



**UNITED NATIONS**  
**ECONOMIC AND SOCIAL COUNCIL**



Distr.  
LIMITED

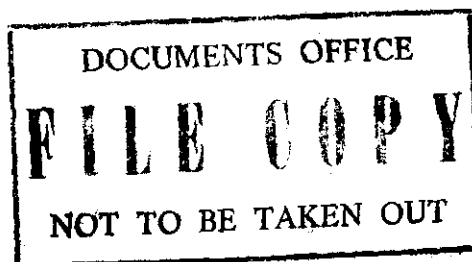
E/ECA/HUS/40  
July 1988

Original: English

ECONOMIC COMMISSION FOR AFRICA

Fifth Meeting of the Joint Intergovernmental  
Regional Committee on Human Settlements  
and Environment

Addis Ababa, Ethiopia, 13-17 February 1989



INFRASTRUCTURE DEVELOPMENT FOR UPGRADING RURAL SETTLEMENTS  
AND IMPROVING RURAL LIVING STANDARDS

## Infrastructural Development to upgrade Rural Settlements and improve Rural Living Standards

### Introduction

1. African development programming and projects development has hitherto been largely characterised by "urban-bias" - the concentration of most developments in the cities. Yet, the region is still predominantly rural - spatially and demographically, and may remain so for some time. Over 60 per cent of the population is still rural and less than 10 per cent of the total area is urban landscape. Agriculture is still the main-stay of most of the populations and most of the economies. The development of rural life, rural settlements, institutions and economy are therefore the main bases by which the region can expect to pull itself up with dignity and equity. In each country of the region therefore, development of the rural sector is now almost synonymous with national development. Besides, the recent UN Programme of Action for Economic Recovery and Development had identified development of rural infrastructure as one of the sectors in support of agriculture and rural development and recommends their intensified development. Most Governments now recognize and accept the virtues of this policy.

2. "Rural Development" has for so long been equated with "agricultural development" in the literature. Recent studies have however indicated the need for a more comprehensive conception and definition that recognises the necessarily integrated nature and approach to rural development. Thus meaningful development of the rural sector should consist of a series of mutually supporting activities (agricultural and non-agricultural) oriented towards the improvement of the quality of living of the rural population and transformation of the rural sector as a whole. The need for spatial integration of activities in order to create a functional hierarchy of settlements must be emphasized. The principal factors for the operational physical transformation of rural settlements plans include:

- spatial organisation covering location and layout,
- infrastructure, comprising roads and public utilities, such as water supply energy and waste disposal;
- and technology, expressed in terms of capital, labour, know-how and materials.

As noted by Kenya's (1979-1983) Development Plan (p.42) rural development is not a single programme or a combination of programmes, but is an overall strategy for the development of rural areas. The components of this strategy are increased rural production and income, increased equity in the distribution of this income, increased access to services and increased participation and decision-making at the local (district) level. Providing the low income groups with access to improved economic opportunities and basic needs is central to the success of the rural development strategy. The integration of

the rural population in the mainstream of national economy is the key to development and provides the basis and justification for investment in rural settlements. Rural enclaves are perpetuated by lack of investments. judicious investment in infrastructures will bring rural enclaves to play their part in creating materials and wealth instead of depending on constant and progressively increased subsidies from central governments. This parasitic existence of rural population will continue for as long as central governments keep providing emergency assistance and not face up to their responsibilities in tackling fundamental problems of rural settlements.

3. In efforts at upgrading rural settlements and improving rural living standards, therefore, the development of basic infrastructures and services are pivotal. The most important of such infrastructures are those relating to access (roads and related transport facilities), water supplies, electricity, health and educational facilities. The economic and social main-stay of most rural areas is agriculture. Agriculture requires massive infusions of new inputs and technologies to transform it into a more productive and profitable activity. In this respect, rural roads constitute perhaps the most important infrastructure needed to assure distribution of those inputs, as well as to ensure access to other basic facilities and services such as water supplies, medical and educational facilities. It is also well known that inefficient or non-existent transport perpetuates subsistence agriculture and stalls the progress of the transformation and integration of the rural sector. Since the starting point of Africa's economic development also is the regeneration of agricultural sector, it is imperative that the necessary physical infrastructure and services be provided in the rural areas in order to support such an effort.

