

STATEMENT OF CAPABILITY and EXPERIENCE

Roads and Transportation



ENPLAN GROUP

Roads and Transportation

General

From its inception, Enplan Group has been associated with transportation development in the country. The firm provides a comprehensive consultancy service in all forms of transportation system - air, land and water. The firm has gained experience and developed expertise in the transportation studies, planning, design and river transportation. The firm has its own geo-technical section which carries out field and laboratory investigation to establish foundation requirements and materials for pavements, buildings, roads and other major structures.

The firm has been involved in many Airports, Roads, Bridges and Water Transportation studies, either as self contained projects or in support of the wider engineering services provided by the Firm.

Air Transportation

In the area of air transportation, the firm has been involved among others in planning, economic and engineering feasibility studies, preliminary and final engineering designs of a number of airport projects.

Details of some selected projects are listed below viz.

- Planning, survey and engineering design of Obudu Airstrip:
- Final engineering design for the Terminal and Buildings for the Kano International Airport;
- Planning, economic and engineering feasibility studies for the 2nd phase Airports Development in Nigeria involving 8 airports (in association with SOFREAVIA, Paris);
- Design review and supervision of construction of aeronautical area and the access road at the Akure Airport.
- Planning and final engineering of Minna Airport complete with terminal facilities;
- Survey, sub-soil investigation, planning and preliminary engineering for earthworks and pavement for Owerri Airport (in association with SOFREAVIA, Paris);
- Planning, survey and final engineering for earthworks and pavement including access road for the Makurdi Airport;

- Site selection studies, planning, survey and final engineering for the earthworks and pavement including access road for the Onitsha Airport.

Roads and Bridges

Roads

The firm has been involved in the study, investigation, survey, planning, engineering designs and construction supervision of well over 40 different road projects all over the country. The scope and size of these projects are varied, ranging from Federal Highways to Estate Roads and in lengths from 20km to 200km.

Details of some selected projects are listed below:

- ◆ Reconstruction, Expansion and Modernization of the Lagos – Ibadan Expressway;
- ◆ Construction Supervision of the Akin Adesola Road at Victoria Island Lagos (WB);
- ◆ Construction Supervision of the WEMPCO Road in Lagos (WB)
- ◆ Supervision of the Rehabilitation of the Mobil Roundabout;
- ◆ Planning, investigation and preliminary design of the Abakaliki-Ikom-Cameroun Boarder highway including the design of 20 bridges (in association with Garnet Fleming Corrdry & Carpenters. U.S.A.);
- ◆ Preliminary and final engineering design and construction supervision of road networks for 22 Federal Government Colleges.
- ◆ Feasibility studies for the Seme Pogi - Cotonou Road in the Republic of Benin for the Federal Ministry of Works.
- ◆ Preliminary Location survey and final engineering design for the 230km Beni Sheik-Damboia-Uba Road including bridges.

Bridges

The firm has undertaken the design and construction supervision of many bridges either as separate projects or in combination with a road project. Notable projects that the firm has undertaken in this field include:

- Final engineering design and supervision of construction of the 8km section of the third axial road (third mainland bridge) into Lagos (Maroko to Oworonshoki) of which 5km is elevated above the Lagos Lagoon

- including the five bridges of the Oworonshoki Interchange. (In association with NIDAN consult);
- Final engineering design of the 3rd road bridge over the River Kaduna. It comprises of 2 bridges each of 300m long dual carriageway (in association with NIDAN consult);
 - Final engineering design of the 225m long pre-stressed concrete bridge over the Cross River on the Udi-Ugep road;
 - Planning, final engineering design and supervision of construction of the 150m long Imo River Bridge on Port-Harcourt to Aba road. Design was based on Cantilever and Drop-in concept.

Water Transportation

Water transportation is the most economic mode of transport in Nigeria where the cost of petroleum fuel is relatively high. Some parts of Nigeria are fairly well endowed with rivers, creeks and streams which have potential for the development of water transportation.

