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ENVIRONMENTAL ASSESSMENT FOR THE INFRASTRUCTURE SUBACTIVITIES OF THE NATIONAL RESCONSTRUCTION PLAN EL SALVADOR

Submitted to
USAID/ El Salvador

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ENVIRONMENTAL ASSESSMENT FOR THE INFRASTRUCTURE SUBACTIVITIES OF THE NATIONAL RECONSTRUCTION PLAN

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EXECUTIVE SUMMARY

This agreement granted to Datex, Inc. to carry out an environmental evaluation of infrastructure subactivities under the National Reconstruction Plan, The Program Municipalities in Action (MEA) and Major Infrastructure project 519.0394. This EE is mandated by USAID regulations which are the guidelines for federal compliance pursuant the National Environmental Policy Act (NEPA), regulation 22 CRF 216.6, generally known as regulation 16. In accordance with the guidelines of Regulation 16, all USAID projects using US dollars are analyzed to determine whether they require an Initial Environmental Evaluation (IEE).

When the National Reconstruction Plan was proposed to AID in 1992, IEE designated several components of the project as positive entries, and therefore, requiring an EE. Thus, this agreement was entered into to comply with requirements set forth in Regulation 16. Pursuant Regulation 16, a EE is "a detailed study of the reasonably foreseeable significant effects, beneficial as well as adverse, of the proposed action upon the environment of a foreign country or countries." Therefore, this study should identify potentially adverse environmental effects and design measures to mitigate it, if possible, in order to decrease negative impact on the environment.

The Program Municipalities in Action (MEA) is one of the central pieces of the support from the US government for the National Reconstruction Plan PRN. The MEA Program is directed to assist the immediate local needs for infrastructure construction at small scale at municipal level, which have been identified by said communities. The Government of El Salvador (GOES) developed the MEA program at random in an attempt to find an effective way to rebuild infrastructure at a low scale in areas where FMLN carried out their activity. With the assistance of AID, the government started in 1986 to channel funds directly to the municipalities to construct small infrastructure projects.

The MEA program supports and stimulates development and credibility for the local government financing and building small infrastructure projects which have been requested by local people. Starting in 1987, the MEA program has developed a MEA mechanism to select, design, finance, construct and give account of funds of projects constructed for or under the supervision of the municipal government. The system works; has been successful and the results of a survey show that it is respected both by the majors as well as by the majority of the people. In fact, it is the only system that works up to this date, which has had the capacity to simultaneously execute projects in each municipality of the country.

In order to coordinate and follow-up the National Reconstruction Plan, SRN has organized five administrative regions: Central, Paracentral, Western, Eastern and the Department of Chalatenango. In each region, an administrative office coordinates and provides assistance to the geographic area. A second level is at the departmental representing those assisting the project through "cabildos" (open meetings to consult with communities) until its completion. The environmental evaluation field of work was organized by a team using the administrative organization of SRN to cover the PNR territory.

In order to carry out an environmental evaluation of actions carried out by the program, field visits to the communities where the projects where being built or had been built were carried out. A total of 121 projects located in 48 municipalities within the ex-conflictive zones (PRN territory) were visited. We are submitting with this report, a review of all projects visited. This review includes caminos vecinales, electrification, potable water supply, health services, access roads and bridges and flood control.

In general, an EE should be carried out before the execution of the projects in order to prevent, mitigate negative impacts on the environment. However, in this case, an environmental evaluation ex-post of the actions already executed was carried out to determine the environmental consequences of the implementation of the National Reconstruction Plan. The objective is to recommend corrective practical actions and procedures to be followed in the projects to decrease and mitigate possible effects.

Our review of the infrastructure PNR projects were initially categorized in several environmental impact categories. We have considered each infrastructure type project and evaluated it in accordance to the general type of environmental impact. This procedure was carried out for the 121 field visits. Results of this impact evaluation is summarized in tables and a discussion for each infrastructure project.

In the Recommendations Section to mitigate the environmental impact, we are submitting each of said projects with the principal categories of environmental impact, together with the general mitigation measures. Once again we would like to underline that we have developed logical concepts, easy to use. The mitigation measures we have detailed do not attempt to be the only available measures, rather we believe they are those with practical use. Moreover, the list does not attempt to be in the "required" format, i.e. each project must have all mitigation measures determined and checked. Our intention is, however, to provide useful guidelines for environmental impact mitigation.

Part of our tasks was to review existing environmental criteria, and if none existed, to propose them. In our review of the material prepared by others within USAID and in projects by other donors, we felt, there were no useful criteria to be applied to this projects. Therefore, we have developed said guidelines.

In order to achieve this objective we have developed a matrix for infrastructure projects which are explained in detailed with the environmental criteria developed for the design, construction and monitoring, project evaluation components. In the case of the first two components, we list basic "practices" to insure a minimization of impact. Lastly, we have grouped general questions that, if answered for each type project, they would provide an indication of general impact.

We have also provided a table of Indicators of Infrastructure and Monitoring Approach. In our experience, there are few examples of useful guidelines to establish indicators to help answer the question whether projects have been completed successfully or not, based on environmental considerations.

Traditionally, monitoring geared towards administration was a continuous and analytical process by means of which the donor institution and the implementing agency compiled updated information in three key questions:

Are project activities implemented as they were planned, they follow the program and are within budget?

Do these activities have the expected results?

What is the cause of delays or unexpected results? Should the administration revise or modify the original plans?

Recent USAID/El Salvador programming focuses this concept by implementing five Strategic Objectives. Three of these are relevant to these projects: Peace and Harmony, Management of an Improved Environment and Natural Resources, and Improved Quality with Equality in Health and education. Each of these Strategic Objectives has higher level objectives and related indicators. At the highest level, the project should have a long-range objective, for example with the PRN, providing assistance to the peace process and assistance to reconstruct the country. In order to achieve these long-range objectives, the short-term objectives must be achieved. We have proposed a format to achieve this, without being part of the actual planning, monitoring, and evaluation, for the infrastructure components of USAID. Said objectives shall include: improved rural roads in remote areas of the country, basic human services including potable water supply, improved health, and extension of the electricity network for remote communities.

In our approach, we have tried to change the evaluation to environmental considerations. For example, with water supply projects, we believe that the evaluation should consider how the environment has been affected as well as the health of the population. Questions such as "Is water intake sufficiently protected against contamination? are as essential to measure success as "how many water supply systems were constructed and how many people are they serving?" We can really consider "successful" said projects and in compliance with the project goals if we know for a fact that there are serious environmental and health consequences?

Finally, we provide a collection of simple and elemental indicators with these questions which could be used for these projects to provide a global image of what is happening. We also provide details of which methods may be employed to achieve these evaluations. Again, we are trying to provide with this process guidelines which do not require huge labor commitments, creation of new monitoring units, nor great requirements of additional financing.

We have organized several recommended actions in two major components: those particularly related to USAID/ES and those related to SRN. In this manner, we believe that several steps may be taken to improve environmental considerations in small-scale infrastructure projects by USAID. This is not to only restrict SRN, but rather all institutions committed to similar programs. At the same time, we believe that USAID/ES could provide SRN follow-up support discussed below with a modest investment during a period of 6 months.

As part of our effort, we prepared a one-day workshop at the Regional Office of SRN in San Vicente, to gather feedback from SRN technical personnel as well as to meet with several mayors and contractors. During this meeting, we refined our view of our vision related to the efforts of this agreement and how to promote future use of these products.

Recommendation 1: Reproduce Environmental Guidelines as a Source Book

The first step in this process is to collect the matrices, tables and general content of this report and transform it into a guidelines or source book, for environmental considerations for planning and implementing infrastructure in El Salvador. This could take the format of a book, sufficiently small as to have the technical personnel, carpetistas, construction supervisors, etc. take it to the field. This source book should be printed in high quality paper and bound in such manner as to withstand the climate exposure without falling apart.

Recommendation 2: Distribution of the Environmental Guidelines Handbook to SRN, ONGs, etc.

The budget for this task should include enough funds to print sufficient copies to be distributed among the entire SRN, regional and departmental offices, municipalities, and construction operations of the private sector, to ONGs, to ISDEM, etc. The first printing should be approximately 2.000 copies, with distribution by SRN and USAID.

Recommendation 3: Environmental Experts Support for Training of SRN

Once this handbook is printed, we recommend that USAID provide funds to hire a team of trainers, to work closely with SRN and DMD. This training team would consist of a Senior Environmental Specialist, familiar with the subject of environmental impact of infrastructure MEA projects, a Senior Civil Engineer, familiar with the manner in which MEA projects and infrastructure are managed in the country and a meeting facilitator, responsible for logistics planning of seminars.