4. The purpose of this paper is to examine how some countries in the Africa Region have tried to upgrade the quality of their rural areas (settlements) with basic infrastructural developments and thereby improving the conditions (quality) and standards of living of their people. It is not possible to discuss all the relevant basic infrastructures coherently and consistently in one short paper. This paper therefore concentrates on some aspects of rural roads development as the first in the series. In this, the approaches and experiences of a few countries, Zimbabwe, Nigeria, Tanzania and Kenya are outlined and lessons drawn from the experiences. It is envisaged that these series would stimulate discussions and promote useful exchanges of experiences on how to better improve the quality of living in the rural sector.

#### Rural Roads Development in African Countries

5. It is being increasingly realised that an improved organisation, development and management of human settlements, especially rural human settlements, is crucial to the realisation of Africa's economic development. In particular, the development and maintenance of feeder, access and service roads and bridges are basic to the development of agriculture which is key to Africa's economic development. The objective of road network development is not however just to enable people to have high incomes and enjoy increased productivity, but also to enhance the quality of their life, through improving accessibility to education, health-service facilities etc. These objectives should however be carefully defined so that they are realistic and achievable and do not raise false expectations.

6. Zimbabwe's Rural Roads Programme (R.R.P.), is one case of infrastructural development to improve and uplift the standard of life in the rural areas. This programme started in 1985 under the institutional aegis of the District Development Fund (DDF), a parastatal under the Ministry of Local Government, Rural and Urban Development. The District Development Fund (DDF) within whose institutional framework the RRP programme is being implemented is a successor to an earlier institution - the African Production and Marketing Development Fund, established as far back as 1949 to develop infrastructures that help agricultural production and marketing in the Communal Lands (formerly Native Reserves, and later Tribal Trust Lands). There were then hardly any developed infrastructures in these communal lands. In the course of events however, the Fund assumed a wider variety of development functions, among other things, including development of:

- deep tanks and cattle pens,
- roads and access tracks, bridges etc.
- dams, weirs and boreholes for water supplies and irrigation purposes;
- soil conservation; and
- district commissioner's rural rest camps.

After independence in 1980, all agriculturally-related activities of the Fund were transferred from it, leaving it to concentrate on the core infrastructures of roads and watersupply schemes in the rural areas where 80 per cent of the population live.

7. The Rural Roads Programme (R.R.P.) was envisaged to substantially contribute towards the development and opening-up of about 54 districts in Zimbabwe, and the improvement of the living conditions of the rural population. The rationale and objectives underlying the R.R.P. are as follows:

- (a) Agricultural surpluses or commercial production is more attainable in areas where adequate motorised transport means - in the main - are available within a reasonable distance from the fields. Therefore, a fairly dense road network should be provided in agriculturally productive areas.
- (b) Rural road networks should ensure adequate access for the entire population to the basic social facilities - namely clinics, hospitals, schools, central facilities at rural and district service centres.
- (d) Roads should be of all weather standard in order to ensure that no significant numbers of people are without road access during the rainy season.
- (d) Road width and surface conditions should enable buses and other forms of transport to move on regular basis and the roads should be wide to allow two-way traffic.

8. The foregoing rationale and objectives are consistent with Zimbabwe's national development goals which aim at promoting more equitable growth and services to the population throughout the country. It is also in pursuit of these objectives that economic feasibility or justification for this programme was down-played, thus, recognising the equally important non-economic rationale for district road development. The Government recognised the fact that road development is an essential pre-condition for many other sectoral developments such as health, education and agricultural development and services.

9. Most of the roads under this (R.R.P.) programme are intra-district roads and have been planned in such a way that the majority of the people living in the communal lands have reasonable access to roads and road transport. They comprise of three categories - primary, secondary and tertiary - (according to their functions and scope of coverage) and with specifications as follows:

- Primary Roads - serving the majority of the population of the district by connecting villages with rural service centres in the district, and connecting with other primary roads or with state roads. Primary roads are planned to be at a maximum distance of 10 kilometres from an all-weather (state) road in areas of flat rolling terrain and 3 kilometres in hilly or broken terrain. The formation width for this category of roads allows for 6 metres gravelled carriageway with 0.5 metre shoulder on either side. Graveling is normally 150 mm in depth depending on sub-soil and gravel-quality conditions.
- Secondary Roads - consolidate the network by reducing the distance to an all-weather road to 5 kilometres in a flat terrain.
- Tertiary roads - further consolidate the network by reducing the distance to an all-weather road to 2.5 km in flat terrain. Included in the tertiary class of roads, are all the minor roads which serve schools, dip tanks, dams and other service areas.

