environmental Sanitation (WSES) as well as short tailor-made courses for sector professionals in Integrated Water Resources Management (IWRM) and WSES.

10. SUPPLY-SIDE ANALYSIS: LONG-TERM INFRASTRUCTURE CAPACITY BUILDING PROGRAMS

The International Water Management Institute is an Africa wide institution with centers in Pretoria, Addis Ababa and Accra. IWMI's programmes are focused on water for Agriculture with a research agenda to determine how to improve productivity of water use in the agriculture sector. IWMI also conducts assessments of the efficiency of water use in the mining and industry sectors. IWMI is also responsible for measurement and assessment of environmental water flows.

The most relevant programme, for the PACBP, in terms of objectives and target market is the Master's programme in Development Finance at the University of Stellenbosch which runs over one year full-time (with daily lectures) or over two years modular (with five lecture blocks of two weeks each in this period). Core modules include quantitative methods, microfinance, project finance, corporate governance, political and economic dimensions of development in Africa, and small-scale enterprise development. This is one of its kind in the African continent at present as it offers elective modules, not compulsory, in infrastructure finance, project management and public sector finance. The course however is limited in the depth of its treatment of infrastructure finance as it does not provide opportunity for sector specific specialization within infrastructure. The WITS School of Civil and Environmental Engineering provides a close fit for the Masters in Infrastructure Management.

The duration of program ranges from 12 months depending on student commitment and can be offered as full research (very strict entrance / requires extensive relevant experience) or 50% course work and 50% research or as a pure 100% course work program with two elements, namely: *Water engineering* which covers technical elements of the program and *Water management* which covers soft elements like strategic planning. Accordingly, the Wits Business School may offer additional soft aspects required for the program. WITS also offers water related short skills courses (1 week long) which is consistent with the objectives of the PACBP.

Apart from the above, various universities in Africa provide masters program in general management. However a detailed review of the masters program in related areas in West Africa was severely limited by the lack of information available on the university websites.

UNIVERSITY DEGREES IN RELATED COURSES/PROGRAMMES

UNIVERSITY	DEGREE	MODALITY	STRENGTHS	WEAKNESS
University of Stellenbosch, South Africa	Masters in Development Finance	Two-year modular programme	Masters Program with Infrastructure Finance elective. Strong quantitative and research components	No sector specific specialization within infrastructure finance. The PACBP aims to offer Stellenbosch's electives as core modules.
University of Witwatersrand, School of Civil and Environmental Engineering, South Africa	Masters in Water Engineering and Water Management	12-24 Months Research and course work	Masters program in water infrastructure which is sector specific - supported by short courses in same. Has the flexibility to integrate with the Paris Tech program, Makerere programs and the National Water and Sewerage Corporation.	At least a third of the course work must be offered by WITS providing less leeway for the other partners to bring in their inputs.
University of Witwatersrand, School of Public & Development Management, South Africa	Post Graduate Diploma in Public Management	One year full-time or two years part-time executive programme	Case based practical approach.	Not enough emphasis on Infrastructure. Not a full master's degree.
Witwatersrand Business School, Centre for Entrepreneurship	Masters in Business Administration & Masters in Management by research	One year (full time) or two years (part time)	An internationally and locally Accredited Institution with a prime brand.	Can only offer the brand, network extension, Accreditation and Faculty not operationalization.
University of Sahel, Senegal	Masters in Management/ Public administration		Extensive Francophone coverage extension and expertise creating economies of scale and allowing programme to expand faster. Has the	Language barriers and General management program

			strategic partnership with the KMA and Global Accreditation.	
University of Dschang, Cameroon	Masters Economic Analysis and Policy and Master in Management		Francophone coverage Has the strategic partnership with the extensive KMA	Language barrier and General management program
Kwame Nkrumah University of Science and Technology (KNUST), Ghana	Masters in Water Resources Engineering & Management, and MSc in Water Supply and Environmental Sanitation (WSES)	18 months	UNESCO-IHE support, Specializing in Sustainable Development on Water Resources and Environmental Sanitation in Ghana and the Sub-Region	Limited in its treatment of development finance in infrastructure

