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IMPACT OF USAID ON THE DEVELOPMENT OF COSTA RICA DURING THE LAST FIFTY YEARS

INFRASTRUCTURE

BY : *Ing. Ricardo Echandi Zurcher*
Ing. Enrique Angulo Zeledón

Costa Rica, February 1996

SECTION I

INFRASTRUCTURE DEVELOPMENT IN COSTA RICA

This study's objective is to look at Costa Rica's infrastructure, showing the situation fifty years ago, progress achieved to date, and the present situation. Over this period the goal is to describe and evaluate the support given by the U.S. government through USAID or through predecessor agencies, such as Point Four.

1.2 INFRASTRUCTURE FROM THE COLONIAL ERA TO 1944

Roads and Streets

"The importance of an appropriate communication and transportation system in a country is similar to the importance veins and arteries have in the human body. Just like the circulatory system serves to carry food to all parts of the body, the communication systems serve to feed the farthest areas keeping all places alive and active." This paragraph was the heading of the request made to the World Bank for financing the "Plan Vial," or National Road Plan, which started in the 1960`s and contributed to the systems we have today.

1.2.1.1 Means of communication before 1945

The first roads in Costa Rica were built in the colonial era. However, these were dirt roads, almost impossible to use in the rainy season. This condition and lack of good communications with the external word were characteristics of the colonial years. The modern history of Costa Rican roads begins in 1910, during the presidency of Ricardo Jiménez. From 1910 to 1914, the first macadam roads were built, permitting motor vehicles to drive on them. From 1914 to 1928, road construction declined considerably. Nevertheless, by 1928 there was a paved road between San José and Cartago.

From 1929 to 1932, road construction increased. In just one year (1929-1930) the highway from San Jose to Alajuela and Grecia was built. From 1936 to 1942, road construction increased again. During this period, construction of concrete roads started. The roads remained in good condition for a long time. Most of the highways existing fifty years ago were built during this period of time.

Electricity

Electric light service started in San Jose in 1884, only two years after Edison invented the electric bulb. The Costa Rican Electric Company (Compañía Eléctrica de Costa Rica) founded by Manuel Victor Dengo and Luis Batros, established in 1883, provided the service. Between then and the beginning of this century, the municipalities of Cartago, Alajuela and Heredia also signed

contracts with this company, and were provided with electric lighting.

In 1900, the company closed down and all privileges and contracts were transferred to the Electric Light & Traction Company, Limited, from London. From that time, the electric industry began to grow more rapidly. In 1912, the Brazil Plant in Santa Ana was opened, and other private companies were formed. For example, National Electricity Company (Compañía Nacional de Electricidad) which built the hydroelectric plant in Belen in 1915. In 1929, American and Foreign Company acquired the stock of the existing companies and managed the electricity in the country until 1941 when the Compañía Nacional de Fuerza y Luz was founded.

1.2.3 Railroads

Railroad history began in 1890, during the government of General Tomás Guardia, when railroad construction started. By 1882, the country had railroads from Cartago to Alajuela and from Esparta to Puntarenas. When the railroad to Limón was built, the country experienced a great step forward in just a few years. Much faster growth was experienced, very faster than what had been achieved in the previous fifty years, before railroads. Due to the great success of the railroad to the Atlantic coast, the country started the construction of the railroad to the Pacific coast which was electrified by the end of the 1920`s. Railroads played a important role en the development of the country in the first 50 years of this century.

1.2.4 Ports

Before railroads started operating, Costa Rica had a port in Limón on the Atlantic coast, and another one in Puntarenas, on the Pacific coast. These ports had a small wooden loading dock which permitted ships to anchor. Later, when railroads started operating, these ports were improved and were active for several decades. At the beginning of the century, when the banana companies opened, ports were built in Quepos and Golfito. Also, at that time, small installations were built on the Tempisque River to serve small coastal trading boats.

Coastal trade boats were very important as a means of transportation before 1945 because it was the only means of communication for people in Guanacaste, as well as Parrita, Quepos and Golfito. Between 1936 and 1942, important improvements were made in Limón and Puntarenas ports.

1.2.5 Airports

The first airports, in the 1920`s were simply pastures. Some were gradually improved. Commercial aviation started at La Lindora, a farm near Santa Ana. Pan American Airways used it, beginning in 1929, to provide international transportation. Later, other local companies such as ENTA, AVE and TACA started and gave a very important service connecting cities from Guanacaste and the southern area of the country. In 1937, La Sabana started operating as the international airport. In 1940, the control tower and the building for departure and arrival of passengers and load was built.

1.2.6. Water and Sewage system

The first water system was built in San José in 1868. It was very small and was built by the Development Ministry (Ministerio de Fomento). This system was given to the municipality of San José, for its administration. Due to the lack of adequate attention, at the beginning of the century, the lack of water in the city was obvious.

By this time, other cities, such as Heredia, Cartago, and Alajuela had their own water systems. Though they were very small, they could supply water to the people in that time. In 1910 the first important water pipe system was built in San José. This system was fed by the springs in Padre Carazo and Chinguite in Tres Ríos. The first water treatment plant, in Tres Rios, was built in 1920. Between 1932 to 1944, the Development Ministry built a sewage system in San José, Cartago, Alajuela and Heredia.

1.3 INFRASTRUCTURE FIFTY YEARS AGO

1.3.1 Roads

There was a concrete road system, five meters wide, in the main cities in the central area. One, going north through La Uruca, Heredia and continuing towards Poas Volcano to a place called Los Cartagos. Another one, going east through Guadalupe to San Isidro de Coronado and getting to a place called Las Nubes. Another one starting from avenida 1, 11th street, of San José, going through San Pedro, Tres Ríos and Cartago to Irazú Volcano. This system was built basically from 1936 to 1944. By 1945, fifty years ago, it was in very good condition.

There was also a system of paved roads including the road from Cartago to Turrialba, from Heredia to Alajuela, Grecia and Naranjo to San Ramón and from Naranjo to San Carlos. It was also possible to go from Los Cartagos to La Cinchona. The Interamerican highway was under construction. however, it was possible to go south as far as San Isidro del General and North to Puntarenas. The Inter-American Highway was made of gravel and had several detours to go over small rivers. Bridges had been built over main rivers such as Barranca river. There were no bridges on southern part of the Interamerican Highway because this had been built on the highest part of the mountains.

There were no roads in Guanacaste or the southern area of the country. Instead, there was an important coastal trade system. For instance, there was one leaving from Puntarenas up Tempisque river to Filadelfia, a small town on this river. This was the way to get to Liberia and Cañas, using horse trails. To get to other towns in Guanacaste such as Nicoya, one had to go by boat to a river port such as Bebedero, on the Tempisque River. In the southern part of the country were some coastal ports as Parrita, Quepos , and Golfito. There were also horse trails and also one could use the railroads banana companies had.

By 1945 the road system was made up of 600 km of paved or concrete roads in good

conditions, 600 km of ballast, gravel and dirt roads in fair condition, and 100 km of neighborhood ballast roads. In addition, there were 300 km of Inter-American Highway made of gravel. There were approximately 5,000 motor vehicles at that time.

1.3.2 Electric Energy

Fifty years ago, the Compañia Nacional de Fuerza y Luz supplied all electricity for the main cities in the Central Plateau. Other cities got their supply from small public and private companies. This power was basically used for lighting. It was common to get electricity at 4:30 pm until 6:00 am the next day.

1.3.3 Railroads

Costa Rica had the railroad to the Atlantic, managed by the Northern Railway Company , the Electric Railroad to the Pacific, managed by the government , and there were several railroads used exclusively by the banana companies for banana transportation. By 1945, 95% of the load and passengers going from Puntarenas to San José, and Limón was done by train. It was the railroad golden era. Railways were in good conditions and the service, acceptable.