Also with the tertiary road category, 6 metre carriage-ways are the usual stipulated dimension and provides only thin selective graveling over very poor surface conditions.

#### Planning of the Road Development Programme

10. Development planning in Zimbabwe is decentralised to well-established Local Authorities - District Councils and District Development Committees. Development planning dynamics in the country start at the village level where there exist an elected village Development Committee; then to the Ward Development Committee which in turn submits development requirements and proposals (plans) to the District Council. The public works committee with the District Council is in charge of formulating objectives and development policy guidelines and producing final investments proposals to be approved by the District Council. Then, the proposals go to the Provincial Administration and to the Central Government for approval and adoption, through the Ministry of Local Government, Rural and Urban Development.

11. The following eight principles or criteria were employed in the Zimbabwean District Network Planning:

- (a) Hierarchical order - to ensure reasonable access to road transport in the rural areas,
- (b) Link with existing road,
- (c) Avoiding the aligning of roads to cross or run along the border of game reserves, safari areas and National Parks,

- (d) Ensuring that several (influence) areas are linked to their nearest Rural Service centres;
- (e) Taking into account of current and future sectoral development project locations, including mining and water projects;
- (f) Ensuring that networks are designed to consist of loop-type roads (i.e. both ends connecting to an all-weather road), rather than fish-bone type roads, so that buses can use them easily via populated economic and social service centres without going forwards and backwards;
- (g) Ensuring that new roads are coordinated with other districts networks;
- (h) Ensuring that the roads are aligned to serve only settlements areas.

12. The Zimbabwean programme also made provision (arrangements) for maintenance - both preventive and rehabilitation maintenance. It provided for a training programme in both construction and maintenance aimed at providing the (R.R.P.) programme with a self-sustained in-house training activity covering inter-alia, basic road construction skills, quantity calculations (survey), and administrative skills. Over 300 personnel of various skill categories (senior field officers (25), field officers (78), supervisors (94) and gang supervisors (117), were targetted and trained.

#### Problems of the programme

13. The programme has not been without its share of constraints/problems among which were the expected ones of equipment break-downs and shortage of necessary spare parts; shortage of qualified mechanics and other technical personnel; the institutional problems of lack of proper co-ordination between the Provincial Field Officers and the Provincial Maintenance Advisers; lateness in release of funds; and not least, were the socio-political disagreement among districts over the naming of the roads.

#### Achievements of the programme

14. An evaluation of Phase I (1985-1987) of the Zimbabwean Rural Roads Programme (R.R.P.) which is now completed, has shown significant achievements which include:

- (a) physical development of road networks in terms of new road construction (1213 km) and improvements and routine maintenance work; (5713 km).
- (b) institution-building and strengthening of capacities by which long-term goals could be realised by the DDF itself becoming self-sustaining and capable of delivering the goods and services urgently and constantly required in rural areas. Over 500 people are expected to be trained by the programme.

The gains/benefits of the programme are therefore significant, namely:

- increase in the road influence areas - 6,926 km of primary road network has been constructed/improved and 14,000 km of rural roads were being maintained in 54 districts of the country.
- notable agricultural growth/development paths, i.e. farmers' agricultural/farming response to the existence of new roads was found to be significantly positive, and
- there were reasonable transport time savings as a result of better road network coverage.

The Zimbabwean Rural Roads Programme (R.R.P.) appears to have been fairly well planned and executed and has left lasting improvements on the rural landscape of the country.

#### Nigeria's Rural Infrastructure Development Programme

15. Nigeria's is another case where very high priorities have been given to development of rural infrastructures, in attempts to raise the quality of life of the rural population. The Government has over the years given special emphasis to rural development but had reinforced this emphasis in 1986 with the creation of the Directorate of Food, Roads and Rural Infrastructures. Among other things, this Directorate was charged with the tasks of:

- (i) rehabilitating various categories of rural access roads in the country, and especially for the development of a national network of rural and feeder roads in order to strengthen the massive effort for food and agricultural self-sufficiency in the shortest possible period, (the programme was planned to rehabilitate 60,000 kilometres of rural feeder roads in 1986, and 30,000 km of similar roads in 1987). In initiating this programme, the Government believes that the relationship between the development and maintenance of good arterial and inter-communal feeder roads and massive food and agricultural self-sufficiency is very closely knit.
- (ii) implement a national rural water supply scheme;
- (iii) launch a national rural markets programme to be closely phased in with the rural feeder road programme;
- (iv) launch a rural electrification programme with emphasis on rural agro-industrialization; and
- (v) generally implement its articulated programmes in the fields of crop, livestock, fruits, vegetables, rural housing, rural health, rural education and social organisation.

