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INFUSION OF PRIVATE SECTOR CAPITAL IN RURAL INFRASTRUCTURE BUILDING IN LAGOS STATE

E. D. BALOGUN

This paper recognizes the constraints imposed by the weak rural infrastructure base in Lagos State given the swampy/riverine nature of her landscape and notes the dim prospects for overcoming them through public investments alone. Although the study recognizes that rural infrastructure is a public good, several cases are cited to show that private sector initiatives in the provision of rural infrastructural facilites and services can be successful. Among the financing mechanisms for infusing private sector capital into rural infrastructure building include rural development levies, strengthening of rural financial markets and special aids/grants from private and non-governmental agencies. For these initiatives to be successful, the climate for enterprise in rural infrastructure services which generate the right incentives, improves efficiency and elicits the willingness of the people to pay should be fostered.

A key element of rural development is the ability of the nation to overcome infrastructural constraints in rural areas. These constraints relate to the acute shortage and lack of basic physical infrastructure and social amenities such as good shelter, potable water, access roads, light, health, education, among others. The provision of these facilities has often been perceived to be the responsibility of gevernment alone due partly to the large social overhead costs and in part to the high degree of social and economic externalities that they generate. In most cases, private sector agencies have often been reluctant to invest in the building of these infrastructures because of the inherent difficulties of controlling access, and/or collecting user charges. Moreover, some governments sometimes preclude private sector initiatives in these areas, largly because it is felt that private sector user charges could be usury and discriminatory. In particular, it is often argued that most rural beneficiaries of these infrastructures are poor and can ill-afford to pay economic rents, despite the fact that income transfer to them through these projects are desireable and essential. Notwithstanding these arguments, evidence shows that rural infrastructure building is becoming a herculean task for the government alone. Indeed, deteriorating revenues, coupled with weak administrative capacities have constrained the provision of these facilities by the government. This could partly explain why the government, under the Structural Adjustment Programme (SAP) has been compelled to solicit for private sector initiatives to complement her efforts in rural development. This calls for the infussion of private sector capital to gear up the development of rural infrastructure in a manner that is consistent with the overall national aspirations and goals.

It is in this context that this paper attempts to identify those rural infrastructures worthy of private sector investment, discuss their financing mechanisms, ex-ray the challenges and prospects, and proffer some recommendations for consideration.

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1. ENVIROMENTAL FEATURES, ECONOMIC OPPORTUNITIES AND RURAL INFRASTRUCTURAL NEEDS OF LAGOS STATE

The development of rural infrastructure by both the government and private sector is usually determined by the nature of the environment, the extent of its economic and social degradation, and of the business opportunities it offers the rural people. This section identifies the environmental features of Lagos State and the economic and social opportunities and assesses the rural infrastructural needs vis-a-vis its current state.

Environmental and Demographic Features

Lagos State occupies a land area of 3,345 square kilometres. It is bounded in the West by Benin Republic, in the East by the riverine areas of Lekki, and in the North by Ogun State and in the South by the Atlantic Ocean. The state is covered mainly by mangrove swamp vegetation, interspersed with creeks and rivers which drain into the lagoon. It has a coastline of 180 km. Average annual rainfall is put at 1,400 mm and it experiences daily temperatures which range from a mean minimum of 22°C to a mean maximum of 30°C. There is a pronounced dry and rainy season. The vegetation and climatic conditions of the state, especially the swampy nature have dictated the pattern of settlement. A total of 1,302 communities spread among the former 8 local governments areas, viz: Badagry, Epe, Ikeja, Ikorodu, Lagos Island, Lagos Mainland, Mushin and Shomolu. Out of these, 854 communities are rural, thus accounting for 65.6 per cent of the settlements. Majority of these rural communities are located in Badagry, Epe and Ikorodu in which the rural settlements account for 93.7 per cent of a total of 750 communities located in them.

The population of the state was put at 5.7 million in 1991, out of which about half are to be found in the city of Lagos alone, while the rural settlements accounted for about 35 per cent. These figures suggest that about 2.0 million people live in the 854 rural communities of Lagos State. The urban population density is comparatively high, a situation which places considerable stress on physical and social infrastructure in the urban centres. Despite the relatively sparse population density of the rural areas, the swampy/riverine nature of the state makes both rural accessibility and habitation very difficult. Moreover environmental degradation in Lagos State has been quite pronounced. Frequent flood and gully erosion are some of the major threats to both the urban and rural settlements. The acquatic environment, especially the coasts and riverine areas have in recent times been infested by water hyacinth, a pest that inhibits fishing activities and poses a formidable threat to water transportation. Lagos urban centres suffer from environmental pollution as a result of the high concentration of industries and the weak base for both residential and industrial waste disposals. These problems are accentuated by over-congestion, heavy traffic and poor mass transit and communication, all of which hightens the costs of business in the urban centres.