1.3.4 Ports

In 1945, the country had the ports of Puntarenas and Limón, which dedicated to imports and exports. International transport of passengers was quite important. Quepos and Golfito were exclusively used for banana exports. By then, 80% of the exports and imports were made through Limón.

1.3.5 Airports

La Sabana was the international and local most important airport. It had 1 km long grass runway. There were other grass airports for local service. Among the most important were Santa Cruz, Liberia, Las Cañas, Los Chiles, Upala, Golfito, and Parrita. At this moment, the need of a new airport was being studied. Places like San Isidro de Coronado, Lindora or El Coco, a place near Alajuela, were the candidates for the new allocation. Some year later, the place known as El Coco was selected.

1.3.6 Water and Sewage system

The main cities had already potable water. These systems had been built by the Development Ministry (until 1936) or by the Ministry of Public Works (Former Development Ministry) These works were given to the municipalities for their management. Aqueducts got their supply from natural springs and none of them received any treatment except for the aqueduct of San José. The rate paid for water was very low and the maintenance given to the aqueducts was very poor. Concerning sewage treatment, there were plants in San José, Cartago, Heredia, and Alajuela. Most of these plants had been built during León Cortés administration (1936-1940).

1.4 PERIOD FROM 1946 TO 1961

1.4.1 Highways

Very few highways were constructed from 1946 to 1948 because of the convulsive and confusing state of the country. After the revolution of 1948, the Ministry of Public Works was re-organized and the departments of Highways and of Feeder Roads were created. The Planning Department was created in 1952, a Department which was in charge of the roads inventory, traffic counter and load control in highways. Just after the creation of this Department, technical personal were trained in the United States with the assistance the Point IV program sponsored by the U.S. Government. During the next five years, the Ministry started a program to extend the paved road system and the feeder roads system. By this time, the highways from Naranjo to San Ramón were paved and the route from Alajuela to San José, was re-paved. In 1958, the section between La Sabana and El Primer Amor (La Uruca intersection) was concluded, and the construction of the highway between El Primer Amor and El Coco airport (today Juan Santa María Airport) was negotiated with Eximbank. The study of the Plan Vial (highway Plan) also began in 1958. At the end of the decade, the highway network included 750 km of paved roads or ballast roads and 500 km of feeder roads. Moreover, there were 150 km already paved of the Inter-American highway and 300 km of gravel. The automobiles fleet was constituted by 25,000 vehicles which 8,000 were pick up trucks.

1.4.2 Energy

The construction of the hydroelectric project of Carrillos in 1957, in Poas of Heredia, by a local institution related with de municipality was the beginning of the development of the electric system of Costa Rica. This small plant (5 Kw) was the "pilot plan" that served, two year later, for the creation of the ICE. In 1949, the Costarrican Electricity Institute (ICE) was created. Its objective was the planning and administration of the country's electrical energy. This Institute grew rapidly and in 1959 they were building the 30 kw Garita Hydroelectric Plant, which was totally constructed with national resources.

1.4.4 Railroads and ports

1.4.5 Airports

In 1958, President Figueres inaugurated "El Coco" International Airport. From that moment on, there was a rapid growth of the number of people transported by air inside and outside of the country.

1.4.6 Water and Sewage systems

In 1955, the Ministry of Public Works improved the metropolitan area's water system when they built a network in the southern neighborhoods and Los Tanques del Sur. With this new system, the lack of water in this sector of San José city was alleviated. However, when the end of the 1950`s was close, it was evident that municipalities couldn't solve the problem of water supply. There was

no control of the quality of water, the distribution was inappropriate and there was an evident lack of technical capacity to manage the pipeline system. For this reason, discussion of the desirability of a specialized organization to manage the aqueduct and sewage systems began to take place. The Aqueduct and Sewerage System National Service (SNAA) was created in the following decade.

1.5 PERIOD FROM 1961 TO 1972

1.5.1 Highways

This period stands out because of the beginning of a very active process in regard to improvement, rehabilitation, construction and maintenance of the highway system. External financial support was given by organizations like the World Bank, the Central American Bank for Economic Integration (CABEI) and USAID.

This process took place until 1985 approximately. In February 1961, the Legislative Assembly approved the first stage of the National Highway Plan (Plan Vial). This law authorized the Executive Government to negotiate a loan with the World Bank. It also approved resources to meet counterpart requirements and a short and long term program to rehabilitate the existing highway system, established the necessity of a maintenance organization and proposed action in view of the future growing of traffic. Also, this Plan established the necessity of construction of a highway to Limón , the coastal highway in the Pacific shore and the highway to the north of the country, between San Carlos and Los Chiles. Besides, the necessity of completing the Guanacaste's feeder roads system was pointed out.

1.5.1.1 The Highway Plan (Plan Vial)

The Highway Plan (Plan Vial) consisted, basically, in re-building and improving the highways and roads network of the country (National and Regional highways) and it was divided into stages or phases. In the first stage, approximately 575 km were re-built and maintenance equipment was bought, providing each of the maintenance zones into which the Ministry Of Public Works was divided with proper equipment. This first stage was economically supported by the World Bank, ($10 million) and funds from the central government and USAID ($2 million). The most important stretches constructed during this period were: Atenas-San Mateo, Heredia-Vara Blanca-Volcan Poás, Naranjo -Laguna, Ciudad Quesada-Florencia, Ciudad Quesada-La Marina, Sabana-Pavas, Pavones-Siquirres, Radial Zapote, Liberia-Guardia, Villa Colón-Puriscal, Alajuela-Carrizal and San José-Guadalupe-Rancho Redondo.

1.5.1.2 Sabana - El Coco Highway (Toll)

As El Coco International Airport started operation, there was an urgent necessity to construct a highway in order to provide an easy communication between the airport and San José. For this reason, the Ministry of Public Works' efforts were directed to the construction of this highway that was financed through a loan from the U.S. Export-Import Bank. This road was inaugurated by the president Orlich in 1965. It was the first four-lane road and the first toll highway in Costa Rica.

The construction of the highway between El Coco and San Ramón, was negotiated later with CABEI. This project was under construction by the end of this period.

1.5.1.3 Interamerican Highway

The missing bridges between San Isidro and the Panamanian borderline were completed. For this reason, in the first years of the decade, transit to Panama was opened. Besides, paving works were started between Cartago and the Panamanian border as well as from San Ramón to Cañas.

1.5.1.4 First Stage of Feeder Roads

The first loan with the World Bank included only a small list of feeder roads that represented the most urgent needs. By this time, there was a great pressure from rural areas for to obtain the necessary roads to transport agricultural production. For meeting this need, the MOPT prepared a plan for construction and rehabilitation of 600 km of feeder roads, distributed throughout the country. Priorities was assigned based on the production, population, lack of roads and other factors. A loan for the first phase of this plan was negotiated with the IDB.

In this decade, 600 km of feeder roads were built, 50% in the outlying regions of Nicoya, Guacimal, Tilarán, Sarapiquí and San Ramón, 16 % in the Central Valley area, and the rest in Puriscal, Dota,Parrita, Quepos, Guápiles , Sixaola and Corredores.

1.5.1.5 Cooperative plans

A important length of road from the "cantonal system" assigned to municipalities was taken over by the Ministry of Public Works through cooperative plans, in light of the lack or technical and financial support by the municipalities. This plan was organized in 1963 for the construction and improvement of feeder roads roads and other works of local interest. Through this system, the Ministry gave training and equipment, and the communities financed part of the work. This plan brought surprising results. More than 2,000 km of roads were rehabilitated or maintained during this period.