Recommendation 4: Organization of EA Workshops for Regional SRN Personnel, carpetistas, Mayors, ONGs, and Project Contractors

The SRN main office personnel as well as regional field personnel indicated that there is a need to provide practical guidelines and training to the personnel as well as all parties involved in these projects in order to improve environmental evaluation. Therefore, we propose to hold a series of workshops, of one or two days, in each of the five regional offices of SRN. This workshop would be designed to provide participants a better understanding of topics related to the environmental considerations of planning, designing and implementing projects, using the handbook as a teaching guide. Visits to infrastructure projects would be included as part of this task, in order to show "real" examples. We think this effort would take a minimum of 6 weeks, with one week for each region, which would include program assembling, field visits, workshop training, etc.

These workshops would be sponsored by SRN and would include the participation of all parties involved in similar project activities, whether GOES, ONGs, or other donors. We urge USAID/ES to explore other similar funding from other sources, i.e. World Bank, Empresas de las Américas, etc. in order to provide support to this initiative. If the handbook is completed and printed within a 6-month period, we feel that these workshops may be held during the third and fourth quarter of 1995.

Recommendation 5: Sponsorship of Technical Assistance to SRN, Mayors and Contractors for the Use of the Handbook

As part of the AT process, SRN should send a team of two specialists to the field six months after holding the above-mentioned workshops. This team would determine whether guidelines were being used, environmental considerations being applied and produce suggestions for future action.

Procedures recommended for USAID

We are proposing several ways to incorporate the above-mentioned recommendations to the USAID programming. These actions will provide support to the global objectives of AID Washington, to Manage Results, insuring that these small-scale infrastructure projects follow sustainable development practices. Moreover, we believe that USAID/ES could assume a leadership role in the region to implement these measures and demonstrate a successful and practical methodology which could be applied to other missions for similar projects. There is also the strong possibility that these activities may be supported with regional and global programming funds, insuring that decreasing funds for programs related to MEA and PNR would not suffer. Finally, these measures are truly bridges among several sectorial programs that in the past were traditionally programmed, managed and implemented to avoid overlapping. Currently, the Mission has the opportunity to use a set of tasks relatively inexpensive to provide integrating among the three Strategic Objectives (Peace and Reconstruction, Natural Resources and Environment, and Health and Education) mentioned earlier in this report. Therefore, we believe there is logic in using external funding to develop these actions.

In order to achieve the above, USAID/ES should incorporate environmental indicators as project requirements for programs and contractors of small-scale infrastructure. This would also include to promote the use of these indicators, or similar ones, in all the New Work Plans implemented by GOEs, SRN and ONGs. USAID/ES should also distribute a memo informing all contractors working in small-scale infrastructure projects the availability of EA Guidelines and the new environmental criteria and encourage them to use them. These measures, related to infrastructure projects should also be part of the environmental legislation effort of USAID with GOES.

Procedures Recommended for SRN

SRN should incorporate guidelines regarding environmental impact and mitigation measures within its administrative procedures for project design and construction. We have

submitted the project flow in Table 8, and we show below for the same table where we believe environmental considerations may be implemented. Another useful procedure which could help establish better environmental planning for SRN would be to adopt the environmental criteria (see Table 6) as project criteria. Finally, we urge the SRN Director to request agencies and implementing organizations (i.e. ONGs, MOP, ANDA, CEL) to include EA guidelines for their technical assistance and in the planning and implementation activities of the project.

CHAPTER 1.0

INTRODUCTION

1.1. Purpose and objectives

This contract, awarded to Datex Inc. was to carry out an environmental assessment of infrastructure sub-activities of the National Reconstruction Plan of the Municipalities in Action (MEA) Program and major Infrastructure Components of project 519-0394. This EA is mandated under USAID regulations which are Federal compliance guidelines with the National Environmental Policy Act (NEPA), regulation 22 CRF 216.6, more commonly known as Regulation 16. Originally issued in 1976, this regulation was revised in 1980 to include a requirement for scoping sessions.

The EA is only one element of the multi-faceted project appraisal process at USAID. Other important reviews include technical soundness, economic and financial, and social soundness analyses. Under Regulation 16 guidelines, all USAID projects using US dollars are screened to determine whether an Initial Environmental Examination (IEE) is required. In addition, Regulation 16 provides guidance for reviewers to use in designating a project as having "categorical exclusion" (CE), which exempts such projects from undergoing an IEE.

All projects not having a categorical exclusion, must have an IEE. The IEE outlines, very briefly, any environmental impact of the proposed action (i.e. project component) and determines if the action will have either a positive or negative threshold effect on the environment. A positive determination means the project may have significant impacts, and an EA or EIS must be prepared for the project components having this threshold decision.

When the National Reconstruction Plan was proposed by USAID in 1992, the IEE designated several project components as having a positive threshold, and subsequently requiring an EA. Hence, this contract was undertaken to fulfill the Regulation 16 requirements.

According to Regulation 16, an EA is "a detailed study of the reasonable foreseeable significant effects, both beneficial and adverse, of a proposed action on the environment of a foreign country or countries". Therefore, the study should identify potential adverse environmental effects and design mitigating measures, is possible, to lessen the negative impacts on the environment.

USAID LAC has issued its own EA Format and Content Guidelines and indicates that descriptions of the Affected Environment should be included only if it is necessary to understand the environmental consequences of the project. The guidance goes on to state that "if the dominant geomorphic, climatic, or other environmental factors are not needed to understand effects described in the environmental consequences, they should be simply contained in the Project File and incorporated by reference".

1.2 Scope of Work

The first activity organized by the work team was to hold a meeting with AID officers in charge of the program direction, the head of AID environmental office and the national program director, appointed by SRN to define, in a preliminary form, the expected scope of the environmental assessment and identify AID and GOES officers which in some way are related to the activities of the National Reconstruction Plan and who will help to clearly define the scope of work. A list of interviewed persons is enclosed as Annex "A"; at the same time important documents provided by AID and SRN were reviewed, which clarified the evolution had by the National Reconstruction Plan PRN, since its beginning up to date. At the end of this process it was concluded, and AID agreed, that the scope of work for the environmental assessment should include the following aspects:

1) A description of the different infrastructure projects and their components.

2) A description of the environment.

3) A global description of the environmental impacts of the different infrastructure projects as observed in the filed. The environmental impacts evaluated included short and long term impact, direct and indirect impact, irreversible or unrecoverable resources compromise, in a general base, for the different type of projects.

4) Recommendations to ameliorate any adverse environmental impacts. An example is the case of road opening or introducing basic electricity and potable water services. Additionally, technical guides for ameliorating measures need to be prepared and verification lists for each type of project.

5) Review environmental selection criteria for sub-projects. If they do not exist, propose appropriate criteria and guidelines to direct project identification, design, development, implementation, audit and evaluation.

1.3 General Description of the Municipalities in Action Program and the National Reconstruction Plan

The Program Municipalities in Action (MEA), is one of the central pieces of the support from the US government for the National Reconstruction Plan PRN. The MEA Program is directed to assist the immediate local needs for infrastructure construction at small scale at municipal level, which have been identified by the ex-conflictive communities. In terms of helping insure the peace proposals for a long term, the opportunity offered for FMLN ex-combatants to be able to participate in the democratization process, is probably the most important benefit of these programs. An impact assessment, developed in August 1990 establishes: "Basic attitude changes from the beneficiaries have occurred since 1988. A rapid growth exists at community participation level .... and arises a sense of local control over their own community problems and an increasing evidence of the capability to assume local and nationally the official responsibilities towards the population."

With the help of the SRN and the majors, the initial needs of the habitants of the 115 municipalities located in the ex-conflictive zones have been determined through "cabildos abiertos" (Municiapl Councils). In this case, more than one project per municipality has been prepared for immediate contracting. Experience obtained by the MEA program indicates that the basic infrastructure needs expressed by local habitants, are very similar all over the country (more than 620 "cabildos abiertos" with more than 150,000 participants have been realized per year to establish municipal priorities).

Essentially, the National Reconstruction Plan includes health and education services, potable water supply, access roads and bridges between villages, between villages and municipal towns and between municipalities to meet the national highway network. Project execution in order to provide these services is carried out by the MEA and neighbor roads programs depending on the size of the project and the capability of the municipality to carry them out. Big projects are to be implemented by the national authority, this can be done by self administration or by contracting a private enterprise.

A reason why water supply systems are not categorized higher is that the size, and therefore, the cost of many water supply projects is greater than the amount which could be financed with available funds for the municipality, at least until recently. The program has also built, at the request of the cabildos abiertos, community houses, health posts, and public markets.

Primary needs identified by a AID financed consultancy include more than $130 millions in projects and small scale infrastructure, to be implemented by municipalities. The USG assistance package includes $82.5 millions for this purpose, during five years. The experience of the MEA program has demonstrated municipal capacity exists to individually handle in an efficient form amounts between $200,000 and $300,000 per year.