Resource Endowments and Economic Opportunities

The difficult terrain of the rural areas tend to constrain the rural people mainly to an acquatic way of life, with fishing as the main occupation. However, the limited arable land in the state lends itself to the cultivation of a wide range of crops, viz: maize, cassava, cowpea and vegetables, mainly around Badagry, Epe and Ikorodu. The state is also reputable for poultry production in and around the rural areas adjascent to the

urban centres. Lagos state is slightly endowed with mineral resources. The minerals which abound in the state include clay, silica, laterite and felspar. Opportunities for profitable investment in rural agro-allied and cottage industries exist in a wide range of areas, and these include ceramics, glass sheets, fish processing and canning and both road and waterways transportation.

Infrastructural Needs and Achievements

Given the environment and the economic opportunities it offers, the rural areas of Lagos state require three types of infrastructure.

These can be classified into:

- (i) Basic Infrastructure: Among the basic infrastructure are roads, jetties and waterways, water supply and electrification.
- (ii) Social Infrastructure: The social infrastructure needed in the rural areas include health care and educational facilities, social welfare and community development centres, cultural centres, family planning centres, recreation facilities (such as sports centres and play grounds), information and communication facilities (postal services, telephone link, and television viewing centres), environmental sanitation facilities (such as refuse disposal depots, public refuse bins, public toilets), and rural housing schemes.
- (iii) Économic Infrastructure: These include agro-service centres, agroallied and small scale industries, extension service and cottage industry demonstration centres, handcrafts centres, cooperative societies, warehouses and storage facilities, markets/shopping centres, rural banks and research and development centres.

A preliminary assessment of the extent of provision of these infrastructures show that the Lagos State ADP and the DFRRI have played a dominant role in the provision of basic and economic infrastructure, while the state ministries of Health, Education and Information caters mainly for social infrastructure. With regard to DFRRI, available information shows that four types of rural infrastructure have been provided in Lagos State since its inception. These are: rural feeder roads and jetties, rural water supply and sanitation, rural electrification and rural housing. Their achievements so far are as shown in Table 1 below:

TABLE 1

RURAL INFRASTRUCTURES PROVIDED BY DFRRI IN LAGOS STATE (SINCE INCEPTION TO AUGUST, 1991)

	ТҮРЕ		TARGET	ACHIEVEMENTS	SHORTFALL/ ONGOING
(a)	Rural Feeder Roads (km) Rural Water and Sanitation (No of Communities catered for)		2,658. 3 500	2,036.675 252	993* 248*
(b)					
(c)	Rural Housing				•
	(i)	Technical Extension			
		Workers trained (No.)	400	383	17
	(ii)	Projects Executed			
		(Model Houses const.)	-	6	-
	(d)	Rural Electrification		1	
		(No. of Comm-			
		unities catered for)	24	25	-

* Ongoing. Source:

DFRRI's National Press briefing.

28th August, 1991.

The DFRRI's effort is complemented by a number of programmes being implemented by the Lagos State Ministry of Agriculture and ADP. Among these projects are Agricultural Estate Development Scheme and Agricultural Input Credit Scheme; Graduate Farmer's Scheme, Canoe Mechanisation Scheme; Fish Farm and Fish Seed Multiplication Programmes; Fabrication and Construction of Model Fibre-Glass Boats at Epe and the Agricultural Development Programme (ADP) charged solely with extension services and provision of rural infrastructure. Despite the combine efforts of both the DFRRI and the State governments, a rough estimation indicates that less than 50 per cent of rural communities in Lagos are yet to be reached with these basic infrastructures. It must be acknowledged, however, that DFRRI has played a dominant role in providing the infrastructures which are currently in place. The initiatives by the state government have generally been stalled by lack of and/or late release of funds. The prospect for improving the financial commitments of government agencies towards the provision of rural infrastructure is not particularly too bright.