1.5.1.6. The emergency of the Irazú Volcano.

In March 1963, the Irazú Volcano start an active period. The precipitation, deposit and ashes derived from the eruption of the volcano, affected the most densely populated part of the country, the Central Valley, for almost four years. Its effects caused a national emergency. Serious flooding occurred, crop agriculture, and cattle production were severely affected, as well as urban populations and roads. In response to the emergency, the government used a great part of its resources to establish an emergency organization. Some year later, this organization was transformed in the National Emergency Commission (CNE). The experience obtained in this emergency was utilized later, by other countries in similar disasters, like the eruption of Mount St. Helens in Washington state. In the Irazu emergency, quick action by USAID contributed much to resolve problems in the affected area.

1.5.2. Energy

This period (1961-1972) is characterized by the great support that the country's energy sector received. The "Instituto Nacional de Electricidad" - ICE- received a loan from the World Bank to increase its capacity and started getting economic support for design and construction of the Cachi hydroelectric plant.

Event though there was electricity in most of the major towns of the country by 1961, it had not gotten to rural areas where populations was dispersed. USAID sponsored a program to bring electricity to rural areas thorough rural electric cooperatives, that completely changed the situation. The first cooperatives were created in the areas of Los Santos, San Carlos, and Guanacaste. These programs were administered by Banco Nacional with funds supplied by USAID, and its results was a important step for improving the quality of life in rural areas.

1.5.3 Railroads, Ports, Airports

In 1971, the name El Coco Airport was changed to Juan Santamaría Airport. By then, the number of passengers transported was double that of 1958, when the airport opened. In 1969, construction of the Tobias Bolaños Airport started. This was dedicated to local air transportation. This was built with local funds during the government of President Trejos.

1.5.4 Water and Sewage system

1.5.4.1 The SNAA (Servicio Nacional de Acueductos y Alcantarillados)

On April 14th, 1961, through law # 2726, the SNAA (National Water and Sewage Service) was created. This was originally in charge of managing the water system in the Metropolitan area of San José.

1.5.4.2 The first phase of the Metropolitan Aqueduct (1968-1971)

One of the first projects carried out by the SNAA was " Proyecto Puente Mulas" (mule bridge project). This was the injection of 500 liters/second of potable water into the aqueduct of San José, using the springs at a place known as "Puente Mulas" in San Antonio de Belén. This project included the construction of a pump station, 30 km of pipelines and five storage tanks. Financing for this work ($5 million) included loans from the Eximbank, USAID and Costa Rican government funds.

1.6 PERIOD FROM 1972 TO 1981

1.6.1 Highways

This period was distinguished by the great investment on highways from external resources. The World Bank, IDB, and CABEI continued their programs. Furthermore, there was support from

USAID and the Venezuelan Investment Fund. In the first five years the second phase of feeder roads was carried out as well as the second phase of Plan Vial, financed by the World Bank. The World Bank financed the construction of the highway from Siquirres to Limón (1972-1976). CABEI financed the highway from El Coco to San Ramón, the second toll highway. Between 1973 and 1977, a third toll highway was build from Curridabat to Tres Ríos and Cartago.

The highway between La Sabana and Escazu and later to Ciudad Colón was also built during this period using funds from CABEI. This toll highway is the first phase of the way between San José and Caldera. This last project was financed by the end of this period, but construction had not yet started.

In the second half of the period, USAID financed a highway maintenance project (this is discussed later in this paper). Funds from CABEI were used to build the Tárcoles-Lomas and Terrón de Colorado-Los Chiles highways. With funds from the World Bank, the highway San José-Guápiles-Siquirres and the spur to Río Frío was built. The IDB financed the third phase of the Feeders Roads program.

During the third five year period, using funds from the World Bank, started the Fifth Highay Project. There was also important progress in the construction of the San Jose peripheral highway (carretera de circunvalación). With funds from CABEI, the highway from Tres Ríos to Cartago, Sabana-Escazú-Ciudad Colon was built, and financing was provided for the Ciudad Colón-Orotina project. However, construction of this project has not yet started.

During this period, the now-existing road system, including 28,000 km was completed. Some 7,000 km belong to the National Road System. The rest is classified as feeder roads (11,200 km), urban and metropolitan streets (2,300 km), and non-classified branch roads. (11,200km). In 1985, only 25% of the national system (1,750 km) was in good condition. This showed the urgent need to dedicate efforts to restore the rest of the network through intensive maintenance plans..

1.6.2 Energy

The hydroelectric plant in Tilarán was begun and the plant of Río Macho was expanded. The cooperative program in rural electrification, administered by INFOCOOP, went on successfully.

1.6.3 Railroads

During this period (1972-1981) the railroads started a progressive deterioration.
The railroad to the Atlantic, now managed by JAVDEVA, had serious financial problems caused in great degree by the competition from the highway between Siquirres and Limón. These problems became obvious in the bad condition of the railroads and trains. Something similar happened with the electric railroad to the Pacific, now managed by the Istituto Nacional de Ferrocarriles y Puertos del Pacífico. In spite of the above, a boom in banana production in Río Frío led to the construction of the branch between Rio Frío and Moín. These works were inaugurated by President Carazo.

1.6.4 Ports

In this period, the port of Caldera was built and the harbors at Limón were expanded. In addition, the port of Moín was built.

1.6.5 Airports

In 1976, President Oduber inaugurated the extension of the runway at Juan Santamaria Airport, now with a length of 1360 meters. It also had approach lighting systems, radio guiding lights, and other navigation equipment for safety. Thus, with this airport the country entered the jet age.

1.6.6 Water and Sewage

1.6.6.1 AyA (Acueductos y Alcantarillados)

In 1976, the SNAA decided to change its law # 5915 (from July 12th,1976) This institution was granted the tittle of autonomous and go the rights for a greater participation with communities and local organisms in the operation and management of potable water and sewage. At that time, its name was changed to Instituto Nacional de Acueductos y Alcantarillados (National Institute of water and sewage), with its acronym AyA.

1.6.6.2 Second phase of Metropolitan Water (1973-1979)

This aqueduct was built with the financing of CABEI, the English Government, and local resources from the government. With this project , the production of water was increased (550 additional litters/second) as well as the storage capacity of the system and the distribution net was improved (165 km of new pipes system).

1.6.6.3. First phase of urban aqueducts (1971-1976)

Using financing from the IDB, AyA started to cover other aqueducts and sewage out of the Metropolitan zone. This project included works of aqueduct and sewage in Limón, Puntaarenas, San Isidro del General, and San José. In this city, 114 km of concrete sewer were built. This was basically the canalization of sewage from San Jose, to collectors along María Aguilar and Torres rivers and collection nets extended to residential areas nearby.

1.6.6.4. Second phase of Metropolitan Sewage (1977-1981)

The objective of this project was to extend the collection zone to Virilla and Tiribí rivers, extending collector and to expand the covered area to places such as, Moravia, Tibás, Guadalupe, Desamparados, and other similar cities. This project cost $22 million dollars and was financed by the IDB and government funds.

1.6.6.5 Second phase of urban aqueducts 1976-1980

This phase was called fourteen cities and it built sewage systems in San Ramón, Palmares, Nicoya, San Pablo de Heredia, Pasito de Alajuela, Puriscal, Quepos, Bagaces, Cañas and Ciudad Quesada .This project was financed by IFAM (Instituto de fomento y Asesoria Municipal) and AyA.

1.7 PERIOD FROM 1982 TO DATE

1.7.1. Highways

1.7.1.1. New Construction

From 1982 to 1987 highways from Tres Rios to Cartago (toll), Terrón Colorado -Los Chiles, Tárcoles-Loma,Orotina-Coyolar-Tá rcoles-Loma and Interamerican-Roble-Caldera were finished. a radial highway was begun in the Metropolitan area (San Pedro, Desamparados and Tibás) and the infrastructure project in the northern zone was built , financed by AID. From 1985 to 1987 , the demonstration maintenance program were carried out, financed by AID (there is a detailed description of this program, in the second part of this paper).