The survey of the availability of capacity building resources in the area of infrastructure development in the African region shows that although there are a number of agencies offering short-duration workshops and courses, limited options are available for a long-term programme that focuses on holistic infrastructure development finance. This clearly points to the need to develop a Masters programme based on modular approach catering specifically to infrastructure development needs of the continent that allows for sectoral specialization. While sector specific masters courses exist in other parts of the world, a broader approach would be preferred in the current context with common modules in the initial semesters before specializing in either water, transport or energy sector through course work in the penultimate semester and a project report in the final semester to provide the students with live exposures in the sector of their specialization.

11. TARGET MARKET ON A NEEDS BASED ANALYSIS

A study commissioned by the DBSA covering Malawi, Mozambique, Tanzania and South Africa to establish the training needs for the Advanced Training in Project Appraisal Methods in Private Participation in Infrastructure (PPI) highlighted the following key issues:

- PPP units (or equivalent) do not yet exist in Tanzania, Malawi, or Mozambique. This suggests that many participants in the courses may not have even a basic familiarity with PPI concepts and procedures.

- Given that clear and well-defined PPP policies and institutionalized PPP programs do not yet exist (except in South Africa), most of the projects that government staff deal with have been proposed by private companies as ad hoc, unsolicited proposals. The course must therefore help develop appropriate skills for government staff who deal with such projects – even if it is hoped that in the medium-term future most PPI projects in the country will be procured by good-practice competitive bidding.

- PPI contracting issues were frequently mentioned; as a result, it might be important to include case studies with a summary of the major contractual terms (often called “heads of terms”) that would apply to the issues to be discussed in the case. The training would therefore cover the important topic of how to ensure that the financial model reflects the contract terms, and vice versa. (For example, as the model is modified to better deal with risk, the contract terms will have to be modified in tandem.)

- Particular skills mentioned as being particularly needed (in addition to the entire range of skills needed to appraise the projects financially and economically and structure a sound PPI contract): how to identify good projects, how to choose a reliable private sector partner, skills for negotiating with the private sector, how to select and manage consultants (and avoid unintentionally incentivizing them to give biased opinions).

The table below illustrates the diverse nature of Institutions visited per country (which could be an immediate intake for the pilot phase):

COUNTRY	INSTITUTION
Malawi	○ Ministry of Economic Planning and Development ○ Ministry of Finance, Treasury ○ The Privatization Commission of Malawi ○ Business Environment Strengthening and Technical Assistant Project (BESTAP)
Mozambique	○ GAPI ○ International Finance Corporation ○ Municipality ○ Ministry of Planning and Economic Development ○ World Bank, Regional Office ○ Ministry of Finance, Gabinete De Estudos ○ Unidade Tecnica De Implementacao do Projectos Hidroelectricos (UTIP) ○ Electricidade De Macambique ○ Administracao Nacional De Estradas (Road Authority) ○ Fundo De Investmento e Trimonio Do Abastecimento De Agua – FIPAG ○ Investment Promotion Center
South Africa	○ National Treasury ○ World Bank Institute ○ Cities Alliance East and Southern Africa World Bank, South Africa ○ Development Bank of Southern Africa ○ Industrial Development Corporation ○ Infrastructure Department, International Finance Corporation
Tanzania	○ National Development Corporation ○ Consolidated Holding Corporation ○ Ministry of Finance ○ National Construction Council ○ Credit Guarantee Scheme Department, Bank of Tanzania ○ Department of Policy Planning, Ministry of Infrastructure Development ○ National Social Security Fund ○ Tanzania International Container Terminal Services Limited

The study proposed that given the existing skill level they discovered in these Institutions through the field interviews, the primary target group should be from the pool of about a hundred mainly DFI staff (as well as staff of the South Africa PPP Unit) who have already participated in the basic Program on Investment Appraisal and Risk Analysis conducted for SADC-DFRC. This would help ensure that participants already have the required basic and fundamental skills. This makes sense also in light of the delayed or slow establishment of country PPP units and hence the scarcity of suitable PPP unit staff to target.