II. FINANCING MECHANISMS FOR PRIVATE SECTOR INVESTMENT IN RURAL INFRASTRUCTURE

Rural infrastructure is partly a public good. It is not easily divisible, so it is difficult to exclude nonpayers. It is often subject to economies of scale, resulting in natural monopolies. This perhaps would explain the overbearing dominance of government in the provision of rural infrastructure, especially so since private sector is unlikely to produce enough.

Costs Associated With Weak Rural Infrastructure

Considering the costs associated with weak infrastructure and the dwindling revenues of governments, there is sense in stimulating private sector investments to complement public efforts. This is because weak rural infrastructure affects both the corporate and informal private sector more adversely in myriad forms. The key constraints it poses is that it limits the integration of the rural with the urban markets which in turn seriously hinders accessibility to inputs and services and increases costs. It also makes cost of business in urban cities expensive. In particular, it encourages over-concentration of industries, firms and businesses in cities, thereby leading to congestion, considerable pressure on social amenities especially poor urban transit and inadequate facilities such as water and light. Also, industrial growth has been held back by poor transport and by the absence of an infrastructure for technology, information and business services.

Available information shows that rents represent a significant proportion of costs of doing business in the urban city of Lagos. Also, every firm of more than fifty employees has its own standby generator despite being connected to the national power grid. Firms also invest in private boreholes because of the unrealible public water supply, and employs messengers on motorcycles or radio transmitters because telephones and postal service do not work effectively. The cost of such private facilities is estimated at between 10 and 25 per cent of all the firms equipment. This clearly reduces the productivity of each firm, but the effects can be broader.

Benefits of Private Sector Initiatives in Rural Infrstructure Building

Aside from cost savings and/or reduction in costs of urban business transactions, several other externalities could result from encouraging private sector investments in rural infrastructure.

Firstly, the productivity and efficiency of both urban and rural business could improve. Evidence worldwide shows that significant improvements and gains in effeciency were recorded in Malawi when community members began the planning, construction and operation of their own water supply and distribution projects. Also, in most urban cities, productivity and efficiency are improved in companies which operate staff housing schemes, and own schools, health and catering facilities, which render services mainly to staff and to a limited extent, to the public.

Secondly, infrastructure is long-lived, and as a rule inherently monopolistic. Governments must therefore take overall responsibility for it. But an important distinction can be made between the facilities and the services they provide. The private sector can play a useful role in managing the services, even when government builds and controls the facilities. This role is even more urgent now than ever given the poor state of infrastructures. Among the set-backs in government-owned facilities are inadequacy, poor performance due to lack of a professional cadre of managers and technicians, pursuit of policies which fail to emphasize financial viability and service quality, underpricing which has led to delay and scarcity, and which manifests itself in wastes and shortages especially in rural areas. In many countries, the failure of public services has forced individuals and companies to invest in electric generators, boreoles, radio-equipped couriers, among others. This demonstrates both the scope for private infrastructure services and the willingness of users to pay for such services.

Thirdly, a large scope exists for considerable cost reduction when private intiatives are allowed in the provision of rural infrastructure services. For instance, it

is known that costs to the public for infrastructure maintenance are very high when handled through public bureaucracy. The major cause is poor public procurement and contract administration, low labour prductivity and failure to take full advantage of the available small-scale, labour intensive procedures for developing, maintaining and supplying infrastructure services. This also contributes to stifling private sector initiatives in small scale infrastructure building, especilly attempts to develop small scale pumps for irrigation, use local resources for construction, and frustrate the use of new technologies.

Forthly, private sector participation may elicit the need for cost recovery. The urge for cost recovery and maintenance of infrastructure has often been low when handled entirely by public enterprises. Revenue-generating public agencies has been notoriously poor, not only because of under-pricing, but because they do not depend on it for financing their operations. This is the more so when people cannot appreciate the value of the services being provided and indeed attempt to subvert the cost-recovery process for personal gains. However, where users themselves and/or private sector agencies have helped to operate and maintain infrastructure, they have collected charges successfully. Operational discipline would also be brought to bear to minimize capacity losses and service leakages.

Private Sector Participation in Rural Infrastructure

Private enterprises can provide infrastructure services efficiently. Among the key areas in which private sector initiatives have been successful are:-

(i) Private Water Supply

"Successful private provision of infrastructure is demonstrated in Cote d'Ivoire, where drinking water is supplied by the Societe de Distribution de la Cote d'Ivoire (SODECI) to 130 cities and towns from Abidjan's extensive piped network to well-based systems in smaller towns and rural areas. SODECI is jointly owned by private Ivorians interests, the government and a French firm. The public authority handles the construction of the system but contracts out its operations, maintenance, and collection of charges to private operator, the Fermier. The arrangement has recently been extended to a concession contract that also makes SODECI responsible for investment in water system.