1.7.1.2 Earthquake in Limón

In April 1991, there was a strong earthquake in Limón that caused considerable damage to the roads, potable water and sewage in the most of the Atlantic area. For restoring the infrastructure, the government made an important contribution, but USAID also gave its support (see second part of this paper.)

1.7.1.3 Maintenance

After 1987 the deterioration of the highway network became more obvious and continued getting progressively worse. Though there are no exact data on the situation of the highways, it is possible that only 8% of the national net be in good condition, the rest is in bad or very bad condition. That would imply approximately the same amount of good roads today as existed fifty years ago.

It is hard to analyze the causes for this deterioration of the highways and roads, but in general some events have happened that might have contributed to the actual collapse of the system. Among these events we can mention:

- There are not any aggressive plan to give adequate maintenance to the roads, or programs for administering new resources.
- Politics has influenced technical decisions and the selection of key personnel
- Great amount of trained personnel has retired or been fired, or other causes.
- Influence of construction companies as pressure groups.

- Not efficient supervision on the constructions .
- Dishonest building contractors.
- Outdated laws for administration of contracts.

1.7.2. Railroads

From 1982 to 1995, railroads continued to deteriorate. The National Institute for railways (Instituto Costarricense de Ferrocarriles, INCOFER) in an effort for saving railroads , starts an interurban railroad service connecting Heredia- San José, and Pavas - San José. However, this did not succeed. The railroad had steadily increasing costs, and the government decided in 1995 to close it down. There is a proposal to offer this service to a public concession system by at the time this paper was written (October 1995) it is just an idea.

1.7.3. Airports

From 1982 to date, the government has made great investments on remodeling Juan Santamaría Airport to condition it to the demands of load and passenger which have grown rapidly in recent years. In 1982, this airport handled 20 tons a year. In 1992, this increase to 78,000 tons. This is a 390% growth! In 1986, 170,000 tourists entered the country. In 1992 the number was 510,000. This justifies the interest and urgency to improve this airport to adjust to the actual needs and what is expected for the future. these investments are expected to be finished by 1996. Other airports such as Tortuguero, and Tobias Bolaños and Liberia have been improved. Though the local load and passenger transportation had remained stable, the international movement has grown considerable as shown above.

1.7.4 Water and Sewage

1.7.4.1 Third phase of the Metropolitan Aqueduct (1980-1984)

This was the most important project carried out by AyA up to date, concerning the aqueduct in the Metropolitan area of San José, because they injected 1,800 liters per second taken from Rio Macho, in Orosí. The project cost US $57 million dollars was financed by the World Bank and local support by the government. In this project, 19.7 km of 1.07 meters wide tubes were built. Also, a 831 meters long tunnel and other complementary works.

PART II

USAID PARTICIPATION IN INFRASTRUCTURE PROJECTS

2.1 Introduction

In this part of the paper we will comment the participation of the USAID in the infrastructure development in Costa Rica. Even though USAID was created in 1961 when Kennedy was the U.S.

president, long before the US government had cooperated to infrastructure development, either directly or through programs preceding the AID.

2.2 Period before 1961

2.2.1 The Inter-American Highway

Among the projects that caused a major impact and were of great importance before the AID was constituted is the Inter-American highway. For this reason, we have dedicated a special comment on this work. In 1927, a project for the construction of a highway connecting the Americas was presented to the Congress of the United States. There was a favorable environment for the construction of the roads during those days. By this time, resources were given to start topography studies. These studies started in Costa Rica in 1928 between Cartago and San Isidro del General. However, the construction of this highway started after 1940, when due to World War II, there was a military interest in a land connection to the Panama Canal.

In Costa Rica, this highway is the backbone of the highway system. This has three different sections, one from Cartago to the Panamanian border, and another between San Ramón and Cartago. The first two sections were financed by the US government (2/3 approximately) the rest was given by the government of Costa Rica. The section between San Ramón and Cartago was built by the local government through loans as mentioned earlier.

This highway had a great positive impact on economic and cultural development of the country. As soon as a road to San Isidro del General was opened, people started to move into this area and develop it. Later, when the highway reach the Panamanian border, other zones such as Coto Brus, which is presently one of the most important coffee producers, incorporated to the economical development of the country.

On the northern side, this highway favored the province of Guanacastte . As soon as there was a way of communicating with Liberia by land, the government started the construction of a road between Liberia-Santa Cruz and Nicoya. Later, after the construction of feeder roads, many beaches were connected to the system and nowadays the tourist sector is proud of them.

Some studies have tried to measure quantitatively the impact of this highway concerning the increase of trade between Costa Rica and the rest of Central America, and the increase in the production and other similar factors. However, there is not doubt that if the U.S. Government had not built it, possibly the Costa Rica government would have. Nevertheless, this would have been several decades later and would have caused a great delay in the country's development.

There were other less-tangible impacts besides the mentioned above. While it was being constructed under the supervision of the Bureau of Public of Public Roads, it was the breeding ground for engineers who would later be in charge of building most of the present highway network. It was in the Bureau of Public Roads where we learned about specifications and manuals for the administration of highways.

Though everything was positive, nowadays one could think that no prevention was taken to avoid the cutting down of trees and forest mainly in the area of Talamanca. This might be a negative aspect but by that time there were other concerns, and they were not as conscious as we are today of the importance of preserving the environment. These concepts were taken into account later by the Costa Rica government when part of Cerro de la Muerte was made a National Park and also when the highway San José-Guápiles-Siquirres was built and the whole Zurqui mountain was designated as a national park.

2.2.2 Training Programs

Between 1950 and 1960, the U.S. government gave the country great support and training through the Point IV program. In the field of highways, the program granted scholarships that, together with help from the International Road Federation, permitted many young professionals to get training in the economics, design, and constructions of highways. Most of these professionals participated actively later in the development of the National Highway Plan or the construction of projects in a period of great activity for the Ministry of Public Works and Transportation.

2.3. PERIOD 1961 - 1972

2.3.1 Introduction

In 1961, President Kennedy established the "Alliance for Progress" to assist Latin-American countries to fight against poverty and avoid the expansion of communism. One of the basic concepts of this program was that development had to be carried out under the concept of organized planning. In Costa Rica this concept was rapidly accepted and the Office for National Planning was created. This helped a great deal important programs in the field of infrastructure. USAID also participated actively in the infrastructure development after 1961 through grants and low-interest rate loans. Given below is a description of the main infrastructure projects during this period.

2.3.1.1. Highway Assistance Program

Loan No. 515-L - 009
Amount : US $ 2.1 million
Executor: MOPT
Period : 1963-1970

One of the major problems at the beginning of the National Highway Plan, was the inability of the Costa Rica government to meet the requirements for World Bank loans. For this reason, the USAID loan in 1963, for the construction of several projects under the Plan, was essential, not only for the construction of these works, but also for the Highway Plan in general.

Through this program the country got the loan for the reconstruction of 120 km of highway

including Alajuela-San Isidro, San José -Guadalupe -Rancho Redondo, San Joaquín-Santa Bárbara, Y Griega-San Antonio, detour Curridabat, Sabana-Pavas-Curridabat-San Antonio, Desamparados-Acosta, Pavones-Siquirres, Radial Zapote, Liberia-Guardia, and Alajuela-Carrizal. It is important to note that these were the first projects under the Highway Plan.