1.4 The Infrastructure Projects and MEA

The Government of El Salvador (GOES) developed the MEA program at random in an attempt to find an effective way to rebuilt infrastructure at a low scale in areas were FMLN carried out their activity (interview: General Vargas, October 1993). The attempts to use the sectorial ministries of the central government-for example, Ministry of Health, ministry of Education, Ministry of Public Works-to provide low scale infrastructure in a fast and economic manner resulted a failure. With the assistance of USAID, the government started in 1986 to canalize funds directly to the municipalities to construct small infrastructure projects.

The MEA process started a year later in 1987. In order to promote popular support to the government, USAID required that all infrastructure projects be identified in what was called a "Cabildo abierto". Though the holding of "cabildos abiertos" four times a year had been formally already required in the 1986 review of Municipal Law, now the major had a real financial incentive to summon the cabildos: to receive the MEA funds from CONARA. All projects had to be identified by the community in a "cabildo abierto"; these were listed by priority order and selected by the municipal council, which was presided by the major. Then CONARA transferred the funds for eligible projects to the majors to implement them. Initially, CONARA assigned an equal amount of funds to each municipality, but after 1990 changed the formula to an as needed basis.

For 1989 the MEA program was able to work throughout the country, except for 19 municipalities at the northern part of the country held by the FMLN. Since 1989, the municipal government have executed approximately 9,000 projects, specially roads, schools, water and electrification, reaching up the most remote rural village throughout the country. Last year, MEA projects were carried out in 261 municipalities in the country (except for the capital city), and in this form MEA has turned out to be the cornerstone of the National Reconstruction Program.

The USAID and SRN/CONARA documents register that 5,881 projects have been completed throughout the country with national currency of the receiving country, assigned directly to the MEA program since 1988. Furthermore, the municipalities have constructed at least other 2,722 projects financed by other special programs, from forest re-planting programs up to emergency urban programs, construction of schools, roads and potable water.

The MEA program supports and stimulates development and credibility for the local government financing and building small infrastructure projects which have been requested by local people. Starting 1987, the MEA program has developed a MEA mechanism to select, design, finance, construct and to give count of funds of project constructed for or under the supervision of the municipal government. The system works; has been successful and the results of the survey show that it is respected both by the majors as by the majority of people. In fact, it is the only system that works up to this date, which has had the capacity to simultaneously execute projects in each municipality of the country.

A summary of the MEA process for undertaking a project is presented in Exhibit 1. Mea projects are identified at town meetings or cabildos abiertos and then prioritized by the mayor

Table 1. MEA PRN INFRASTRUCTURE PROCESS

1.	Call to the community to hold a "cabildo abierto".
2.	Draw up of minutes where projects requested by the community are identified.
3.	Municipal Council and Mayor define priorities and eligible projects according to SRN criteria.
4.	SRN receives request from the Mayor, rated in order of priority.
5.	SRN sends field technicians. Prepares project profile, including costs and feasibility (ANDA, MOP, MAG, etc.)
6.	Council and Mayor call a cabildo (open meeting) to explain rationale for final selection of projects.
7.	SRN contracts for preparation of carpetas (blueprints) of projects and delivers them to the Mayors

8.	The Mayor requests funds to the Departmental Office including "carpeta" (blueprints).
9.	SRN designates funds.
10.	A call for public bids at the municipal level (poster) or the administration carries it out.
11.	Award Committee selects a construction company, if it is applicable.
12.	Mayor and Departmental SRN representative are responsible for control and follow-up during implementation of work.
13.	Final acceptance of construction work by Mayor and Departmental representative.

and submitted for approval by the municipal council. An SRN form requesting a feasibility study is then submitted by the mayor with the assistance of a field technician (tecnico de campo) from MEA's Departmental Office. This is reviewed by the Departmental Office and then by the Regional Office. At the Regional Office, the budget submitted by the municipality is examined to see if funds are available and whether coordination with other GOES entities is required. For example, in the case of a school, the Regional Office of the Ministry of Education would be consulted as to whether a school made sense and if teachers would be available for that school.

After this series of reviews, the DMD in San Salvador solicits the services of an engineer or architect through a lottery system from a data base of names in excess of 1,000. The technician is contracted with SRN and eventually submits a feasibility study, including blue prints, which is called carpeta tecnica. The carpeta tecnica is reviewed by the DMD. Upon final review, a check and the carpeta tecnica are sent to the mayor. Soon thereafter the mayor begins the project with the assistance of the Tecnico de Campo from the Departmental Office.

MEA's monitoring occurs primarily at the Departmental Office level with support from the Regional Office. Field technicians (tecnicos de campo) visit each MEA project every fifteen days. During these visits they record physical advance of the projects and provide technical assistance to the contract team undertaking the public works and to the mayors. This reporting is done on a standardized field visit form. Administrative technicians (tecnicos administrativos) play a similar role on the financial side, working primarily with the municipalities on financial advance and liquidation of expense matters. Project implementations status and financial status are reported monthly to the Regional Offices where tecnicos administrativos input the data on a Lotus spreadsheet.

These reports are forwarded to DMD in El Salvador and discussed, among other things, in weekly coordination meetings between the Director of the DMD, her adviser, and the five regional chiefs. The physical advance data is entered into a consolidated spreadsheet in SRN by the DAF but also reentered by the Computer Center into a FoxPro data base on the Secretariat's multi-user XENIX system. This same FoxPro system is where financial data is also entered by the DAF. It is this FoxPro data base that is used for reporting progress on financial and physical advance to USAID/El Salvador.

The infrastructure component consists of major infrastructure activities, financed with resources from the 519-0394 program as well as available funds from the 519-0320 program "Improvement of Public Utilities". This environmental evaluation only includes infrastructure activities financed by the 519-0394 program.

The PRN territory where the environmental evaluation was carried out includes geographic limits belonging to 115 municipalities, the majority of which are located to the North of the country, where there is need to reconstruct or rehabilitate the infrastructure. To the East, the PNR territory limits with the Department of Santa Ana, to the West with Morazán and to the North Chalatenango and Usulután to the South. The map that shows the PNR territory and the list of selected municipalities appear in Table 2.

In order to coordinate and follow-up the National Reconstruction Plan, SRN has organized five administrative regions: Central, Paracentral, Western, Eastern and the Department of Chalatenango. In each region, an administrative office coordinates and provides assistance to the geographic area. A second level is at the departmental representing those assisting the project through "cabildos" (open meetings to consult with communities) until its completion. The environmental evaluation field of work was organized by a team using the administrative organization of SRN to cover the PNR territory.

These activities consist of rural roads, potable water supply, structures to protect currents and rural electrification. The majority of these activities are about to start o have been delayed a short period of time. The entire component has US$15.8 million of funds from the 159-0394 program, designated for major infrastructure activities.

CHAPTER 2.0

INFRASTRUCTURE PROJECTS

A list of projects implemented by the municipalities in the area of roads, bridges, health centers, potable water supply, and electrification, through September of 1994 is included in Appendix B. There is also a list of projects implemented under the Major Infrastructure category in Appendix D.

2.1 Program of Field Visits

In order to carry out an environmental evaluation of actions carried out by this program, field visits to the communities where the projects where being built or had been built were carried out. A total of 121 projects located in 48 municipalities within the ex-conflictive zones (PRN territory) were visited. Table 2 shows a map of this area. The list of projects visited is included in Appendix E. The distribution of types of projects evaluated is as follows:

Proyectos de Caminos vecinales	31
Proyectos de Electrificación	25
Proyectos de mejora de calles	19
Proyectos de abastecimiento de agua	14
Proyectos de letrinas	3
Proyectos salud	2
Proyectos de educación	2
Proyectos de Alcaldías	2
Proyectos de mercados	3
Proyectos de puentes	8
Proyectos de colectores	1
Proyectos de control de inundaciones	3
Proyectos de caminos (E IV)	8
Total	121

A list of individuals interviewed is also added in this Appendix F.

2.2 Rural Roads

Rural road projects include two major categories. In the first group are included those that due to its magnitude, complexity and investment amount are considered major infrastructure and the second group, include road projects which will cover simple works with relatively low amounts. The execution of the projects of the first group is done through the "Dirección General de Caminos" of the Ministry of Public Works and the projects of the second group are executed through the city halls.

In the first group of projects most common works include opening, forming and levelling with machinery, mechanic compacting and recovering with selected material. In the second group of projects undertaken by the city halls, the use of intensive manual labor predominates, however, if necessary, machinery is used in a limited manner.

An important note is that rural roads do not have paved surface, instead their surface is of soil or covered with ballast and are damaged by rain due to these reasons and require continuous maintenance and repairs at least every six months, at the end of the rainy season.

Components of rural roads projects include reestablishing road communication by opening new roads, recovering of infrastructure by reopening roads used before and which were lost during the war, improvement of driving surface in order to make transit possible both in the dry and rainy seasons, protection and conservation works, and maintenance works. These activities are discussed below.

2.2.1. Opening new roads

This type of project is implemented when applying a modern engineering analysis, and it is concluded that the design of the existing rural road which is desired to rehabilitate, is not adequate and it is convenient to open a new road. It is generally preferred to follow the old road and to open new sections only where necessary. A few projects have been carried out where a completely new road has been opened.