Investment plans need to be approved by the government. SODECI derives its revenues from a tariff that is subsidized (lower tariff for small rural consumers). Overall, it is set to reflect total costs, financing of debt service, and cash generation for future investments. The water tariff and the fee are related to the volume of water sold, so consumers rather than tax payers pay for the service received, and since consumption is metred, water losses are low. SODECI has expanded rapidly, because it supplies at standards among the highest in West Africa.

(ii) Refuse collection

Several successful examples of municipal waste collection by private companies exist in Lagos State. These companies often enter into contract with the occupants of residential properties to collect, transport and dispose of the full range of wastes. These companies have maintained responsible disposal standards and have established good

records of environmental sanitation. Most of them are profitable, and have enjoyed financial support from the banks to support their operations.

(iii) Passenger Transport and Trucking/Trawling Business

Private bus/lorry operators have made a break through in providing the much needed intra-rural and inter-city public transport. Although often derided because of their ricketty conditions, "Bolekajas and Molues" operated by individuals and/or small private firms have demonstrated considerable success in providing efficient transport services on many urban and rural routes at a profit and within recommended government tariff levels.

(iv) Labour-Intensive Road Maintenance

Road rehabilitation and maintenance generally relies heavily on costly equipment. However, a lot of cost savings can be made if small scale, village or rural-based contractors (both men and women) are given the opportunity to maintain them. Pilot schemes of these type of private sector participation in infrastructure service were successfull in Ghana, Kenya, and Malawi. As part of the initial public investments on rural road infrastructure, these contractors are given practical training, followed by trial contracts, to ascertain, the extent of their committment to service. Usually these contractors hire up to 200 cheap rural labour (of which 30 to 40 per cent are women) a day; can successfully produce on average two kilometres of high quality gravel road a month. Evidence shows that through these methods, feeder roads rehabilitation can be done at 25 per cent cheaper than conventional methods, with up to a 40 per cent savings in foreign exchange. Wages paid the rural labour contribute to cash earnings, which stimulate the rural economy.

(v) Rural Electrification

Community efforts have been instrumental in the provision of the basic infrastructure for electricity supply. Most communities provide the poles, cables, plants and plant sites and pay for installation charges. But in most cases, the National Electric Power Authority (NEPA) is invited to take over the projects and to connect the rural community to the national power grid.

(vi) Social Infrastructures: Schools, Health Centres And Community Halls

Community efforts have also been very pronounced in the provision of social infrastructure in many rural communities in Nigeria. The basic facilities for schools, health centres, community halls were build and financed solely through private and non-governmental communal efforts while the relevant government ministries which have overall responsibility for providing the social infrastructural services such as education authorities, health management boards are invited to take them over.

Financing Mechanisms

The financing mechanisms for infusion of private sector capital into rural infrastructure building depends on the nature of investments. Short-term finance is often required to

maintain and provide infrastructure services, while long-term capital obtained essentially on soft terms is required for putting up the facilities. Private sector financial resources can be mobilized for investment on rural infrastructure through:

(a) Rural development levies and taxes

This could be administered as consumption taxes, or an income levy. For instance, the consumer tax on petroleum consumption and educational levies could form important sources of funds for investment in rural infrastructure. Also, environmental polution taxes imposed on companies which generate both gaseous, liquid and other physical effluents, especially those which affect both rural and acquatic life are also important sources of revenues for investment on rural infrastructural facilities.

(b) Charging For Services

Full-cost pricing of infrastructure services - roads and drainage, rural electricity and water supply and telecommunications, could help to infuse private sector capital into rural infrastructure building. Charging for services will guarantee that most public infrastructure could generate revenue, and create the urge to entrust and/or stimulate private sector commitment towards the provision of infrastructure services identified in the preceding sections. Private sector's willingness to pay for social services, especially health and education is very high even among rural people.

(c) Mobilizing Community Savings

Community-based development projects provide an avenue for mobilizing "Community Savings" in cash or labour for the provision of a wide range of basic, social and economic infrastructure. In Nigeria much community development has been carried out by self-help - for example, the construction, repair, and maintenance of community facilities. Because those involved are direct beneficiaries, motivation tends to be high. Such projects are an effective means of using free and private sector non-governmental organisations' resources to meet the community's most urgent needs. Example of these efforts abound in many parts of the country whereby community development efforts were used to provide rural water, electricity, schools, health centres and educational institutions.