It is important to note that piloting the PACBP with these country Institutions would also ensure there are live case studies to utilize as they highlighted quite a few of them, covering all targeted sectors in the field visits. These cases are highlighted below:

COUNTRY	CASE STUDIES
Malawi	▪ Air Malawi case: This involved the ownership and operation of Air Malawi. Investment is to be 50%:49% and operations 80%:20% for private sector and government, respectively. However, due diligence indicates that Air Malawi is not a commercially viable investment. ▪ Airport improvement project: This project is intended to improve the Kamuzu International Airport (KIA) and Chileka airport.
Mozambique	▪ Mpande Nkuwa Hydropower Dam: This is a 1500 MW capacity project. Studies have been undertaken and negotiations are on the verge of financial closure. ▪ Maputo Cateme Bridge and Catembe Ponta Doura Road: These are two joint projects intended to boost tourism in the southern region of Mozambique bordering South Africa. ▪ N4 Road project: The project was jointly undertaken by the government of South Africa and the government of Mozambique. The highway connects Maputo and Pretoria and is 500 km. It is run as a toll road and each government is responsible for operation and maintenance of the road in its country.
South Africa	▪ SASOL project: This is an energy-producing project with a start-up technology. IDC is involved in financing the project. ▪ Cahora Bassa Power project: The project is based in Mozambique and IDC has participation. ▪ Nairobi Urban Toll Road project: A northern corridor project in which IFC is playing a role to ensure that the bidding process is carried out competitively.
Tanzania	▪ Ports: Particular reference was made to the current Tanzania International Container Terminal Services, which was privatized as a concession and is considered to be a success story. ▪ Kigamboni Bridge Project. This was a bridge to link the Dar es Salaam city center to the Magogoni. The project was to be financed by the government, but the mode of financing was later changed to a PPP arrangement. Studies have been done and they indicate that the project is commercially viable. The project is with the National Social Security Fund. ▪ Tanzania Zambia Railway project. There are efforts being made to privatize the facility and Chinese companies have

	shown interest in the project. ▪ Tanzania Water Project: The main lesson drawn from the outcome of this project was that there is need for well formulated contractual arrangements among the various stakeholders before the project is implemented.

One of the driving forces that lead to the creation of the Pan African Capacity Building Platform is striving to achieve this ideal scenario for most DFIs and regional infrastructure delivery bodies in the continent. According to a study conducted by BAR (2006) successful DFI's have the following characteristics; they have the ability to:

- Reduce the cost of capital to borrowers via partial transfer of subsidy through the interest rate, asset and liability matching or stipulating less onerous collateral requirements;
- Bring a better understanding of developmental risk, a higher risk appetite and a strong risk rating to benefit poorer or unrated clients, especially where other projects in their portfolios allow for cross-subsidies; and
- Play a development assistance role, by promoting the dissemination of information, enhancing borrower capacity and improving the prospects of debt servicing with similar skills required for assessing potential investment projects to those required for addressing capacity building and development needs

DFIs are post world war two, post colonial developments, designed to provide focused financial support to national and regional development efforts and bolster economic growth (Diamond, 1957). DFIs on the African continent achieved limited results and many institutions went bankrupt in the 1980s. The nature and role of development finance is continuously changing due to recent development in global capital markets over the last decade, global constraints on public finance, the narrowing definition and range of public goods and services, and the reduced direct role of the state in the market e.g. increasing privatization.

The borders between public finance on the one hand and private commercial finance on the other have become blurred thus shifting the nature, scope and role of DFIs in a rapidly changing macro-economic environment. In Africa, Development Finance Institutions are expected to play a key role in achieving NEPAD's economic goals as a leading Africa's Regional Economic Communities in developing regional strategic development plans to guide investment on the continent over the next decade.