Some of the projects that the firm has been commissioned for include the following projects:

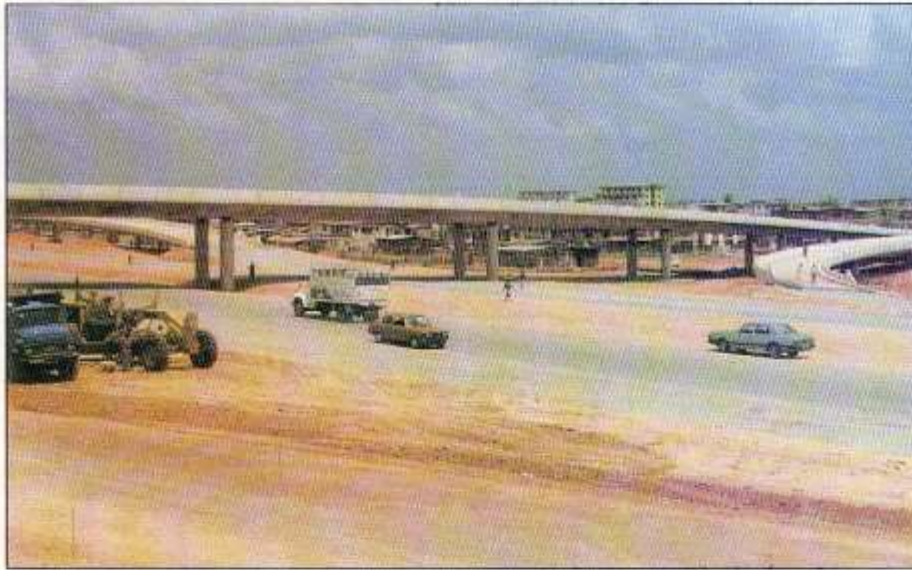
- The Development of the River Niger for Navigation, carried out in association with NEDECO and Royal Bos Kalis Westminister Group for the Federal Ministry of Transport. The project involved a comprehensive study of the River Niger from Lokoja to Warri for Navigation Development. It was considered that such a river navigation development should take into account the provision for other purposes of river improvement. e.g. flood control, domestic and industrial water supply, irrigation, fishing and agricultural use, electricity generation etc.;
- Studies, field investigation and design of works involving flood control and channel regulation to improve navigation in the Stubb and Widenham Creeks for the Inland Waterways Division, Federal Ministry of Transport;
- The development of the Oguta Port access navigation channel. Relevant aspects of the project involved studies and design of flood protection measures at the River Niger entrance bay to the Navigation Channel;
- The development of the Ajaokuta Port involving the studies and design for flood protection at the site of the commercial port on the River Niger at Ajaokuta. The influence of the port on the regime of the river and the effects on the near-by bridge was studied and integrated into the design.

RoadCalc Software

Enplan Group is the international distributor for Eagle Point software in Nigeria. [RoadCalc](#) is one of the many modules of the [Eagle Point software](#). For more information check the Eagle point website.

Transportation Division

From its inception, ENPLAN GROUP has been involved with transportation development in the country. The firm provides a comprehensive consulting service in all forms of transportation systems - air, land and water. The practice has gained experience and has developed expertise in studies, planning, design and construction management of highways and bridges, mass transit, railways, airports and river transportation.