(d) Strengthening Rural Financial Markets

There is potential in Nigeria for mobilizing rural household savings for investments in rural infrastructure through strenthening both formal and informal financial markets. Easier access to financial institutions and better financial intermediation could encourage private sector entrepreneurs to invest in rural infrastructure. Also, encouragement could be given to the informal sector to play a greater role in rural financial intermediation. As for the formal financial institutions, opportunities exist for mobilization of both urban and rural savings, provided their urban banking behaviour is tailored to suit the financial needs of those wishing to invest in rural infrastructure. For instance, aside from giving preferential credit to rural economic activities, most of these institutions also need to complement their portfolios with rural infrastructure. Credit incentives could be given to those institutions which finance long-term infrastructure building.

For instance, credit tied to small scale irrigation and rural water supply scheme which is traditionally ignored by formal institutions should be encouraged. Short-term working capital credit should also readily flow from these institutions to private entrepreneurs who engage in providing rural infrastructure services such as roads rehabilitation and rural-urban transportation. These banks can also introduce new financial instruments in the money and capital markets to depeen and diversify the source of finance for rural development. Development bonds and securities could be sold to provide the needed funds for the provision of rural infrastructures. Industries with high potential for both lateral and vertical integration into rural activities should be encouraged to purchase these bonds. The informal financial markets also have a key role to play in financing rural infrastructure services. They form an efficient system for savings mobilization and for extending small scale loans to rural households. To a large extent, their services are required to elicit the willingness of rural beneficiaries to pay for infrastructure services.

(e) Special Assistance (grants and aids) From Private And Multilateral Agencies

Private development assistance could be sought from many non-government organizations and agencies to finance the development of rural infrastructure and facilities. Even official development assistance from multilateral agencies also has a key role to play in the provision of both basic and social infrastructure in many poor countries. In most cases however, such external aid/assistance is contingent on the existence of non-government organisations (NGOs) which have demonstrated the will to commit such resources towards the cause of the rural poor.

III PROBLEMS, CHALLENGES AND POLICY IMPLICATIONS

Problems and Challenges

The potential for private sector investment in rural infrastructure is high, but realizing it will depend on the enabling environment and incentives, availability of adequate technology, adequacy of planning and implementation capacities, budgetary and financial constraints and the prospects for eliciting the peoples willingness to pay. These constraints are discussed as follows:

With regard to the enabling environment, the adoption of the Structural Adjustment Programme (SAP) has attempted to get farming and rural life incentive right. However, the social cost of adjustment manifested itself in inflation and rising costs of funds for investments. This has tended to limit the rate of return on investments in both economic enterprises and infrastructure services. It also heighthens the costs of foreign input procurement for private sector investments in rural infrastructure.

The second problem is lack of adequate technology for the provision of rural infrastructure facilities and services. Because of the lumpy nature of rural infrastructure facilities, the plants and equipment required for effectiveness are also lumpy and capital intensive. If small scale and/or private initiative is required, alternative small scale and divisible or extensive technologies have to be developed. However, the weak base for research and development especially in the area of evolving efficient small scale mechanical technologies for roads construction, housing, transportation, and rural

water supply poses a great threat to success. For instance, only very few companies fabricate, locally, cutlasses, hoes, wheel barrows, water pumps and grain milling machines. The efficiency of these machines compared with their imported counterpart is poor. The prospect for improvement is poor as there is only one research institute, Products Research and Development Agency (PRODA) which has focused research on experimental basis on the development of indigenous technologies, and very few investors have commercialised their findings.

Thirdly, there is the weak capacity for private sector infrastructure services investment planning and implementation, due to several factors. Among them is the lack of and/or absence of a well-articualted rural infrastructure development plans and priorities. Until the establishment of DFFRI the plans for pulic investment in rural infrastructure had not always been specified clearly but subsumed in other sectoral plans such as those for the Ministries of Agriculture, Industry, Works and Housing etc. Usually, no provision was made for private sector roles in the implementation of such plans. Moreover, the implementation strategies and the initial outcomes did not suggest that enough priority was given to private sector initiatives in both the planning and implementation. Also despite the availability of trained and capable Nigerians, institutional capacity for policy analysis and planning remains much below the needs of the economy. Related to this is often the failure to build on the strength of rural and indigenous capacities for infrastructure project implementation. It is only in recent times that consideration and training are being given to indigenous technical extension workers by DFFRI in the areas of indigenous house construction and road maintenance using local resources. Indeed modern Nigerian engineers and architects are quite at home with the technology of building modern mansions and sky scrapers, but know very little about the huts rural cottages and houses, rhombu and storage bans which form more than 90 per cent of shelter for the rural people and their goods.