Within that context, there is a strong need to strengthen the capacity of the DFIs in delivering on their mandates. It is in this regard that structured and relevant capacity building interventions are deemed to be crucial in bridging the professional gap that is much needed to enhance the role of development financing in Africa. Numerous DFI studies commissioned by the DBSA and others reveal that some DFIs appear to be facing a number of key business and organizational challenges including but not limited to: the quality of strategic coordinated vision, poor financial results, limited innovative financial products, lack of implementation skills in the following areas: Public, Private Partnerships (PPPs); project finance; investment appraisals; infrastructure project management, and monitoring and evaluation. In addition to these challenges, political interference is also evident in the space of DFI's which confirms the debate that these state owned banks are not created to channel funds to socially efficient users, but rather to maximize some personal agendas hence the restructuring of many.

Local Authorities have a developmental role to play which is critical to the economic and social development of communities in most African countries. More than 50% of low and medium capacity municipalities in South Africa are faced with challenges ranging from critical skills shortage (e.g engineers, project managers and CFO's) including financial management skills, project implementation skills and other organizational challenges. According to a study conducted by Wits Enterprise for the establishment of the DBSA Vulindlela Academy, there are too many training providers including large and small scale operations offering short term courses that have little if any lasting impact on the municipalities. The study revealed that there is a gap in the training market for training that is able to meet both long-term and specific needs of municipalities and governments.

The DBSA-SADC-SAPP[4] commissioned cross-border financing study indicates that the lack of coordination in current projects may be due to the isolated nature of problem analysis and or solution design; the short-term programs do not give sufficient emphasis on certain subjects – by the nature of their design, not a criticism but perhaps a weakness – noting that there are huge advantages as well to this approach. It in fact, may have been the only option demanded for - perhaps because of funding availability or the syndrome of too many priorities (hence no time to send resources for training at the expense of a running project) resulting in the successful attainment of none. The key recurring themes from the study that visited SADC countries to establish the best fit financing model for regional, cross-border, trans-boundary energy infrastructure projects emerged to be; selectively, in relation to this project:

- Legal and institutional frameworks - with an emphasis on enhancing the relationship between utilities and regulators whose dissimilarity delays project progress. Legal advisory must also emphasize contract management and any variations to the contract or disputes that arise during the term of the contract.
- Project preparation capability – support (technical and training) in upgrading the standards for government, utilities etc.
- At a soft level (human development) – enhancing the culture of harmony (what does it really mean in practice – how do you translate the need to move away from ‘my country to our region’.

Funders of infrastructure projects acknowledged the need to enhance the standard of project preparation hence the emergence of the German proposed,

[4] Please note that permission this is undisclosed until permission is obtained from the project sponsors to publish these findings.

at the G8 summit in Berlin in January 2007, G8 Facility which was mandated to establish a capacity building initiative targeted at regional infrastructure development. This is in sync with the priorities of the Pan African Capacity Building Programme to be officially established by the DBSA – AFD Consortium. The target market of both intentions is also similar as they aim to focus in the 8 Regional Economic Communities (RECs) mandated by the African Union and in other regional institutions involved in infrastructure development and packaging, and perhaps, implementation should be considered in the long-term to cover the project life cycle. In its Infrastructure Project Preparations Facilities User Guide, the Public-Private Infrastructure Advisory Facility (PPIAF) used 6 main categories in attempting to group project preparation into logical phases.

The table below enumerates the immediate target market in the sector - utilities - operating in the different SADC countries:

	UTILITY	COUNTRY
1.	Botswana Power Corporation	Botswana
2.	Electricidade de Mocambique	Mozambique
3.	Electricity Supply Commission of Malawi	Malawi
4.	Empresa Nacional de Electricidade	Angola
5.	ESKOM	South Africa
6.	Lesotho Electricity Corporation	Lesotho
7.	NAMPOWER	Namibia
8.	Societe Nationale d'Electricite	DRC
9.	Swaziland Electricity Board	Swaziland
10.	Tanzania Electricity Supply Company	Tanzania
11.	Zambia Electricity Supply Corporation Limited	Zambia
12.	Zimbabwe Electricity Supply Authority	Zimbabwe