16. This programme was also envisaged to create employment opportunities in rural areas and thereby help stem rural-urban migration. Allocations of N500 million each were made to the programme in 1986, 1987 and 1988 respectively. This programme is in addition to the efforts of State and Local Governments as well as the River Basin Development Authorities (eleven in number), at

17. Organisationally, this Directorate is organised into state Directorates each charged with the execution of the programme in its given State and money for implementation allocated to each State Directorate from the Directorate's National Headquarters in Lagos. Like Zimbabwe's R.R.P; the scope of the programme is nation-wide. Each State branch of the Directorate is under the executive leadership of the State Director who ensures that the programmes for each State is implemented. State Directorates are organised into Task-Forces which take charge of the planning and execution or implementation of designated elements of rural infrastructures - roads, water supply, electrification etc.

18. In spite of widespread criticisms of the programme and controversies surrounding its performances and approaches, it is clear that the programme has constructed several thousands of kilometres of rural roads nation-wide, and numerous bridges and culverts. It has also drilled boreholes to provide water for rural communities and has installed and extended electric power supplies to several communities.

19. The problem with this programme is its Ad hoc Organisational nature and its apparently inadequate co-ordination with existing and older institutional units and frameworks such as the State and local governments and their relevant (sectoral) organs. The result has been overlapping and duplication of responsibilities with consequent conflicts, dissipation of energy and duplication and wastage of scarce human and financial resources. The Directorate does not have or does not accept responsibility for maintenance of the infrastructures that it builds. It develops and builds on somewhat of a "Turn-key" basis, even when the local governments or local communities that inevitably have to be faced with the maintenance of these infrastructures have no prior inputs or control in their designs and specifications. Much vertical (National (Federal) - State-Local) and horizontal (Agency-Sectoral Departments) Co-ordination and stream-lining would seem to be required in this case between the functional areas or responsibilities of this Directorate and those of the local and the State Governments, so as to ensure efficient employment of resources and to ensure maximum benefits to the target populations.

#### Tanzania

20. In Tanzania, efficient and effective infrastructural development was one of the most compelling ideas behind the conception and implementation of Ujamaa villages. The idea was that when people are grouped and settled in a more nucleated settlement pattern, they could be provided with the necessary infrastructure much more easily than when they remained in isolated homesteads. The role of infrastructure in Tanzania's development process has been conceived as that of facilitating meaningful integration of towns and the countryside and the different sectors of the national economy, as well as to afford easy and quick movement of goods and people between settlements. The transport network is being used to stimulate and guide human settlement development in the country. A typical example of this programme is the use made of the TAZARA railway. In order to make full and economic use of the railway line, many villages, small and large alike, have been started along the railway. These settlements along the railways are designed to make full use of this large investment in transport by producing more agricultural and insustrial commodities which can in turn be moved along the railway line.



21. One of the others of the main strategies adopted by Tanzania in its national development - which was equated with rural development - was the provision and improvement of rural feeder roads and main national trunk roads. For many years now, road construction programmes have been financed and implemented by the Central Government and through public financial institutions, like the Tanzania Rural Development Bank, which gives loans to many rural development projects. Most of the rural feeder roads however, are being constructed as selfhelp schemes by the people themselves. Through this programme, many areas previously inaccessible especially in the south, have been opened up by new transportation links and the improved accessibility has improved social and commercial exchanges. The provision of such infrastructure and other social services in small towns, and service centres in the rural areas, in a coordinated manner in order to enhance their growth and development prospects, as well as to augment their attractiveness to potential migrants and investors, is a more effective way to achieve balanced development of the country.

22. The spreading of basic community facilities (roads, water, education, health etc.); and non-agricultural jobs to the countryside has the effect of improving the quality of life in the countryside, of making rural life attractive, and of reducing the tendency of the rural (active) population to migrate to urban areas in search of community facilities and non-agricultural employment.