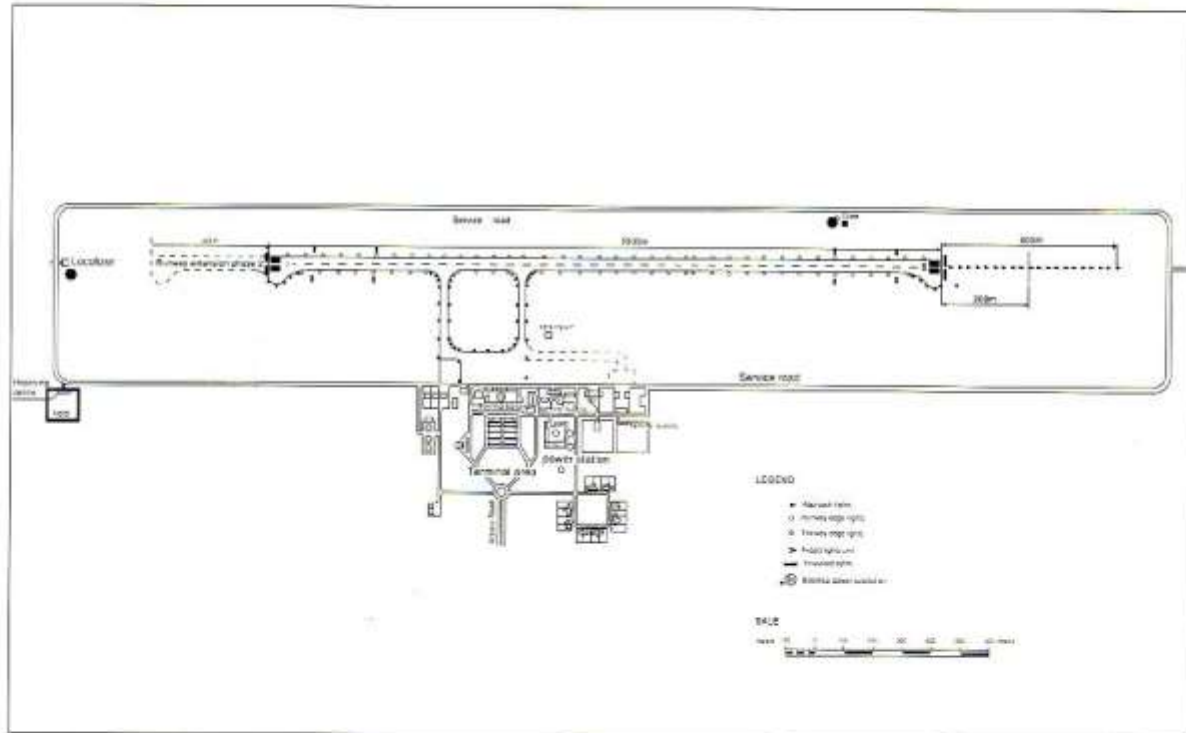
Oworonsoki Interchange Bridge and Ramp - Lagos



Cross River Bridge - Artist Impression

Airports

ENPLAN GROUP has participated in engineering planning studies and designs for a number of airport projects in Nigeria. Initially (between 1977 and 1980), the firm had worked in association with SOFREAVIA of Paris, France (on a joint venture basis) for planning, economic and engineering feasibility studies for the 2nd Phase Airport Development in Nigeria involving 8 airports. The firm further developed its own expertise in the field with the other airport and airstrip projects undertaken thereafter. Some of the airport and airstrip projects involved with, include the following:



Typical Domestic Airport Masterplan

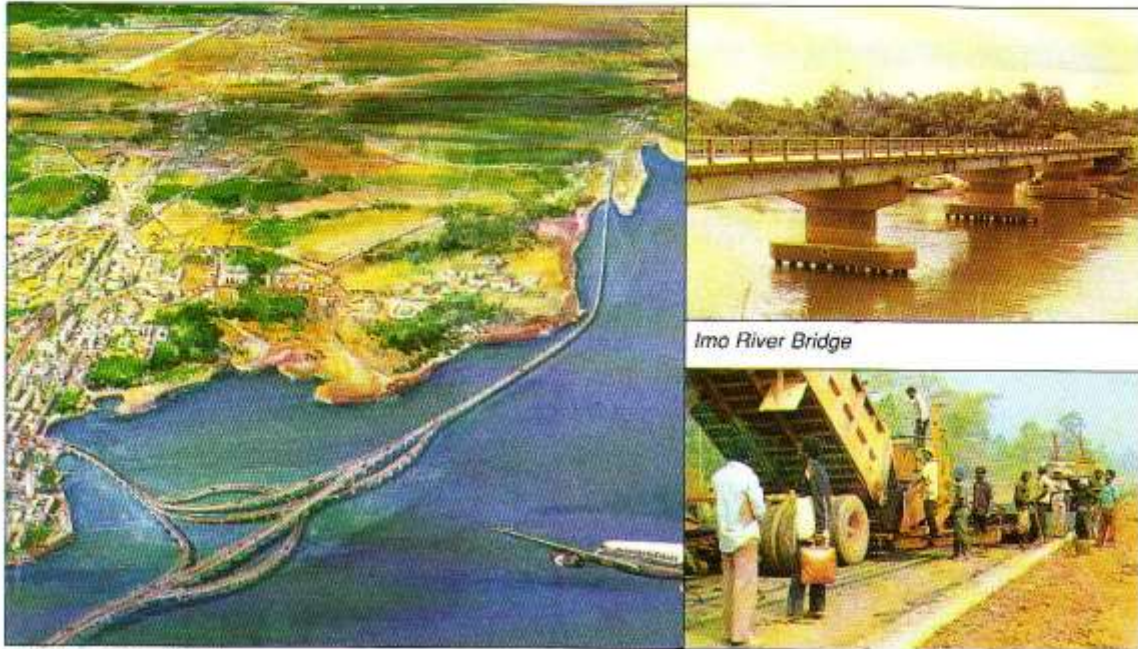
SELECTED PROJECT LIST

YEAR	DESCRIPTION	CLIENT	SERVICE	COST
1977	Obudu Airstrip	CRS Ministry of Ind. Calabar	PI Su Fe	N 3m
1977	2nd Phase Airport Dev. in Nigeria at Abeokuta, Akure, Bauchi, Katsina, Minna, Makurdi, Owerri and Abuja (with SOFREAVIA, FRANCE)*	Fed. Min. of Civil Aviation	PI Es Fs	N/A
1978	Former Abuja (now Suleja) Airstrip	Fed. Capital Dev. Auth.	PI Fe Sp	N 2m
1978	Minna Airport	MOW & T	PI Fe Sp	N 28m
1979	Akure Airport	MOW & T	Dr Fe Sp	N 30m
1979	Owerri Airport (with SOFREAVIA, FRANCE)*	MOW & T	Su Si PI Fe	N 36m
1982	Makurdi Airport	Nigerian Airports Authority	PI Su Fe	N 36m
1982	Onitsha Airport	Nigerian Airports Authority	Fs Ss PI Fe	N 36m

Abbreviations explained on page ii

Roads and Bridges

Roads and Bridges constitute a particularly important part of schemes undertaken by ENPLAN GROUP, and a wide experience has been gained in their design and method of construction. The firm has handled many road and bridge projects for the Federal and State Governments. Some selected road and bridge projects undertaken are listed below:



Third Axial Road into Lagos

Imo River Bridge

Access Road, Akure Airport

SELECTED PROJECT LIST

YEAR	DESCRIPTION	CLIENT	SERVICE	COST
1972	Abakaliki-Edor Road, Abakaliki Bye pass	FMW	Ls Fe	N 17.5m
1974	Imo River Bridge, PortHarcourt Aba Road	FMW	PI Fe Sp	1.7m
1975	Beni Sheik-Damboa-Biu, Roads and Bridges	FMW	Su Fe	36m
1975	Estate Roads, Biu, Military Cantonment	MOD	Ls Fe	1.5m
1975 & 1987	Third Axial Road into Lagos (NIDAN Consult & NIDAN Services)*	FMW	PI Fe Sp	1.2bn
1975	Cross River Bridge Udi-Ugep Road	FMW	Fe	
1976	Ihiala-Umuduru Road	FMW & T	Su Fe	
1976	Agwu-Oji River Road and Bridges	FMW	Su Fe	5m
1976	Ezeamagbe-Agba-Onitsha-Okposi Road and Bridges	MOW & H, former ECS	Su Fe	7m
1976	UNILORIN Access Roads & Bridges	UNILORIN	Su Fe	
1976	Mashi-Mani-Ingawa	MOW Kaduna State	Ls Fe	5m
1976	Idenmill River Bridge, Onitsha Atani Road	MOW & H former ECS	PI Fe	.6m
1976	Imo River Bridge, Akwete-Orruagbai Roads	MOW & H former ECS	PI Fe	1.5m
1977	Kambe-Azara Bembem Rd	FMW	Su Fe	10m
1977	Nara-Ugep Road	FMH & E	Su GI Fe	
1977	Okija-Oguta Road and Bridges	MOW&H former ECS	Fe	4m
1977	Umunede-Umutu Road and Bridges	MOW Bendel State	Ls Fe	9m