2.2.2. Reopening of sections used before.

This is the predominant action and consists in removing vegetation that has grown on the road due to lack of use and reconditioning the road for transit.

2.2.3. Improvement of roads for transit.

Is applied to those roads in which transit is almost closed during the rainy season because of the formation of marshy sections or by road cuttings made by erosion of the surface. The works consists in placing stone, ballast, soil and execution of draining works.

2.2.4. Protection and Conservation Works

Consists in building ditches, protection walls, gabions, drainage works and channel making such as furrow drains and piping drums.

2.2.5. Maintenance Work

Consists in placing ballast, soil and stones on sections of the road which have been damaged by rain water, repair of ditches, walls, passing and drainage works. Some times machinery is used provided by the Dirección General de Caminos, to be able to level the surface.

2.3 Electrification

Electrification projects consist in placing transformers, pylons and cables which go from the high tension energy delivery point, until they reach the communities which do not have electricity. Rehabilitation and improvement projects of existing national systems which were damaged during the armed conflict are also carried out.

2.3.1. Introduction of electric energy.

The most important works carried out which are related to environment during electrification projects are digging holes in the earth to place pylons and placing cables. Digging is generally made with hand tools and after placing the pylons erosion problems can be promoted, due to bad conformation of the base and of drainage channels. In the case of cable placing, if the route is not adequately selected this may damage existing forestry.

Due to dealing with technically complex projects, the design and execution of the works is contracted with professionals in this area and are supervised through a specialized international firm (NRECA). Normally the route followed by the electric cables, is sideways of highways or roads (right of route) therefore the vegetation damage is minimum.

2.3.2. Recovery and Rehabilitation of Electric Systems.

Consist in the replacement of pylon, towers and high tension cables which were damaged during the armed conflict; as changing electric infrastructure which was operating in a provisional form during such period. All these within the existing system.

2.4 Potable Water Supply

Construction of potable water system include two modalities, one of these consists in the introduction for the first time of potable water service, from the captation source, conduction and distribution in the community, and the second is improvement and extension of existing system. In the first case, the project assumes responsibility of the quantity and quality of water to be supplied and in the second case the project is only responsible for the quantity; passing the quality responsibility to the city hall or to ANDA.

2.4.1. Source of Water Supply.

Sources include subterraneous water, extracted through dugout wells or springs, which are harnessed. The alternative of using superficial water is not considered. The most common type of water source used is springs, close to the community, which generally present a good physic-chemical and bacteriological quality; recommending adequate protection of the harnessing and avoid access to human. May be carried by gravity or by pumping. Chloration is included as part of the system.

Wells are dugout out if there are no springs, which produce a greater amount of water than springs. Since this is subterraneous water, bacteriologic quality is good. There may be problems with iron, magnesium and fluor in some zones, as well as high temperature, carbon dioxide or sulphates, in greater amounts than indicated.

The alternative to these type of problems is superficial water; however this one offer greater contamination risks and present flow diminishing problems in the dry season.

2.4.2. Conduction, storage and distribution

All projects include conduction, a storage tank and distribution, which may be collective, with the use of village water servers and/or include home connections depending on the amount of water available. Design of model works are used, elaborated by the potable water program of the Ministry of Health (PLANSABAR), ANDA consultants and other NGOs. The design of the distribution tank includes the hipochlorator.

2.4.4. Monitoring water quality

The program does not include follow-up on the surveillance of the water quality of the system, being the potable water service administrative board who assumes this responsibility. The support from the Ministry of Health may be considered as an alternative, through health promoters, who assist the communities of the zones.

2.5 Sanitation

The program includes the construction of latrines or septic tanks in homes, schools and health centers, for sanitary disposition of excretes. The execution of sanitary sewage projects are also included.

2.5.1. Latrines

Latrine construction projects have been executed in a few communities and only the family type, to serve each home. The dry tank model is used for their design, which comes from PLANSABAR. The minimum depth of the whole is 2.50 meters and should be excavated as a contribution by the community beneficiary.

An alternative to this type of latrine is the ventilated latrine, which has a tube that minimizes uncomfortable odors and avoids the development of mosquitos. The ventilation tube

has on its top a thin sieve to prevent the access of insects and other animals.

Other alternatives to this type of latrines are the manure latrines which are recommended when the phreatic level is too high in order to avoid contaminating subterraneous waters. A fundamental action for the good operation is to have adequate amounts of ash or lime available in the location.

2.5.2. Septic Tanks

Septic tanks are the sanitary works more common in the reconstruction program and which complement the school and health center construction works; a model design prepared by the Ministry of Public Health, the same as with latrines, is used for the design of the septic tanks. The alternatives to dispose of the effluent liquids of the septic tank includes sewer wells and irrigation fields.

2.5.3. Sanitary sewage

When a community has home connections for water service, it should also have sanitary sewage through a main sewer; but the contamination problem generated should be considered if the main sewer discharges directly to a river or stream, requiring a sanitary treatment, for its purification.

The alternative of not carrying out the project should be analyzed in regards to the level of contamination caused to the receiving river or stream, in relation to the project situation.

2.6 Infrastructure for Schools and Health Centers.

These projects consist in repairing, constructing and widening buildings for these centers; they generally are small buildings and may include sanitary works such of sanitary sewage, latrines, septic tanks or main sewers.

2.7 Operation and maintenance of projects

Projects which require regular operation and maintenance, after finished, are rural roads, electrification and potable water, considering the following options.

2.7.1 Maintenance of Rural Roads

This responsibility falls on the city halls of the jurisdiction. Normally rural roads require an annual maintenance, due to the type of material these are built with, which is damaged by rain water. The procedures followed are that the city hall hires local labor for repairing and when machinery is required, it is requested from the DGC from the MOP. The city hall should assume the cost of combustible and extra time pay to the operator of the machinery. An alternative which has been considered in the last national congress of majors is that several city halls join to procure their own tractors and levelling machinery, as part of the decentralization

and municipal autonomy process which is being promoted by the central government.

2.7.2 Electrification

The operation and maintenance of those systems is assumed by private companies which are the ones who administer those services; the city halls and the users only pay the monthly rate and the distributor company should assume the operation and maintenance, which is done in an efficient manner.

2.7.3 Potable Water

Operation and maintenance may be done in three different modalities: the city hall can assume the operation and maintenance, or the beneficiaries or ANDA, depending on who manages the water services in the community. When these are services of completely new introduction, a community board is formed to handle the operation and maintenance.

An alternative to be considered is the active participation of health promoters, which could oversee the application of chlorine, watch the quality of water and orient minor repairs. In some projects, the execution of relatively complex works has been necessary, which require professional maintenance and repairs; due to this the community should make economic provisions to assume this cost. An alternative would be that ANDA could give support, through its regional offices for these repairs and maintenance.

CHAPTER 3.0

ENVIRONMENTAL CONSEQUENCES

Normally an EA should be realized before project execution in order to prevent, alleviate or compensate negative impact on environment. However, in this case an ex-post environmental assessment on executed actions should also be realized, to determine environmental consequences caused by projects carried out under the National Reconstruction Plan, and recommend, if necessary, corrective actions and procedures to follow in projects to be implemented in the future.

Following we present possible adverse environmental impacts which may be caused by the proposed actions and in Chapter 5 we present the results of the environmental assessment; which was carried out at the location for a samples of projects distributed among the 115 municipalities which form the PRN territory.

3.1. Environmental Impacts of Each Infrastructure Project Type

Our review of PNR infrastructure projects were catagorized initially into several catagories of environmental impacts. We considered each type of infrastructure project type and evaluated it according to the general type of environmental impact. This was done for all 109 projects visited in the filed. The results of this impact assessment are summarized in Appendix E. In the section below, we present a discussion on adverse impacts encountered during our field visits.

3.1 Rural Roads

Short term impact during construction

Impacts produced during road construction generally are of short duration and include production of dust, noise, dragging sediments and erosion. These impacts are almost immediately produced after starting construction activities. Potentially any type of construction produces such impacts, which would be prevented or alleviated.

Appropriate construction technics should be included in specifications to be followed by who is going to carry out the projects and should consider the use of barriers to avoid dragging of soil and dust to rivers. Preference should be given to realize road constructions during the dry season, using dust control such as watering. Noise may be minimized to avoid nuisance to the neighbors.

Long term impact

Long term impacts are those which affected environment in a permanent form. Generally they alter physic environment characteristics and require a more in depth analysis. Within long term impact, the project could affect the use of land, species under extinction, natural areas, mangroves and wetlands, floodplains, food chains, etc. As an alleviating measure, any affected area should be restored at the end of construction. The best measure is the prevention of these damages.