23. Kenya's Growth Pole and Designated Service Centre Policy is also being implemented by use of infrastructural developments. By decentralization of industry and provision of necessary infrastructures, particularly roads to connect these growth poles and service centres with their rural hinterlands, it was envisaged that conditions would emerge in the smaller rural and intermediate size urban settlements to attract population movements away from the major cities of Nairobi and Mombasa. As these smaller designated centres and their transportation and communications linkages are developed, the access of the rural areas to markets steadily improved. Kenya's programme of rural development has placed a high priority then on improving physical access of rural communities to the monetary economy through the expansion and maintenance of rural access roads. This has been a central feature of Government policy. It had been envisaged, that as these roads were extended through the rural areas, local authorities and the private sector would follow with the transport and marketing facilities needed to complete these physical ties.

24. Several Countries in the Region, obviously have their rural infrastructural development programme, with emphasis varying among countries with respect to the infrastructural elements accorded programme and financial allocations priority from time to time. Africa is still in the opening-up stage in its economic and societal development. The importance of transportation and general access infrastructures are certainly critical and deserve appropriate policy and programme priorities.

#### Towards Improved Development and Maintenance of rural (road) Infrastructure

25. A review of various African Countries Development plans shows that the importance of infrastructure development are recognised in the national socio-economic development efforts. The Rural component of this development is also recognised, and positively regarded, though with varying degrees of priorities. Part of this varying priorities could

26. Firstly, it is noted that the conception and definition of rural (settlements) development and its scope vary among African countries. In some (for example, Cameroon, Togo, Zambia, and Zimbabwe), it is essentially conceived as agricultural development and much of rural development programmes are synonymous with agricultural programmes. Rural development in these places consisted largely therefore of measures aimed directly at increasing agricultural output and productivity - such as fertilizer schemes, agricultural extension services, tractor and other mechanization schemes, agricultural credit, cooperatives or farm settlements etc. In some other countries (Botswana, Gambia, Kenya, Liberia, Nigeria, Tanzania, Uganda etc.) rural development has a wider connotation which includes the development and provision of basic infrastructures such as roads, water supplies, power (electricity) as well as such services and facilities as, health and education facilities.

27. These two perspectives are not necessarily mutually exclusive. Rural Development, however, ought to be seen in the wider conceptual meaning of the transformation and modernisation of the rural areas through the development and provision of basic infrastructures, services and facilities, which measures would also help retain people in the rural areas and facilitate farming processes. For as noted by Nigeria, even "agriculture will not improve no matter what else is being done, unless our villages and farmlands are made livable for the younger generation..." and that "most of the problems with agriculture arises from the fact that new blood is not going into agriculture..." Rural (settlements) development, according to this perspective, should be approached more from the perspective of provision and development of the basic economic and social infrastructures and public services - motorable roads, pipe-borne water, electricity, educational, health and communications facilities - in the rural areas. The essential basis of integrated rural development is that the rural character of the parts is preserved, while development is integrated into it through the provision of the infrastructures and services, which are envisaged to raise the quality of life and living in the rural areas, and enhance the capabilities of people living in such areas to pursue more productively and more efficiently and effectively whatever be their occupations - be it agriculture, commerce, industry or the services.

28. Another gap in the process is the ad hoc nature of the programmes in some countries. In such cases, the institutional framework is weak and there is no institutional framework to carry on and/or maintain the infrastructures at the end of the development stages of the programme. Closely related to this is that there tend to be little if any, coordination and cooperation among levels of governments or organisations in the execution of some of the programmes. Situations are worse where Central Government para-statal organisations are charged with implementing the programmes at local levels, in which cases the local units of government under who most of the rural areas lie, are not adequately co-opted into the planning and implementation of rural infrastructure development schemes. There is a tendency for each new programme or project to be accorded prominence by the creation of autonomous or semi-autonomous organization to administer it. This leads to rapid proliferation of institutions and subsequent problems of co-ordination and dissipation of resources. Better and more effective results would usually be achieved by making fuller use of existing local government structures as much as possible in the development of rural infrastructures, or at the least with their full cooperation and coordination. Local Government units are also in a better position to mobilise community support, cooperation and even resources that might be vital to the

success of the programmes. In sum, it would be much better if the process of rural infrastructural developments are organisationally institutionalised, and as close to the local level as possible, rather than undertaken at ad hoc organisational basis at central government levels.