2.3.2. Maintenance and Support Plan

Loan No.515-L-020
Executor : MOPT
Date: 1970-1974

In the 1970s, a variety of different construction and rehabilitation or improvement programs were being carried out, partially financed with external resources. A loan from USAID was negotiated to support the Ministry with training programs, warehouses, and garages to institutionalize maintenance. Part of this loan was used to buy equipment.

Capitol Engineering and ESPIRITU SALAS were in charge of doing the corresponding consulting. This consulting left many important manual on the field of warehouse and workshops administration and at the same time, an important group of engineers, master builders, equipment supervisors, and mechanics was trained in service. This training was done with the cooperation of Texas A&M University, and the experiences obtained were highly valuable.

Equipment was bought with this loan and distributed among the different maintenance zones as well as 46 trucks, 14 motor graders, 14 loaders, workshop equipment, production centers and training equipment. Concerning the acquisition of equipment for municipalities, USAID proposed that the government acquire rebuilt war equipment to get the most of the available resources. Some of this equipment, such as trucks, was given to municipalities to support their programs of road maintenance. Much of this equipment was in use for many years. This did not happen with lightweight equipment such as jeeps, which had to be quickly abandoned for lack of parts.

2.3.3 Rural Electricity Project

No. 515-0092
Amount: US $ 3.3 million
Executor: Banco Nacional de Costa Rica
Execution Period : 1965-1969

Almost immediately after USAID was created, the idea of creating rural electrification cooperatives started to develop. The objective was to buy electricity from the ICE and sell it and distribute it in rural areas that did not have it. The idea was taken from the cooperative system that had given such good results in the United States. By 1960, 95% of U.S. farms had electricity. The project was a loan from USAID to the Banco Nacional for rural electrification through three cooperatives: Coopesantos in the zone of Los Santos, Cooelesca in San Carlos, Coopeguanacaste in Guanacaste and "Cooperativa de Alfaro Ruiz", in Alfaro Ruiz. The Los Santos cooperative

included the region of Santa María de Dota, San Pablo, San Pedro, and San Marcos de León Cortés (known today as Los Santos). By the middle of the 1960s, this was one of the best coffee-producing regions, but many communities there did not have electricity.

At the beginning the program was not as successful as it was expected, due to legal obstacles that made electricity much more expensive in the zones administered by cooperatives than it was in the Central Valley, where the ICE or the Electric Company distributed it. However, these problems were solved later and nowadays 90% of the homes in the country have electric power. A great part of this favorable condition is due to these programs of rural electrification.

Another problem detected at the beginning was that the program did not include efforts to encourage development of industries that could use electric power. For this reason, electricity use in these rural areas was primarily for domestic use. Nevertheless, results varied from one cooperative to another. A study carried out in 1981 showed that this electrification had the following positive aspects:

- In San Carlos, production increased greatly in agroindustries, such as milk.
- In San Marcos de Tarrazú, coffee production was quadrupled through processing plants.
- rGIuanacaste, this impact was agriculture or farming-industry quite low, but it has been a great benefit on tourist industry.
- In general, this program is a important contribution for improving quality of life in rural areas.

2.4 PERIOD 1972-1981

2.4.1 Lengthening of the Runway, El Coco Airport

Today's Juan Santamaría Airport was originally built with local resources in the 1950's. The runway, 2,011 meters long, was enough for the airplanes in that moment. With the arrival of the jet era, it needed lengthening. In the mid-1970s, USAID granted resources to the Costa Rican government to lengthen the runway by 400 meters to the east following suggestions from specialists of the U.S. Federal Aviation Agency. This negotiation was successful, and works were contracted with the Rafael Herrera Company for the expansion of the runway 400 meters to the east. This approach involved a substantial amount of excavation, and a place was needed to put the fill dirt. The engineering department of Civil Aviation Directorate studied the possibility and showed that it was possible to use this earth as landfill at the other end of the runway so that it could be lengthened by 600 meters to the west and 400 meters to the east. The modification order was accepted by the contractor who tried to lower the expenses to make the new project possible, and

the work was successfully completed. The airport ended up with the 3,000 meter runway, making it usable for landing any kind of plane.

Besides making this work possible, the USAID loan also helped with air navigation equipment such as improvement of radar, lighting, and other equipment that greatly improved control and safety for the airport. After the improvement of the airport, the number of passengers and cargo in this airport doubled in a few years. The export of perishable products and tourism started to grow rapidly until they became a source of foreign exchange that competed with traditional products.

Little can be said of negative effects or problems during the execution of this work because actually, there was no problem except for the logical delays and schedule changes in the airlines. However, there was never any complain because users perfectly understood the importance of what was being done.

2.5. PERIOD 1982 - 1992

2.5.1 Atlantic zone infrastructure restoration

Project : 5150269
Amount : US $ 3 million

Infrastructure in the Atlantic zone was seriously damaged by the earthquake of 1991. USAID provided urgent funding for this project, including construction of the road between Limón and Vizcaya, and the demolition, removal, and re-construction of the most urgent highway and railroad bridges to re-establish the traffic between the port of Limón and the south Atlantic region.

In a second phase, a longer term one, the project paved the road La Estrella-Vizcaya and repaired several damaged bridges, airports and port installations. This project had the support and cooperation of the Ministry of Transportation, Civil Aeronautic Direction, Emergency Committee, and the U.S. Corps of Engineers. The results were really outstanding in terms of time and quality of the work done.

2.5.2 Program for the Development of the Northern Zone.

At the beginning of the 1980s, there was an economic crisis in Costa Rica which considerably reduced the purchasing power of the citizens. The government proposed several plans to reactivate the economy. One of these plans was to develop the northern zone. This zone had a great agricultural potential but its inhabitants lived in great poverty due to the lack of communication and other destabilizing effects coming from the neighboring republic of Nicaragua. For this reason, the Ministry of Planning (MIDEPLAN) and USAID agreed on a program to develop this area. For this project, the northern zone was defined as the cantons of Upala, La Cruz, Guatuso, and Los Chiles. The project included three main components:

- Development of the infrastructure through the improvement of 152 km of existing dirt roads. The main road was the one joining Santa Cecilia - Upala, and San Rafael de Guatuso, but it included secondary roads between Basilia and Dos Rios, Cuatro Bocas-San Isidro de Upala, and Canalete de Upala to Colina Puntarenas.

- The creation of a development fund managed by DINADECO (National Community Development Directorate) aiming to improve basic housing services, potable water, and other services. Every project was carried out by the development committee in each community.

- The opening of a regional office of MIDEPLAN located in Upala that coordinated all the project's actions and carried out several studies related to the scope of the program for the development of the northern zone.

For the execution of this project, the government declared the zone as Emergency Zone and entrusted the Emergency Committee for managing the funds, though USAID made all payments directly to contractors and consultants. For the administration of the project, a group of experts constituted by a member of USAID, a representative from MOPT, and a representative from the Emergency Committee was formed. This directing committee made it possible to conclude the work within the budget available. This was really important because very often the works done by MOPT, due to requested changes by the contractors, readjustments, and complaints, easily triples the original cost of the contract. Also, this committee avoided the continuous pressure from the Executive to dedicate funds to other projects, which was the custom of the MOPT in other works under its administration. Besides, the contractor was required to carry out the works according to all specifications on the contract without making any changes. This project was a demonstration that works can be done within the original budget if the administration is done in an independent way, free of political pressure and pressure from contractors. In regard to achievements, once the highway was concluded, there was a considerable increase in the economic activity of the region.

Also, traffic increased so much to the point that in a short time paving the road between Santa Cecilia and Guatuso was justified. This sector of the highway is now part of National Route 4, which leaves the Inter-American highway to go to Santa Cecilia, Upala, San Rafael del Guatuso, San Carlos, La Virgen de Sarapiquí and Río Frío, conecting them to the highway to Limon. This is the shortest land route between the northern zone and Limón, and its use is growing every day.