Fourth is inadequate or lack of funds/finance for investment in rural infrastructure. As was alluded to earlier on, private sector iniative in rural infrastructure is expected only to complement public investment. However, evidence shows that public investments on rural infrastructure have been inadequate. For instance, available data show that total Federal and State Government budgets devoted to agriculture and DFRRI represent about 5 per cent of total public expenditures of which less than one-third is devoted to rural infrastructure. Although some caution is called for in international comparison, a number of indicators suggest that Nigeria devotes fewer public resources to rural infrastructure than many other African countries. Yet the dominant activity of the rural sector (agriculture) accounts for about 45 per cent of Nigeria's total GDP. Related to this problem is the weak base for accessing credit for infrastructure services by private entrepreneurs. Among the key problems which persist include: the lethargy often displayed by the current trading banks towards financing long-term projects with low yields; high interest rate charges by institutional lenders; inefficienies and disregard by specialiesd lenders to invest in rural infrastructure and other related portfolios.

Finally, the prospects for commercializing infrastructure services may be hindred by the willingness to pay by the beneficiaries of the projects especially when government agencies attempt to compete with free services rather than complement the private sector.

CONCLUSIONS

From the discussion so far, it is apparent that the private sector can contribute more towards rural infrastructure building, but success will require constructive efforts to overcome the constraints identified above. In particular, we need to create a climate condusive for private sector initiatives in the provision of rural infrastructure facilities and services. The Structural Adjustment Programme is an important first step in the right direction, but much more is needed, and greater care should be taken to mitigate their adverse social impact. Given the right incentives and business climate, private entrepreneurs can be efficient providers of infrastructure if bold actions were taken.

The quality of policy can make a big difference in infusing private sector capital into rural infrastructure. In particular it can increase the economic rate of return of investment on infrastructure and shift the current overbearing roles of the public sector towards the private sector. Among the policy initiatives that can be taken are:

- Privatization and/or commercialization of public enterprises engaged in the provision of infrastructure services. This may open up fresh opportunities for entrepreneural initiatives. Related to this is the need to remove unnecessary barriers towards entry into rural infrastructure servcies business. For instance, the procedures for entering into the business of private social infrastructure services such as education and health could be simplified to allow for easy entry and exit, while adequate mechanism needs to be put in place to protect contract and property rights and ensure fair settlement of disputes.
- As an area in which the government has overbearing dominance, an incentive scheme such as tax relief, may be considered for private investors on rural infrastructure.
- The government also needs to modify procurement rules and contract award procedures for the construction and service of public rural infrastructure to favour local masons, carpenters, brickmakers and metal workers.

In rural areas for instance, construction provides off-season work for farmers and a smooth transition into rural non-farm enterprices. Housing construction creates jobs at little capital costs, generates income from rentals, and often provides an entrepreneur's workshop or warehouse. Contractors who coordinate these activities develop managerial skills.

- Better access to credit should be provided for investors in rural infrastructure. They should be covered under the current refinancing facilities such as NERFUND, SME and other credit facilities. Also, the specialized lending institutions, the Federal Mortgage Bank and NIDB could be encouraged to include infrastructure financing as part of their investment portfolios.
- For entrepreneurs to exploit the opportunites in rural infrastructure facilities and services, the government and donor agencies should encourage them by funding basic research facilities and by helping to disseminate commercially viable technologies. Schools can support this process by encouraging careers that combine technical expertise with business skills. Programmes that bring students into closer contact with local business initiatives in infrastructure services will help to build the necessary linkages between academic institutions and the business community.

(f) The information and planning should be improved through supporting financial and information systems, led by the private sector, that broadens access to capital and technology for entrepreneurs. National plans should specify in advance the desired roles for the private sector, and also help targeted groups to respond to market forces, to create employment and improve their productivity.

All these policy initiatives will induce the private sector to invest in rural infrastructure facilities and services and would lead to the emergence of private entrepreneurs. All that the government needs to do is to create an environment in which people can develop their skills and talents to their full capacity, and be given the opportunity to perform.

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