Abbreviations are explained on page ii

YEAR	DESCRIPTION	CLIENT	SERVICE	COST
1977	Aba-Omega-Higidi UGEP Road	FMW & T	Su Gi Fe	
1977	Aboine River Bridge Abakaliki Yaro Road	FMW & H	FeSi Fe	.47m
1977	Atani River Bridges Onitsha-Atani Road	MOW & H	Fe	
1977	Onuku River Bridges	MOW & H former ECS		
1977	3rd Bridge over River Kaduna	KCDB	Fe	
1978	Amaimo-Ugiri-Ator Road	MOW & H Imo State	Su Fe	
1978	Akanu Item-Akeze-Uguwu Road, Imo State	MOW & H	Su Fe	7m
1978	Qua-Iboe River Bridge, Abok-Idim Road	MOW Cross River State	Fe	
1978	Estate Roads in Federal Housing Scheme, Niger State	FMH & E	Su Gi Fe	
1978	Estate Roads in Federal Govt. Colleges	FMW	Su Fe	16m
1978	Afikpu-Elu (Ohafia) Road & Bridges	MOW & H Imo State	Su Fe	
1978	Anua-Adadia-Ituk Mbang Road & Bridges	MOW & H Cross River State	Ls Fe	5m
1978	Osse River Bridges Sagamu-Benin Road	FMW	Pl Fe	1.4m
1978	Bara Bojude Road	FMW & T	Su Fe	
1981	Iho-Nkwogwu Road	MOW Imo State	Su Fe	
1981	Mayo Belwa Township Road	MOW Gongola State	Su Fe	
1981	Ganye Township Road	MOW Gongola State	Su Fe	
1981	Akaka Bridge	FMW & T	Su Fe	
1981	Dan Gulbi-Chafe Roads	FMW & T	Su Fe	
1981	Road Supervision in Kaduna Hunkuyi-Malumfashi Dabal-Bakori	FMW & T	Sp	
1981	Umuakpu-Udo Road	FMW & T	Su	Fe
1982	Pambequwa-Kauru-Bikal-Geshere-G/Karama Road	FMW & T	Su	Fe
1982	Nneato Road Project	FMW & T	Su Fe	
1982	Damboa-Maiduguri-Bama, Blu-Damboa Roads	FMW & T	Sp	
1982	Estate Roads to NAA Quarters in Lagos and Ibadan	NAA	Su Fe	
1988	Bridge between Oguta I and III	MOW Owerri	Su Fe	
1988	Katsina Township Roads	KUPDA	Su Fe	
1989	Bridge & Access Roads FUT Owerri	NUC	Su Fe	1.5m

Abbreviations explained on page ii

Water Transportation

Water Transportation can be the cheapest and most economic mode of transportation in many parts of the world, the same is true of Nigeria, Rivers Niger and Benue, for instance, are the two major rivers in the country which are used for this purpose.

Projects undertaken by the firm have involved a wide range of services covering: A full feasibility study and preliminary engineering design including hydraulic and hydrologic investigations to improve the Stubbs - Wideham Creeks for the Federal Ministry of Transport (IWD), a comprehensive study of the River Niger from Lokoja to Warri for navigation development (in association with NEDECO and Royal Bos Kalis Westminster Group). The study results in the preparation of a masterplan for river improvement works at specific reaches.