The background of the zone should be investigated during the planning stage in order to prevent damage to archeological zones. The use of land may be affected by the project, making it accessible to promote colonization and facilitates activities such as lumbering. Roads should be located in such a way that they do not promote undesirable changes to the actual use of land. Special consideration should be given, if the increase in local population is not desired. Plants and animals threatened by extinction could be affected by the project. In order to minimize impact on these species, the project should affect in the minimum way possible the existing vegetation.

Direct impacts

Direct impact are those which are immediately evident and are easy to identify, such as impacts which arise during construction. These impacts have been discussed above.

Indirect impacts

Are those which are not immediately apparent, such as physical population increase due to improvement of access roads, increase of vehicle transit and elimination of species due to the destruction of their habitat. Projects are supposed not to produce indirect impacts, if they are adequately planned, designed and constructed.

Impacts due to the use of energy

Impacts that may be generated by the use of machinery which have oil leaks, bad operation of the machinery or due to uncareful load of combustible or lubricants, producing soil contamination; which need to be adequately removed and disposed of.

3.1.2 Electrification

Short term impact

Are impacts produced at the moment the project is being carried out. In this case consist in producing dust during excavation of holes to place pylons, noise produced by this, dragging of soil to nearby streams when it rains, effects generated by moving people to the work location such as excretes left on surface, fire danger due to bonfires, alteration of fences and plots, cutting branches or forests. During the placing of cables, there is risk of accidental falls, as well as during the inter-connection.

Long term impacts

Includes, more or less permanently physical affected environment, such as cutting old or under extinction trees. The location too close to human access may leave a permanent contact risk with electricity or with the effect of waves produced by high tension cables. Inadequate compacting and conforming of drainage at the base of pylons may promote erosion of adjacent land.

Direct impact

Includes impacts produced during construction since when area degradation exist, this should be restored. Adequate pruning, or even better making an adequate selection of the route of the electric laying may minimize the effects. Careful compacting and checking drainage can avoid erosion effects.

Indirect impacts

Electrification projects promote urban development in communities, new housing and new economical activities which were not carried out due to lack of electric energy. Shops and other commercial activities arise, which generate demand of additional services such as water and sanitation, which if are deficient can generate negative environment impacts.

Impacts due to use of energy

Environmental impact due to use of energy in the case of rural electrification projects, are considered of small magnitude, since these are small communities. Though they are designed to provide electricity to homes for domestic activities such as ironing, refrigeration and corn mills, 220v lines are included.

3.1.3 Potable water supply

Short term impact.

Excavations and moving soil are produced during construction of the project,

which produces dust, erosion is promoted due to induced channels and dragging of soil which deposits in nearby rivers or stream beds. Noise, fire danger due to bonfires and excrete disposal on surfaces, increases when worker camps are developed and access of people to the location increases.

Long term impacts

Generally, water springs are located near high mountains or not accessible places, therefore maintaining a non altered environment. If activities in such areas are not adequately developed a highly irreversible damage could be caused. Disappearance of a complete echo-system could be caused by the harnessing of water which eliminates the source of a river or wetland. The route followed by the excavation should be selected so it will not affect or cause minimum damage to the vegetative surface; the alternative of placing galvanized piping on surfaces should be considered in order to avoid damaging roots. Altered areas should be restored when the construction is finished. A previous local study should be performed in order to avoid damage to archeological sites. Use of land can be altered due to potable water projects, since these promote migration and housing developments. An impact of long duration, but easy to prevent is the risk that the systems turn to be a source of diseases due to bacteriological contamination. An adequate water quality surveillance program and/or adequate disinfection should prevent these type of problems.

Direct impacts

The ones arising during the construction period such as dust, noise, waste generation, erosion and deposits of dragged materials.

Indirect impacts

Increase on local population due to improvement on or introduction of water service. Damage on species under extinction, vegetation or animals, as their habitat is affected or eliminated. The project is supposed not to produce direct impacts.

Impacts due to use of energy

It is considered of low impact since the increase in demand is only for the pumping equipment, when water can not be conducted by gravity.

3.1.4 Latrine Sanitation

Short term impact

It is considered of short duration and located within the home place, during the time when the excavation of the tank for the latrine is done.

Long term impact

The greater long term impact arises when water level and the direction of the underground flow are not considered and subterraneous water contamination occurs, causing contamination of wells located nearby or at the same house.

Direct impact

Additionally to impacts during construction, other direct impact during latrine use arises, when this is not sanitarily used, causing bad odor and diseases. An adequate sanitary education avoids these type of impacts, likewise the placing of a ventilation tube helps favorably to avoid bad odors.

Indirect impact

Generally indirect impacts are beneficial to improve environment, since diseases decrease when the disposition of excretes on surface are eliminated.

3.1.5 Sanitary sewage

Short term impact

The opening of ditches during construction generate collapse risks for workers, water retention if it is done during the rainy season and dust if it is done during the dry season. Pedestrian and vehicle transit is affected. The plant cover can be affected, if there is not an adequate selection of the rout, though generally when dealing with urban areas and these main sewers are built following the streets sideline.

Long term impact

Crossing potable water piping with sewage piping should be avoided to prevent that sewage leaks could contaminate potable water. An impact which becomes permanent is the fact of discharging the main sewer directly to a body of water affecting the aquatic ecosystem and water use. It is recommended to take provisions to alleviate this problem through water treatment systems or considering other alternatives as use of latrines, use of home or collective septic tanks. A study of alternatives of not implementing the project if impacts are to great, should be included.

Direct impacts

The ones generated during the construction and the ones produced when starting to unload the main sewer to a river or stream, immediately contaminating it, causing the disappearing of aquatic species, interfering with many uses, generating bad smells and loss of aesthetic value.

Indirect impacts

The generation of diseases due to the use of irrigation water which has been contaminated with unloading of main sewers, such as cholera, diarrhoeas, hepatitis, typhoid, etc. Can cause changes in land use and will require other sites at further distance to wash clothes and bathing.

3.1.6 Major infrastructure

The major thrust of this Environmenatl Assessment is focused on the multitude of small scale infrastructure projects discussed above. Nonetheless, part of the Reconstruction Plan funds have been used to support Major Infrastructure Projects, which were listed earlier. Since the road projects are under the administration and implmentation of the Ministry of Public Works (MOP), we feel that MOP EA guidelines (previously produced under a BID contract) are valid. In additon, we feel, that in general, these road projects can be considered in the same fashion as caminos vecinales, since they are not classified as "new road" construction into virgin countryside.

The second catagory of projects in this catagory encompass the river flood control projects which cost greater than $250,000.00. We have visited these projects and consider these projects as having special environmental impacts. The impacts of these projects are related to the hydrologic cycle, degree of flooding conditions, and effects on aquatic ecosystems. Any attempt to modify the natural river flow will result in immediate changes to downstream conditions. We addressed these issues in a special memo which is provided in Appendix F.

3.2 Project Components and General Environmental Impact

The Datex Team, based on their experience with environmental impact applications, developed practical guidelines, easy to use. These guidelines were prepared in the format of matrix and tables to provide assistance to SRN field technical personnel. Our objective was to facilitate the understanding of these outputs, based on our field observations, to be used by all those involved in infrastructure project processes.

First, we took each infrastructure project and developed a general description of the main components of the project, and then we compiled it with the corresponding Environmental Impact study. The "Matrix of Project Components and Environmental Impacts" is included in Table 3 for Neighbor Roads, Electrification, Potable Water Supply, Bridges and access roads, Flood Control of Rivers and Household Water. Each matrix was developed for each different infrastructure project studied during our field work. We also tried to provide logical associations for the type of impact, knowing that this area is highly subjective. However, during our discussions with USAID and SRN personnel the subjective area is a first practical step which could be used immediately for designing and implementing infrastructure projects. Moreover, we have developed these guidelines with the intention of being used for MEA projects, not only for PRN projects.