Among the negative aspects of this project that can be mentioned is the fact that two bridges were not constructed. Instead, culverts were built, which were destroyed by the first rains of the rainy season. In addition, the fact of not paving the highway was a mistake, since because the route did not get its total impact until it was paved a year later.

2.5.3 The Demonstration Programs.

2.5.3.1 Previous Studies, Origins of Demonstration Plans.

At the beginning of the 1980s, it was clear that the maintenance problem of the transportation network was getting bigger day by day. The funds designated to maintenance were steadily less and less. The MOPT, from the budget point of view, had less and less allotments because allocations for "partidas especificas," distributed by legislators, were increasing. On the other hand, there was a feeling of political influences of making decision so that group and individual efforts were oriented to put out fires, leaving aside solutions for greater problems. This was detected by the different groups of officials who worked for those banks whose programs were taking place in that moment. One of them, the World Bank, included in the V Highways Project a component to carry out a study of the traffic net maintenance in order to establish a management, programming, and control program. This study was assigned to the BEL JORGESEN Consulting firm. They found that MOPT was losing leadership. Laziness, lack of interest, and lack of concrete plans were affecting all efforts done before. The group efficiency just reached 33% and administrative and legal problems made the execution of works extremely difficult. Usually, when they were made, the cost was very high, precisely when the country's economy needed all the contrary. In spite of these problems, some personnel was trained and while the consulting contract continued, a system of administration of maintenance was put into practice.

Unfortunately, as expected, there was no interest by the MOPT's high authorities in continuing that system. Meanwhile, the bad conditions of the traffic network were increasing rapidly. Another mission of officials from the World Bank, worried about the highway network's bad conditions, forced the MOPT to make an effort to rehabilitate at least 400 km of roads. This effort had to be done with local resources.

Because of the lack of resources, or their use in other works of lower interest for the country, the MOPT got USAID interested in this problem. USAID had enough funds to donate for maintenance but in a way in which the participation of the MOPT was strictly technical. To make this possible, an agreement between the National Emergency Committee, the Highway Association, and the MOPT was achieved. Under this agreement, the Highway Association had to publish bids and be responsible for execution of contracts. For the overall management of the projects, a steering committee was formed. This committee was made up of members of the involved organizations: USAID, Highway Association and the National Emergency Committee.

The goal was to demonstrate that, in spite of the existing chaos, it was possible to carry out maintenance works by contract at low cost and without political influences or contractors' pressures as well as without violating existing laws and rules in the field of public administration.

2.5.3.2 Rehabilitation program of feeder roads in Coto Brus.

In the middle of the 1980's the region of Coto Brus had great potential in regard to agriculture. However, the branch road network was very poor. It was in very bad condition, so the cost for transporting products was extremely high and demoralizing for producers. The MOPT had invested a lot of resources in that region. But results were always minimal because it was common to make roads using ballast without taking care of sewage systems. As a result, roads had to be continually rebuilt but as there were pressure for building other roads and the resources were wasted on things

of lower importance, what was done deteriorated more and more every year. Because of all these factors, this zone was selected for a demonstration project which showed that rehabilitation of branch roads could be done by contract, at low cost and within good engineering practices. An important aspect of this project was to get the communities interested in maintaining their own roads. For doing this, local maintenance committees were formed. These were like the earlier road councils, which were very successful in the past. Another relevant aspect was that the costs were kept within the logical terms of what had been agreed on contrary to previous practice at MOPT: once the works were finished, the costs were 50% or 60% higher than what had been agreed on earlier.

It was shown that while the MOPT constructed one kilometer of roads, three kms were built in the Coto Brus project. This meant that if resources were properly used by the MOPT, the country's highway system could be in perfect condition.

2.5.3.3. Maintenance program for highways in Alajuela and Heredia.

The objective of this program was to show that it was possible to carry out regular maintenance and rehabilitation by contract. This includes filling holes, cleaning drains, and other works. At the beginning, more than 300 km had been selected. However, because of resources reasons, only 90 km were done. Again, the program was successful in regard to cost, execution time and quality of the work. This was so much so that the repaired highways remained in good conditions for more than five years. Nowadays these roads are starting to deteriorate, of course, because of the lack of maintenance by the MOPT.

2.5.3.4. Rehabilitation of the highway between Sabana and Colorado River.

Prior to this program, the Sabana-San Ramón highway pavement was very deteriorated, because of heavy use with little or no maintenance in recent years. The objective of this project, besides repairing the road, was to demonstrate that it was possible to use the recycling technique in the country. This technique was used in other countries successfully. It consists on removing the existing mixture and adding granular material and asphalt, and placing the mixture again. By doing so, a large part of the cost of a new mixture was saved by re-using the material recovered from the old pavement.

Even though rehabilitation all the way to San Ramón had been planned, it was only repaired up to Colorado river because of lack of resources. However, the basic demonstration objective was achieved: the recycling technique can be applied in highways with a high range of traffic and its cost is lower than use of a new mixture. Also, time is saved by applying this technique. The special machine for recycling is still being used with relatively small projects like this restoration of approximately 45km.

Cañas - Upala Rehabilitation

This was another demonstration project of how a highway in very bad conditions can be

rehabilitated within the original budget and in a reasonable time between the publication of the bids and the conclusion of the work. This program was possible because of the following factors:

- Expedited billing
- Immediate payment of bills, in dollars, to the contractors.
- There were no complaints for re-adjustments.
- Decisions were made immediately, without bureaucratic procedures.
- Available resources were used in the project without re-direction of the resources for political reasons.

2.6 PL480 PROGRAM

2.6.1 PROGRAMS BY SECTORS

Between 1982 and 1995, USAID assigned resources to 77 projects distributed as shown in Table 1 and Graph 1.

TABLE 1
COSTA RICA : PROJECT PL-480
INFRASTRUCTURE, By SECTORS
Period 1982-1995

SECTOR	N° Projects	Disbursements (millions of US$)	%
Highways and rural roads	37	32.2	70%
Irrigation and drainage	5	4.9	11%
Water & sewerage	15	2.9	7%
River protection and channels	6	2.5	5%
Housing	4	2.5	5%
Rural Electrification	4	0.5	1%
Equipment for maintenance	4	0.3	1%
Studies Zona Norte	1	0.2	
TOTAL	76	46.0	100%

As shown in Table 1, the total of funds spent in the programs of the PL-480 was $46 million since 1982. Roads received the most funds ($32.2 million corresponding to 70% of the total), followed by irrigation and drainage ($4.9 millions, 11%), water and sewers ($2.9 million, 7%), housing ($2.5 millions, 5%) and finally other projects (including rural electrification, purchase of equipment and other activities) received $1 million, representing 2%.

ROADS

As shown in Table 2, part A, USAID, by means of the PL-480 Program, invested $18.9 million in the national highway network. One of their most important contributions was in stages II and III of the project developed by the IDB in feeder roads (that are part of the national network) and the reconstruction of the Cañas-Upala section. This last project was carried out by the Road and Bridge Association of Costa Rica, and is part of the demonstration plans mentioned before. In rural roads, as seen in Table 2, part B, the investment was $13.2 million. The major investments in this area include asphalting the Guatuso-Upala and Upala-Birmania roads, projects by the National Emergency Commission and the MOPT to repair the bridges and roads in the Southern Zone, and finally a series of roads constructed directly by IFAM or the Municipalities.