APPENDIX 1: DOCUMENTS REVIEWED

Organization for Economic Cooperation and Development (OECD) 2006	African Economic Outlook
Africa Project Access, 2008	Projects Database For Sub - Saharan African Countries, July
African Capability Building Foundation (ACBF), 2005	Survey of Capacity Needs of Africa's regional Economic Communities
EAPP coordination centre, 2008	Challenges for East African Power Pool
European Commission 2007	Support of the Regional Power Pools and the African Forum for Utility Regulators for the Consolidation of Capacity Building Proposals Identified under the Technical Assistance component of the ACP-EC Energy Facility
Glenn P. Jenkins Pradip Ghimire, Arkins M Kabungo, Chris Shugart 2008	Development and Delivery of Advanced Training Covering Project Appraisal Methods in Private Participation in Infrastructure (PPI), Prepared for SADC-DFRC, DBSA, and the World Bank Funded by PPIAF
Gloria Magombo, 2008	Survey on Policy , Institutional and Regulatory Frameworks in the SADC Electricity Supply Industry
Infrastructure consortium for Africa (ICA), 2008	Mapping of Donor and Government Capacity Building Support to African Regional Economic Communities and Other Regional Bodies engaged in Infrastructure Development and Delivery
Infrastructure consortium for Africa 2007	Annual report
International Federation of Consulting Engineers (FIDIC) 2006	Draft report of GAMA Taskforce
International Water Policy Project and	Donor activity in trans-boundary water cooperation in Africa Results of a G8-initiated survey 2004-2007

Federal Ministry for Economic Cooperation and Development 2008	
John Mbwana, 1997	Transport Infrastructure in Sub-Saharan Africa, Africa Notes, November.
Musaba, Lawrence, 2008	Power Supply Situation in Southern African Power Pool
Public Private Infrastructure Advisory Facility (PPIAF), 2006	The African Project Preparation Gap
Public-Private Infrastructure Advisory Facility (PPIAF), 2008	Africa Infrastructure Country Diagnostic
Public-Private Infrastructure Advisory Facility(PPIAF), 2008	Helping to eliminate poverty and achieve sustainable development through public-private partnerships in infrastructure 2007 Annual Report
SAPP Coordination Centre, 2008	The SAPP capacity building program
Standard Bank 2008	African Infrastructure Survey, Research Economics, 18 August
Sub-Saharan Africa Transport Policy Program, 2004	Annual Meeting Report, SSATP Working Paper No. 79
Sub-Saharan Africa Transport Policy Program, 2007	Annual Report, SSATP Report No 06/08/ AR07
Sub-Saharan Africa Transport Policy Program, 2007	The SSATP Long Term Development Plan Output to Purpose Review, SSATP Report No 04/07/OPR
Sub-Saharan	Port and Maritime Transport Challenges in West and Central Africa,

Africa Transport Policy Program, 2007	SSATP Working Paper No. 84
Tenenbaum Bernard, 2008	Electricity Imports and Exports in SADC: Potential Roles for National Regulators
The African Capacity Building Foundation, 2006	Challenges Facing Africa's Regional Economic Communities In Capacity Building, Working Paper No. 5
UNCTAD 2008	World Investment Report
United Nations, Dept of Economic and Social Affairs, Division for Sustainable Development, 2005	Multi-Dimensional Issues in International Electric Power Grid Interconnections
World Association of Industrial and Technological Research Organizations, 2008	WAITRONews
World Bank	World Development Indicators Database
World Bank	Private Participation in Infrastructure Database
Website Resources	
	http://www.unesco-ihe.org/Project-activities/Project-database/Capacity-Building-for-Sustainable-Development-on-Water-Resources-and-Environmental-Sanitation-in-Ghana-and-the-Sub-Region
	http://www.cap-net.org/node/26
	http://www.sadc.int/index/browse/page/109
	http://siteresources.worldbank.org/DEC/Resources/84797-1154354760266/2807421-1222979971506/5435009-1222980070537/Ports_and_Maritime_Transport.pdf
	http://africa.msu.edu/AUP/search-form.php
	http://wedc.lboro.ac.uk/education/programmes04.php?structure_ID=401