Initially, we used a three-grade approach: non-significative impact, little impact, great impact. These classification could be imbued with appropriate symbolisms to show "degree of

EXHIBIT 3

Matrix of Project Components and Environmental Impacts

KEY
- ● Significant Impact
- o Minimal Impact
- No Impact

CAMINOS VECINALES

MATRIX OF PROJECT COMPONENTS AND ENVIRONMENTAL IMPACTS

Environmental Impact	Project Component								
	Land clearing	Road Bed Leveling	Extraction Raw Material	Construction Base Layer	Compacting	Gravel Base	Paving	Build Drainage Works	Build Retaining Structures
Aesthetics Noise Dust Marred landscapes									
Soils Degradation of soil cover Increased sedimentation Erosion of lands downslope from roadbed Clogging of drainage works Landslides, slips and slumps									
Water Resources Creation of stagnant water pools Increased sediments into streams Decline in water quality Increase in runoff and flooding conditions Introduction of hazardous wastes									
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas									
Wildlife Disruption/destruction wildlife survival Disturbance to habitat Decrease in biodiversity Threat to rare and endangered species									
Damage to historical/cultural sites									

ELECTRIFICATION

MATRIX OF PROJECT COMPONENTS AND ENVIRONMENTAL IMPACTS

Environmental Impact	Project Component								
	Clearing		Posting				Line Construction			Transmission
	Cutting	Burning	Holes	Mounting	Stabilize	Drainage	Clearing	Burning	Wiring	
Aesthetics Noise Marred landscapes Visual degradation										
Soils Degradation of soil cover Increased sedimentation										
Water Resources Creation of stagnant water pools Increase sediments into streams										
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas										
Wildlife Disruption/destruction wildlife survival Disturbance to habitat										
Human Health Electrocution hazard Traffic accident hazard										

WATER SUPPLY

MATRIX OF PROJECT COMPONENTS AND ENVIRONMENTAL IMPACTS

Environmental Impact	Project Component							
	Source Preparation		Delivery Line Construction			Tank Construction			Water Service	
	Clearing	Containment	Clearing	Excavation	Stabilization	Clearing	Grading	Drainage	Quality	Quantity
Aesthetics Noise Marred landscapes Visual degradation										
Soils Degradation of soil cover Increased sedimentation										
Water Resources Creation of stagnant water pools Increase sediments into streams Over exploit aquifer Introduction of hazardous wastes Improper water discharge after use										
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas										
Wildlife Disruption/destruction wildlife survival Disturbance to habitat										
Human Health Waterborne disease Chemical imbalance in delivery system										

BRIDGE AND FORD CONSTRUCTION

MATRIX OF PROJECT COMPONENTS AND ENVIRONMENTAL IMPACTS

Environmental Impact	Project Component			
	Site Preparation Clearing Grading Diversion	Construction Excavation Stabilization Drainage	Build Drainage Works	Build Retaining Structures
Aesthetics Noise Dust Marred landscapes				
Soils Degradation of soil cover Increased sedimentation				
Water Resources Creation of stagnant water pools Increase sediments into streams Decline in water quality Increase in runoff				
Flora Damage to protected areas Loss or degradation of aquatic vegetation Destruction to environmentally critical areas				
Aquatic Fauna Disruption/destruction species survival Disturbance to aquatic habitat				
Human Health Pedestrian risk Traffic risk				

DOMESTIC SEWAGE

MATRIX OF PROJECT COMPONENTS AND ENVIRONMENTAL IMPACTS

Environmental Impact	Project Component	
	Sewer Line Construction	Disposal
	Excavation / Construction	
Aesthetics Noise Dust Odor		
Soils Degradation of soil cover Increased sedimentation		
Water Resources Point source pollution at discharge Water quality degradation in receiving surface waters Eutrophication		
Aquatic Fauna Disruption/destruction to wildlife survival Disturbance to aquatic habitat		
Human Health Accident risk Sewer gas leaks Disease transmission Down river population bares burden		

RIVER FLOOD CONTROL

MATRIX OF PROJECT COMPONENTS AND ENVIRONMENTAL IMPACTS

Environmental Impact	Project Component		
	River Bank Modification Excavation Grading	Extraction Raw Material	Construction of Protection Structures
Aesthetics Dust Marred landscapes			
Soils Degradation of soil cover Increased sedimentation			
Water Resources Increased sediments into streams Decline in water quality Change in hydrology Introduction of hazardous wastes			
Flora Damage to protected areas Loss or degradation of aquatic vegetation Destruction to environmentally critical areas			
Aquatic Fauna Disruption/destruction to wildlife survival Disturbance to aquatic habitat			

concern" or "priority concern". Once again, we emphasized that this process is not the "final answer", it is a mechanism which would allow "the planting of the seed" to start a useful impact evaluation. We believe that for the small-scale infrastructure projects which are part of the PRN and MEA of SRN portfolio, this is the best way to take. This approach combines impact characteristics discussed earlier, short-term, long-term, direct and indirect, in a more useful format.

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CHAPTER 4.0

4.0 RECOMMENDATIONS FOR ENVIRONMENTAL IMPACT MITIGATION

In Exhibit 4 we present each of the same projects with their major categories of environmental impacts, together with general mitigation measures. Once again we stress that we have developed logical, easy to use concepts. The mitigation measures we list are not intended to be the only measures available, rather those we believe to be practical to use. Also, the list is not intended to be a "required" format, in the sense that each project must have all the mitigation measures in place and verified. Our intention, is to provide useful guidelines for mitigation of environmental impacts.

EXHIBIT 4

Environmental Impacts and Mitigation Measures

CAMINOS VECINALES

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Noise Dust Marred landscapes	When possible, restrict heavy machinery use to daylight hours Avoid major excavation, crushing and grading in dry periods with heavy winds Contol dust by spreading water from tank truck or hose down road surface regularly in dry periods Grade areas used for extraction of raw materials Maintain and/or restore vegetation to cleared areas Restore sites to original conditions to extent possible through reclamation measures
Soils Degredation of soil cover Increased sedimentation Erosion of lands downslope from roadbed Clogging of drainage works Landslides, slips and slumps	Limit earth moving, when possible, to dry season Protect susceptible erosion areas with mulch cover Protect drainage channels with berms, straw or plastic retaining fences Install sedimentation ponds Plant and seed erodible surfaces as soon as possible Design drainage to minize changes in surface runoff Increase number of drain outlets Design and place drain outlets to avoid cascade effects Line major receiving channels with stones, concrete Stabilize road cuts with retaining structures (concrete walls, gabions, trees, grasses) Align road to avoid unstable areas
Water Resources Creation of stagnent water pools Increase sediments into streams Decline in water quality Increase in runoff and flooding conditions Introduction of hazardous wastes	Employ measures to avoid creating pools by improving landscaping, filling or draining Establish retention ponds to reduce sediment load before load enters stream During clearing and construction, place plastic sediment retainers downslope and above stream Take precautions to avoid accidents Collect and recycle lubricants

(continued)

CAMINOS VECINALES

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

(continued)

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas	Use native species when replanting Determine if road is in protected or critical areas and take special precautions
Wildlife Disruption/destruction wildlife survival Disturbance to habitat Decrease in biodiversity Threat to rare and endangered species	Establish measures to avoid excessive damage to roadside habitats Prevent disturbance to any known breeding habitats In wetland areas, maintain water regime by using culverts so water can flow under road surface Avoid building road in area where rare or endangered species are found
Damage to historical/cultural sites	Identify such sites and avoid disturbance If necessary, reroute road sections

BRIDGES AND FORDS

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Noise Dust Marred landscapes	When possible, restrict heavy machinery use to daylight hours Avoid major excavation, crushing and grading in dry periods with heavy winds Integrate design to landscape Grade areas used for extraction of raw materials Maintain and/or restore vegetation to cleared areas Restore sites to original conditions to extent possible through reclamation measures
Soils Degradation of soil cover Increased sedimentation	Limit earth moving, when possible, to dry season Protect susceptible erosion areas with mulch cover Protect drainage channels with berms, straw or plastic retaining lines Install sedimentation ponds Plant and seed erodible surfaces as soon as possible Design drainage to minimize changes in surface runoff Line major receiving channels with stones, concrete Stabilize approaches with retaining structures (concrete walls, gabions, trees, grasses) Align bridge to avoid unstable areas
Water Resources Creation of stagnant water pools Increase sediments into streams Decline in water quality Increase in runoff	Employ measures to avoid creating pools by improving landscaping, filling or draining Establish retention ponds to reduce sediment load before load enters stream During clearing and construction, place plastic sediment retainers downslope and above stream Minimize stream flow restriction during construction

(continued)

BRIDGES AND FORDS

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

(continued)

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Flora Damage to protected areas Loss or degradation of aquatic vegetation Destruction to environmentally critical areas	Use native species when replanting Determine if bridge is in protected or critical areas and take special precautions
Aquatic Fauna Disruption/destruction species survival Disturbance to aquatic habitat	Establish measures to avoid excessive damage to adjacent aquatic habitats Prevent disturbance to any known breeding habitats
Human Health Pedestrian risk Traffic risk	Avoid wash out of structure by determining high water stages based on hydrological data for site location Post caution signs at fords concerning flood levels Design bridge with sufficient width to accommodate non-vehicular use

DOMESTIC SEWAGE

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Noise Dust Odor	Select location of lines to avoid disturbance When possible, restrict heavy machinery use to daylight hours Avoid major excavation, crushing and grading in rainy periods Control dust by spraying water in dry periods Remove construction material from site Maintain and/or restore vegetation to cleared areas Restore sites to original conditions to extent possible through reclamation measures Ensure households install gas traps (elbows) in lines to avoid ordor and toxic gas
Soils Degredation of soil cover Increased sedimentation	Cover removed soil with plastic during rainy season Minimize time trenches left open
Water Resources Point source pollution at discharge Water quality degradation in receiving surface waters Eutrophication	Evaluate use of alternative waste systems such as latrines, septic tanks, community biogass systems, with consideration of installation costs, users, and overall impacts Determine how to incorporate minimum sewage treatement, (e.g., primary, secondary) to prevent direct untreated discharge Investigate methods for treatment, disposal and reuse (composting, fertilizer, etc.)
Aquatic Fauna Disruption/destruction to wildlife survival Disturbance to aquatic habitat	Establish measures to avoid excessive damage to habitats Prevent disturbance to any known bredding habitats
Human Health Accident risk Sewer gas leaks Disease transmission Down river population bares burden Failure to achieve health improvement in service area	Introduce safety measure for workers to minimize accidents Ensure collection system does not run close to water distribution system Monitor water quality below discharge Maintain proper wastewater treatment Conduct sanitation and hygiene education program