2.6.1.2 IRRIGATION AND DRAINAGE

Table 3, part A, shows that, by means of the PL-480 Program, USAID participated in many irrigation projects all over the country, executed by SENARA. The most important project was developed in Guanacaste, in the Tilaran area, were they invested $3.5 millions. The total sum invested in this sector was $4.9 million

2.6.1.3 WATER AND SEWERS

Table 4 shows that USAID invested $21.8 million in water and sewers. The biggest project was implemented by IFAM with the construction of the water system of Canalete and Upala, with a cost of $1.3 million. Secondly, AyA invested $1.2 millions in Esparza, Turrialba, Río Segundo, Turrúbares, la Garita, Desamparados, San Isidro de Heredia, Carrillo, Pocora and other water systems.

2.6.1.4 HOUSING

Through the PL-480 Program, USAID destined $2.5 millions for this sector. The principal project was developed by the National Emergency Commission with a program of land sites with services ($1.5 million). The other $1 million was shared among several savings and loan cooperatives, as shown in Table 5.

2.6.1.5. RURAL ELECTRIFICATION

Rural electrification received $0.5 million in PL-480 funds. The most important investment ($0.4 million) was made by JASEC (Junta Administradora de Servicios Eléctricos de Cartago) in many communities of Paraíso. The rest of the funds were invested in the rural electrification in San Pablo de Nandayure, and in the new settlements of Tigra and Utima in San Carlos, as shown in Table 6.

2.6.2 PL-480 PROGRAM, ACCORDING TO THE EXECUTOR

The following table shows the distribution of funds allocated by USAID under the PL-480 program,

by executor:

TABLE 7
COSTA RICA
AID-PL480 ACCORDING TO THE EXECUTOR.

EXECUTOR	Amount Disbursed Millions of US$	Percentage
MOPT	14.0	30.5
Development Associations	7.6	16.4
CNE-MOPT	7.0	15.1
SENARA	6.8	14.7
IFAM	3.1	6.8
ACCR	3.1	6.8
CNE	1.5	3.2
AyA	1.5	3.2
Municipalities	0.8	1.8
Others	0.6	1.5
TOTAL	46.0	100

As shown by the table above and graph 2, the largest part of the investments (30.5%) was made by the MOPT, followed by the Development Associations (16.4%), the National Emergency Commission and the MOPT (15.1%), and irrigation projects by SENARA (14.7%).

CONCLUSIONS

3.1 POSITIVE ASPECTS

During the last fifty years the Government of the United States was a very important participant in the infrastructure development of Costa Rica, as well as in its economic, social and political development. Fifty years ago, Costa Rican development was limited only to its Central Valley. Guanacaste and the southern part of the country had a very difficult access, which was a major cause of their low state of development. The railway was the only way of transportation for imports and exports.

The roads networks was only, almost without exception, available in the Central Valley until the Inter-American Highway project was started. For the population of the rural areas, aviation was a very important means of transportation, but there was a lack in the airport conditions needed for the future. The water service was administrated by the municipalities and was quite deficient. The electric service was operated by electrical companies, but it was also very insufficient to meet the demand for it. In the housing area for less wealthy families, they create programs of "cheap houses" that were been administrated by the Social Security until 1954 when INVU was created.

3.3.1 THE INTERAMERICAN HIGHWAY AND THE UNITED STATES GOVERNMENT

The first project in which the U.S. government was involved was the construction of the Inter-American Highway, and its assistance provided 2/3 of the total cost of the project. The other 1/3 was paid by the Costa Rican government,. But financed with a loan from the Eximbank. This network today represent the backbone of the Costa Rica road system. The opening of the Inter-American Highway was the key point in the economic growth of the country. Guanacaste and the south zone began to integrate into the economy. Without the help and initiative of the government of the United States, this work would have been built later, leading also to a delay in the growth of the country.

3.1.2 BEFORE 1960

3.1.2.1 Training programs

U.S. government participation in infrastructure development was centered in training programs that were administrated by STICA or the Point IV and other governmental organizations. These programs prepared professionals and technical personnel for the beginning of the development period that was beginning in infrastructure and other economic areas.

3.1.2.2 Rural development, by immigrants.

Small projects have been very useful for rural areas. For example, the colonization of the area that today is Coto Brus started with a agreement between the Italian Society for Agricultural Colonization (SICA) and the Government of Costa Rica, and the Export Import Bank. The U.S.

government later financed part of this project (1958). Italy, the origin country for immigrants, contributed with young people, with cultural values that acted like a catalyst in the development of rural areas. The STICA representative affirms, in his recollections, that the Italian pioneers acted like baking powder and the thousands of Costa Rican peasants acted like flour for the good bread that resulted. From 1951 to today, population increased from a few hundred to 35,000. Today, Coto Brus occupies 10th place in coffee production in Costa Rica.

3.1.3 USAID IN COSTA RICA: 1960-1981

USAID began almost immediately after its establishment in 1961 to become involved in infrastructure development using soft loans. In the field of roads, USAID helped finance the Plan Vial (the national road plan), that was being supported by the World Bank and also in all three phases of the rural roads project promoted by the IDB. It also participated in the purchase of equipment and programs for maintenance, and made a loan to the Instituto de Fomento Minicipal (IFAM) for the development of rural roads.

It is very important to point out the financial support that USAID gave to CABEI, which also helped the Ministerio de Obras Públicas y Transportes, for the construction of important projects such as the Juan Santamaría Airport - San Ramón freeway, between Curidabat and Tres Ríos (Cartago), Sabana-Escazú and Ciudad Colón, the coast road and the section between Terrón Colorado - Los Chiles.

With the Aqueduct and Sewer Institute, USAID collaborated on projects for the Metropolitan Aqueduct in San José and in intermediate cites, for which later financing came from the IDB and World Bank. In electric power, USAID introduced the concept of rural electricity cooperatives into the country. This demonstrated the feasibility of rural electrification, which was widely expanded and now permits the rural areas access to electrical energy. Today more than 90% of all the Costa Rican families enjoy access to electricity.

The concept of housing finance was changed by USAID, creating the first savings and loan institution, DECAP, and later the mortgage bank (Banco Hipotecario de la Vivienda). The latter had modern and flexible mechanisms that led it to contribute to housing development in the country and to the construction industry.

We must mention the help that the AID gave in the emergency following the eruption of Irazu Volcano in 1963. This help was very important in meeting the immediate needs, and because it led to the establishment of the National Emergency Commission, which now serves as a model of disaster preparedness for other countries in Latin America.

3.1.4 USAID SINCE 1982

The PL-480 Program has been the source of USAID funds for infrastructure since 1982. USAID participation in this period was mainly in roads, irrigation, water, electricity and housing. However, although the central point was in the areas of the PL-480 Program such as construct and

maintenance of the roads by the assistance to IFAM or municipalities, the main effort was the demonstration plans. These plans prove that it is possible to construct rural roads, by contract, at a low cost and with an acceptable useful life, to reduce congestion on urban roads by means of modern methodology, and to build construction projects without cost overruns. This requires that the specifications and plans be technically good, that there exist a agile contracting procedure, an efficient payment system for the contractors, and a rigorous inspection.

The development of the Northern Zone of the country was another important USAID action. The AID had special interest in provide to this zone a good infrastructure, which has been a potential zone for agriculture, tourism and industry which never developed because of the lack of roads. The participation of the AID here was important for their development. The creation of communal organizations to maintain and operate rural water systems was obtained as the result of a major effort by USAID. This approach quickly expanded throughout the country.

In housing, the most important contribution of USAID was the creation of the financing system that helped to develop the private construction industry. The rural electrical cooperatives were the main contribution in the electricity area.

3.2. NEGATIVE ASPECTS

No negative aspects appear in the case of infrastructure. During the research for this study, some people criticized the projects developed, such as: the MOPT considered the demonstration plans were carried out by the "parallel government" and they give them little importance and support. The writers of this study considered this to be an mistaken policy by the ministry. If the lessons from these plans would had been use properly, their wouldn't be so much public criticism of the performance and results of the MOPT.