29. There is also observed in a number of the rural infrastructure development programmes in a number of African countries, a tendency to concentrate on and emphasise new construction/development but little, if any considerations, provisions or arrangements for maintenance of what is built. It seems obvious from the experiences in several African countries that, while there is need for development of new infrastructure facilities, the need for proper maintenance and management of already existing facilities is greater. Even the sense in embarking on new developments without making adequate provisions and arrangements for their maintenance, is questionable. In some cases, it could be argued that if existing infrastructures could be adequately maintained and properly managed, that they could still go a long way towards satisfying the infrastructural needs of development. The need for maintenance provisions for these infrastructures cannot therefore be overstated, and training programmes in this connection should be an integral part of any infrastructural development project.

30. Rural development cuts across the boundaries of several sectoral activities, and planning and implementation of rural programmes require the co-ordination of vertically-organised sectoral activities. The main purpose of a transportation system is to serve the user by providing accessibility to land areas and mobility between desired origin - destination points. Rural Transportation development plans therefore should reinforce and be - compatible with the activities of other sectors related to rural development such as agriculture, water supply, electrification, health, education and agro-based industrial sectors, and the coordination of these with settlements locations and population concentrations. Potential impact is enhanced, for example, by selecting and aligning road projects in such a way that larger numbers of people benefit from the projects. Such integrated approach and co-ordination among executing organisational units would minimise disruptions, and therefore waste of resources and thereby ensure greater efficiency. The socio-economic impact of rural roads development and improvement comes about through changes both in agricultural production patterns and personal mobility patterns of rural inhabitants. Hence, road planning should take into consideration the need for both commodity and population movements. Transport goals also need to incorporate goals for spatial arrangements and forms of development.

31. Rural transportation, if it is to serve developmental goals, is a wide-ranging activity whose planning requires knowledge of technical, economic, social, political and institutional factors pertaining to the specific area for which the rural network is intended. While economic cost-benefit analysis is useful in selecting road sites, and alignments therefore, consideration of political, social and environmental impacts that are difficult to quantify, but also important, should be incorporated in the decision-making and selection process. In addition, local community participation and support in the definition of needs and in decision-making facilitate planning and implementation process, can reduce tension and conflict, if thoughtfully handled, and provides communities with invaluable experience in sharing in their own development process.

32. Post-project evaluation should be an inherent part of the road development process, so that future planners and programmers for development have a data base upon which to draw in improving their methodologies, approaches, and understanding of rural transportation planning.

#### Summary

33. African countries are, today striving towards economic development. Most African countries are still dominantly rural. An improved organisation, development and management of human settlements, especially rural human settlements, is certainly crucial to the realization of Africa's economic development. In particular, the development and maintenance of feeder, access and service roads and bridges are basic to the development of agriculture which is key to Africa's economic development. Road transportation networks help strengthen systems of settlements and help to link them with their surrounding areas in such a way as to provide access for rural populations to market, farm supplies, social services and other facilities.

34. With the increasing significance of rural development as a strategy to bring about socio-economic transformation in the life style of the majority of the population, rural transportation has become one of the priority components of overall development programmes. Transportation, particularly road transportation, is considered an integral part of the agricultural production process: it can assist in creating producer surpluses by lowering transport costs of farm inputs and farm produce. Moreover, as a provider of access to social services and non-farm economic activities, rural transportation systems can significantly affect the well-being of rural populations. Thus, improvements in rural transportation have the potential to stimulate changes in agricultural yield, cropping patterns, non-agricultural economic activities and quality of life for rural inhabitants.

35. Many African Governments are often confronted with the dilemma of choosing between the concentration of investment in support of specific productive activities as agriculture, mining and manufacturing industries, or in physical infrastructures like roads and other communications facilities, power and other utilities etc. But as these basic infrastructures are generally a prerequisite for almost every type of production, these investments are in fact not contradictory, but rather complementary. Since the starting point of African economic development is the regeneration of the agricultural sector, it is important that the necessary physical infrastructures and services be provided in the rural areas in order to support such an effort. Massive infusion of new inputs and technologies are required to transform rural agriculture. In this connection, development of rural roads constitutes perhaps, the most important infrastructure needed to assure distribution of those inputs, as well as the distribution and marketing of the outputs or products.