ELECTRIFICATION

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Noise Marred landscapes Visual degradation	When possible, restrict heavy machinery use to daylight hours Design line routes based on field reconnaissance Bury slash material instead of burning Maintain and/or restore vegetation to cleared areas Restore sites to original conditions to extent possible through reclamation measures
Soils Degradation of soil cover Increased sedimentation	Limit earth moving, when possible, to dry season Protect susceptible erosion areas with mulch cover Compact removed soil Protect drainage channels with berms, straw or plastic retaining lines Plant and seed erodible surfaces as soon as possible Design drainage to minimize changes in surface runoff Design and place drain outlets to avoid cascade effects Line major receiving channels with stones, concrete
Water Resources Creation of stagnant water pools Increase sediments into streams	Employ measures to avoid creating pools by improving landscaping, filling or draining During clearing and hole making, place plastic sediment retainers downslope and above stream during rainy season

(continued)

ELECTRIFICATION

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

(continued)

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas	Design transmission route to minimize such impacts Use native species when replanting Determine if transmission line is in protected or critical areas and take special precautions Avoid deforestation Use rational trimming and pruning methods
Wildlife Disruption/destruction wildlife survival Disturbance to habitat	Establish measures to avoid excessive damage to transmission line habitats Prevent disturbance to any known breeding habitats Use existing road routes whenever possible
Human Health Electrocution hazard Traffic accident hazard	Design height of transmission poles and lines carefully, particularly on steep slopes near roads Avoid placing poles in existing vehicular roadways/access routes

LATRINES

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Odor Visual degredation	Select location of latrines sufficient distance from living area to avoid smell Construct latrines with appropriate ventilation tubes Ensure installation of toilet seat cap and instruct why use necessary
Soils Degredation of soil cover Increased sedimentation Fecal and parasitic contamination	Compact removed soil Grade and level excavation area Design drainage to minize changes in surface runoff Proper use and maintanence of composting latrines (latrina abono) to prevent moisture intrusion Proper closing of pit latrine when full to capacity
Water Resources Ground water pollution	Locate latrine away from streambeds Locate latrine on higher ground to ensure it is at minimum 2 meters above water table Do not built latrine within 20 meters of well
Human Health Disease transmision Vector population Failure to achieve health improvement in service area	Keep composting latrine properly closed and moisture free Use simple measures to keep fly population low, (fly paper, ash or lime in pit) Only use human waste as fertilizer from properly maintained anerobic latrine Discard human waste from improperly maintained latrine Conduct sanitation and hygiene education program

RIVER FLOOD CONTROL

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Dust Marred landscapes	When possible, restrict heavy machinery use to daylight hours Avoid major excavation, crushing and grading in dry periods with heavy winds Control dust by spreading water from tank truck or hose down road surface regularly in dry periods Grade areas used for extraction of raw materials Maintain and/or restore vegetation to cleared areas Restore sites to original conditions to extent possible through reclamation measures
Soils Degradation of soil cover Increased sedimentation	Limit earth moving, when possible, to dry season Protect susceptible erosion areas with mulch cover Plant and seed erodible surfaces as soon as possible
Water Resources Increased sediments into streams Decline in water quality Alterations in watershed hydrology Introduction of hazardous wastes	Acquire adequate hydrolic data on rainfall patterns, flood stages, upper reservoir releases, water release procedures, watershed geology, and watershed topography Acquire data on adjacent land use practices Implement changes in agriculture practices in upper watershed Introduce better soil conservation techniques Minimize stream flow restriction during construction Take precautions to avoid accidents Collect and recycle lubricants
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas	Use native species when replanting Determine if project is in protected or critical area and take special precautions
Aquatic Fauna Disruption/destruction to wildlife survival Disturbance to aquatic habitat	Establish measures to avoid excessive damage to adjacent aquatic habitats Prevent disturbance to any known breeding habitats

WATER SUPPLY

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Aesthetics Noise Marred landscapes Visual degredation	Select location of supply lines and pump stations to avoid disturbance When possible, restrict heavy machinery use to daylight hours Avoid major excavation, crushing and grading in dry periods with heavy winds Remove construction material from site Maintain and/or restore vegetation to cleared areas Restore sites to original conditions to extent possible through reclamation measures
Soils Degredation of soil cover Increased sedimentation	Limit earth moving, when possible, to dry season Protect susceptible erosion areas with mulch cover Compact removed soil Minimize time trenches left open Protect drainage channels with berms, straw or plastic retaining lines Plant and seed erodible surfaces as soon as possible Design drainage to minize changes in surface runoff
Water Resources Creation of stagnant water pools Increase sediments into streams Over exploit aquifer Introduction of hazardous wastes Improper water discharge after use	Employ measures to avoid creating pools by improving landscaping, filling or draining Establish retention ponds to reduce sediment load before load enters stream During clearing and construction, place plastic sediment retainers downslope and above stream Avoid unnecessary water use Protect aquifer recharge zone Prohibit agriculture and grazing above water intake areas

(continued)

WATER SUPPLY

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

(continued)

ENVIRONMENTAL IMPACTS	MITIGATION MEASURES
Flora Damage to protected areas Loss or degradation of vegetation Destruction to environmentally critical areas	Use native species when replanting Determine if project is in protected or critical areas and take special precautions Minimize tree cutting
Wildlife Disruption/destruction wildlife survival Disturbance to habitat	Establish measures to avoid excessive damage to habitats Prevent disturbance to any known bredding habitats
Human Health Waterborne disease Chemical imbalance in delivery system	Protect access to humans and animals Monitor water quality Maintain proper water treatment

CHAPTER 5.0

GUIDELINES FOR ENVIRONMENTALLY SOUND PROJECT DESIGN, CONSTRUCTION AND MONITORING AND EVALUATION

Part of our mandate was to review existing environmental criteria, and if none existed, develop them. In our review of the material developed for other efforts within USAID and in other donor projects, we felt that no useful criteria existed that could be applied to these projects. Consequently, we have developed such guidelines.

To achieve this goal we created the matrices provided in Exhibit 5. The infrastructure projects are listed with environmental criteria developed for the components of project design, construction and monitoring and evaluation. In the case of the first two components we list basic "practices" that would ensure minimizing impacts. IN the last instance, we have prossed general questions that, if answered for each project type, would provide some indication of overall impacts.

In Exhibit 6 we provide a table of Infrastructure Indicators and Monitoring Approach. In our experience, there are very few examples of good guidelines for establishing indicators to help answer the question of whether or not projects were successfully completed, based on environmental considerations.

Traditional management-oriented monitoring is a continuous, analytical process through which the funding institution and implementing agency gather updates on 3 key questions:

Are project activities being implemented as planned, on schedule and within budget?

Are these activities leading to expected results?

What is causing delays or unexpected results? Should management revise or modify the original plans?

Recent USAID/El Salvador programming approaches this concept through the implementation of five Strategic Objectives. Three of these have relevance to these projects; Peace and Harmony, Improved Environmental and Natural Resource Management, and Improved Quality with Equity in Health and Education. Each of these Strategic Objectives contain higher level objectives and associated indicators. At the highest level a project will have a long-term objective, for example with the PRN, assisting in the peace process and helping to rebuild the country. In order to achieve these long-term objectives, short-term objectives have to be achieved, and we have provided approach to accomplish this, which is not part of current USAID planning, monitoring and evaluation, for the infrastructure components. Such objectives, would include; improved rural roads in remote parts of the country, basic human services that include safe drinking water, improved sanitation, and extension of the electrical grid to remote communities.