In the housing field, criticisms concern the sites and services project, since almost all the beneficiaries just transferred from one slum to another, without improving their housing conditions. One person criticized the excess of bureaucracy of USAID that in some cases delayed projects. Other critics were concerned about the dependency that AID has created for the national or local government.

3.3. ABOUT TECHNOLOGY

Did USAID use up-do-date technology in its projects? The answer to this question by the authors of this study is affirmative. USAID showed concern about the introduction of new technologies, both in order to reduce costs and to improve administration. The retraining technology was introduced by USAID in road maintenance. The modern housing finance system, the development of a secondary mortgage market, and in the electric power area the participation of cooperative systems, are examples of USAIDs role in promoting new and better technologies.

3.4 LESSONS FOR AID

In the infrastructure field, USAID did not require that the Costa Rican Government learn from past projects in the transportation sector. There was some documentation concerning the principal problems faced in maintenance of roads, basically institutional and economic factors. The shortcoming in the Costa Rican Government is due to poor administration: there has been no continuous development of concepts of organization, planning, execution and control.

For these reasons it would have been desirable for USAID to condition its overall assistance program to the fulfillment of the requirements mentioned earlier. This could have included periodic technical and financial evaluations, with participation by users.

For this study, there was a lack of information about projects. It is desirable for any project to have a final report summarizing objectives, dates, financing and comments about implementation. The team could not find any reports of this type. USAID should establish requirements that people responsible for implementing the projects maintain records about the work done.

3.4 LESSONS FOR THE GOVERNMENT.

The Costa Rican government departments responsible for infrastructure projects must be technically better equipped so they can take advantage of lessons learned. They need to carry projects started by previous governments on to completion, and not take a partisan view. (This is what happened with the demonstration highway programs.)

The Congress (Asamblea Legislativa) should demand from the Executive Branch an annual technical report of each project developed by the Government, so they can have basic information of these projects, to be kept at the Congressional Library.

3.5 WHAT DIDN'T HAPPEN

USAID did not save technical summaries of each project undertaken. The government did not take advantage of the lesson from several important projects like the Demonstration Projects.

3.6 FUTURE DEVELOPMENT OF THE COUNTRY WITHOUT USAID

Without the help of the USAID for the development of the country's infrastructure, the government will need to reorganize itself. What is needed is a reformation that better defines the functions of the government, that reduces its size, and that promotes real efficiency in its activities. The government must make legal reforms and eliminate the old customs, in order to use resources efficiently. Examples of this include the elimination of the "partidas especificas" [i.e., specific legislative grants for small infrastructure and maintenance] and their replacement by a more orderly process for allocating resources for maintenance.

The National Emergency Commission must create a larger contingency fund to assure adequate resources for emergencies. USAID will not be available to give timely aid as in the past. The Ministerio de Obras Públicas y Transportes must introduce important changes so that they can

use available resources in a efficient way, and dedicate their efforts in the maintenance of all the system. It needs to study, in the case of the existing rural roads, how to assure that the Ministry will keep sufficient resources available for road maintenance.

To carry out these works, the MOPT must use the experience obtained in the demonstration plans carried out by the Asociación de Carreteras y Caminos. This means trying to obtain the legal reforms required for simplification of the contracting and payment. The government should guide the preparation of plans and oversee contracts for construction and maintenance with private firms. (See annex 2 for a proposal to solve the highway problem of Costa Rica.) Meanwhile, the municipalities and communities must reorganize so that they can collect taxes, avoid tax evasion, and take into account the lack of the easy help of the AID.

In summary, the country has today the resources that permits it to solve, by itself, the problems caused by natural disasters and to meet the needs for development and the maintenance of its infrastructure, if it will only reorganize itself to work effectively.

ANNEX N° 1

CONCLUSIONS OF THE STUDY OF THE MAINTENANCE, REHABILITATION AND IMPROVEMENT IN THE ROAD SYSTEM BEL INGENIERIA-ROY JORGESSEN

1982

Although the road density in Costa Rica (410 km by 100 km^2 and 11 km for each 1000 inhabitant) is a relative good index compared with other developing countries, 50% of the national network roads have inadequate conditions for the attention of the traffic of the present day and in of the future, such as for geometric and structural reasons as for the accumulation of deficiencies in their maintenance.

A study carried out by BEL-INGENIERIA concluded that there was need for a plan to define priorities, with the following general objectives:

- A rehabilitation program for the reconstruction of 860 km of highest priority in the 2,137 km requiring urgent work, and
- Create a maintenance unit in the MOPT to implement maintenance practices that can become routine.

For the improvement of the efficiency in the planning of the road system, the establishment of a systematic information model was recommended, to help with decisionmaking and with defining the best means for rehabilitation and maintenance.

Three years later after these recommendations, we have:

A fraction of the 860 km have been completed.

The maintenance institution has been partially established, there are achievements in the planing and programming, but its executive actions hasn't been specified, and by this date it is almost inactive since the conclusion of the consultant Charley Power contract.

In general, the MOPT can be described as an organization with very low efficiency, and this suggests the necessity of taking corrective actions to avoid the collapse of the road network, that for 1982 was in very deficient condition compared with the first report of Bel Ingeniería in 1979.

ANNEX II
A PROPOSAL TO SOLVE THE HIGHWAY PROBLEM IN COSTA RICA

Several evaluations made in the existing highway administration showed the necessity to get a efficient and effective management in the transportation sector. Though the National network belongs to the Ministry of Publics Works (MOPT) and the administration of rural roads (cantonal network) belongs to the municipalities, the sector rector is the MOPT and actually a important part of the resources allocated for highway maintenance are distributed for rural roads, because the lack of resources of the municipalities. To this, should be added that the deficient condition or the cantonal network makes many expenditures for maintenance mostly wasted. It is necessary to rehabilitate and improve these roads before any attempt to do maintenance will work

This circumstances determined that the next step, after the Demonstration Programs, explained earlier in this paper, should be preparation of a program for rehabilitation of the Cantonal network as a beginning of the restructuring of the transportation sector. This was established in the "Program for Rehabilitation and Maintenance of Feeder Roads in Costa Rica," prepared by BEL Ingenieria, MOPT-AID-ACCR, San José, 1987.

The proposed approach was:

First level: gathering all resources and faculties to the MOPT as sector rector.

Second level: starting the process of reconstruction and maintenance of feeder roads through a Association of Municipalities.

Third level: participation of beneficiaries.

This can be done through a MOPT restructuring, in order that the efforts be oriented to the national network maintenance, and that the MOPT be the rector in the transportation sector.

ABOUT THE AUTHORS

RICARDO ECHANDI ZURCHER

He was born in San José, in 1928. He graduate as Civil Engineer from the University of Costa Rica and Public Administrator from the Superior School of Public Administration. He had his experience in the public sector in planning, design and construction of infrastructure. He was appointed as Minister of Transportation. He was President of the board of directors of the National Housing and Urbanism Institute (INVU), and president of the Junta de Protection Social, Director of the National Bank, and President of the College of Civil Engineers. He has been professor at the University of Costa Rica. For the last 40 years, his main occupation was in the private sector, as a staff member of BEL Ingenieria, a consulting firm dedicated to infrastructure design and construction.

ENRIQUE ANGULO ZELEDON.

He was born in 1929. He graduated as Civil Engineer at the University of Costa Rica in 1953. In 1960 he graduated from Ohio State University as a Specialist in Highways. He had his public experience in the Ministry of Public works as planner, designer and as a maintenance and construction engineer. He has been professor at the University of Costa Rica and is a member of the Highway Association of Costa Rica. For the last 15 years, he has worked as a private consultant in design and construction of civil works. His main hobby is computer science.