EXHIBIT 5

Environmental Criteria for Infrastructure Projects

ENVIRONMENTAL CRITERIA FOR INFRASTRUCTURE PROJECTS

Project Components	Infrastructure Projects and Criteria		
	Caminos Vecinales	Electrification	Bridge and Fords
Project Design	It is preferable to use existing route rather than new routing Design of new roads should avoid routing along river When possible, design sloping road with breaks, not continuous run Avoid critical habitats and protected areas when possible, find alternative routes	Select transmission route to correspond to existing road way rather than crossing through forest whenever feasible Review location of transmission route in the field before undertaking construction with appropriate technical expert from CEL/ENRECA	Site selection should be based on minimizing impediments to natural stream flow Use hydrological data to calculate peak flood conditions and required height of bridges and strength and type of ford construction Should include access and use by both pedestrians and vehicules
Construction	It is better to construct roads with proper drainage than use equivalent funds for roads that may be longer without proper drainage Construction of stabilization works improves the lifetime of the road and is more cost beneficial Placing a hard cover on the road bed (e.g., stone, pebbles, octagonal tiles) is preferable than leveling and leaving soil surface exposed to rain	Compact soils around pole properly Grade and provide drainage ditch when necessary around post base	Rehabilitation of site must be included as component of project implementation Construction process that keeps raw materials out of stream are prefered Minimize intensive extraction of construction materials (e.g. sand, gravel, stones) from one location in stream When possible, undertake construction during dry season
Monitoring and Evaluation	Was it the best route selected? Does unstabalized soil remain on the route? Does road slope promte torrents? Are rainage works promoting erosion? Are drainage channels working?	Was the tranmission line placed on the best route? Is there potential human or vehicular contact with line? Is there potential EMF risk? Are base of posts promoting drainage?	Was the site the best location to build? After construction was sire and stream rehabilitated properly? Are risks to humans avoided?

(continued)

ENVIRONMENTAL CRITERIA FOR INFRASTRUCTURE PROJECTS

Project Components	Infrastructure Projects and Criteria	
	Water Supply	**Latrines**
Project Design	Avoid wetlands and floodplains, historical and cultural and critical habitats Well must be 20 meters from latrines and other contamination sources Minimum distance from seepage or cesspool is 50 meters Minimum distance from pit or septic tank, animal pens barns or silos is 30 meters Construct intakes as close as possible to spring Understand hydrologic regime in area Conduct flow measures at potential sites before final selection Study soil types and formations Identify all possible pollution sources in area Spring intake structure should not allow the water to flow and erode any ground cover	All sites must be selected or approved by a professional from one of the Water supply, Sanitation and Health agencies of GOES Must be located 20 meters from well if on unconsolidated soils Must be located 50 meters from well or water source if on consolidated soils Determine depth to groundwater source in rainy season Under no circumstances should the groundwater table come within 60 cm of the base of the pit of the latrine
Construction	Spring water intake should include overflow pipe, cleanout access, and ventilation Ensure inspection access to check on water quality Make of rock masonry, bricks or concrete Intake structure should protect water supply from contamination (e.g., surface water, human animal waste) Structure should be fences or screened to protect from animals Overflow of well and storage tanks should be piped to adjacent natural stream or drainage Overflow and drainage at water stands must be to a drainage pit or absorption well filled with porus material. Needs to be 1.5 to 2.5 meters in depth and 1.5 to 2 meters in diameter depending on soil permeability	Selection of kind of latrine to be constructed depends on water table level. shallow ground water- Compost latrine deeper ground water table- pour flush latrine little water - pit latrine Odor problem can be solved by adding a ventilation pipe with fly screen and cover
Monitoring and Evaluation	***Spring Fed Water*** Is water supply intake sufficiently protected from contamination? Are proper measures in place for drainage and runoff? Are proper measures in place for water quality? ***Well Water*** Is there proper construction to protect from percolation contamination? Are proper measures implemented for water quality?	Was the appropriate latrine type built? Is the latrine being used properly? Are the compost clean and usable? Has health improved?

EXHIBIT 6

Environmental Criteria and Monitoring

ENVIRONMENTAL CRITERIA FOR INFRASTRUCTURE PROJECTS

(continued)

Infrastructure Indicators and Monitoring Approach					
Water Supply			Latrines		
Question	Indicators	Monitoring	Question	Indicators	Monitoring
Spring Fed Water *Is water supply intake sufficiently protected from contamination?*	Runoff flows into spring Agricultural is undertaken above spring Animal access prevented	Inspection	*Was the appropriate latrine type built?*	Proper location Proper type	Inspect/survey
Are proper measures in place for drainage and runoff?	Standing water pools Breeding mosquitos	Inspection			
Are proper measures in place for water quality?	Disinfection Monitoring-physical,chemical bacterial	Collect sample	*Is the latrine being used properly?*	Odor Presence of larva/worms	Inspect/survey
Well Water *Is there proper construction to protect from percolation contamination?*	Sanitary seal	Inspection	*Are the compost clean and usable?*	Sanitary Pathogen free	Collect samples
Are proper measures implemented for water quality?	Disinfection Monitoring-physical, chemical, bacterial	Collect sample	*Has health improved?*	Diarrhoeal disease	Epidemiological study

ENVIRONMENTAL CRITERIA FOR INFRASTRUCTURE PROJECTS

Infrastructure Indicators and Monitoring Approach					
Caminos Vecinales			Electrification		
Question	Indicators	Monitoring	Question	Indicators	Monitoring
Was it the best route selected?	*only with new roads Amount of deforestation	Survey	*Was the transmission line placed on the best route?*	Amount of deforestation Amount vegetation cleared Percentage of line incorrectly placed	Survey
Does unstabilized soil remain on the route?	Unstable soil points Lack of protected soil adjacent to road	Survey			
Does road slope promote torrents?	Slopes greater than 50 degrees	Survey	*Is there potential human or vehicular contact with line?*	Number of poles with line too low	Survey
Are drainage works promoting erosion?	Drainage works missing Corrective actions	Survey	*Is there potential EMF risk?*	Hi voltage lines near residences	Survey
Are drainage channels working?	Drainage works not functioning Corrective action required	Survey	*Are base of posts promoting drainage?*	Number of posts (% line) with poor drainage	Survey

(continued)

Most often evaluations focus on 3 areas: performance of the program in achieving its stated objectives; and economic and financial efficiency. Performance is measured directly by comparing whether implementation proceeded as expected and on schedule, determining if the outputs were achieved according to project plans and within budget.

The above objectives are measured in terms of changes within the target beneficiaries, which are referred to as project outputs. Examples of outputs in this case have traditionally been the number of road miles constructed, number of latrines built, population served by water projects, etc. The inputs to these activities would include financing, and professional man hours of extension work.

In our approach, we have attempted to shift the evaluation towards environmental considerations. For example, with water supply projects, we strongly believe the evaluation should take into consideration how has the environment and health of populations been effected. Questions such as "is the water supply intake sufficiently protected from contamination"? are as fundamentally important for measuring success as is "how many water supply systems were built and how many people are being serviced"? Can we really consider such projects "successful" and meeting projects targets if in fact we learn that there are serious negative environmental and health consequences.

Finally, we provide with these questions a collection of simple and elementary indicators which can be used for these projects to provide a "ball park" picture of that is happening. We also list what methods could be employed to accomplish these evaluations. Once again, we approach this process trying to provide guidelines that do not require extensive commitments of manpower, creation of new monitoring units, nor significant requirements additional funds.

CHAPTER 6.0

RECOMMENDATIONS FOR USAID INCLUDING INSTITUTIONAL STRENGTHENING CAPABILITIES FOR ENVIRONMENTAL REVIEW IN THE SRN

We have organized five recommendations into two major components, those related specifically to USAID/ES and those with the SRN (see Exhibit 7). In this fashion, we believe that there can be several paths undertaken to improve environmental considerations in small scale infrastructure projects being sponsored by USAID. This is not solely restricted to the SRN, but all entities engaged in similar programs. At the same time, we believe that USAID/ES can provide the follow on support discussed below to the SRN at a modest investment during a 6 month period.

As part of our effort, we also conducted a one day workshop in the SRN Regional office in San Vicente, to gather feedback from technical staff of the SRN as well as meet with several mayors and contractors. In this forum, we refined our views concerning how to build upon the efforts of this contract and how to promote future use of these products. A list of these attendees is presented in Appendix H.

6.1 Training and Technical Assistance, USAID

Recommendation 1: Reproduce the Environmental Guides as a Manual

The first step in this process is to take the matrices, tables and contents of this report and convert it into a guidelines document, or manual, for environmental considerations in infrastructure planning and implementation in El Salvador. This would take the form of a paperback book, small enough to be carried in the field by technical staff, carpistas, construction supervisors etc. This manual should be produced on high quality paper and with a binding and cover that can withstand exposure to field conditions without falling apart.

Experience indicates that the writing, editing, layout and design would take 2 to 3 months of work (building on this present document) and require contributions by an senior environmental specialist, engineer, technical writer/editor, and graphics designer. Printing should take 1 month,which would result in a total time of 4-5 months for completion of this task.

Recommendation 2: Distribute Environmental Guidelines Manual to SRN, ONGs, Etc.

The budget for this task should also include funds for printing sufficient copies to be distributed throughout SRN, the regional and departmental offices, municipalities, private sector construction operations, ONGs, ISDEM, etc. The first printing should be on the scale of 2,000 copies, with distribution through the SRN and USAID.

Recommendation 3: Support Environmental Experts for SRN Training

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Exhibit 7. Recommendations

SPECIFIC ACTIONS BY USAID	SPECIFIC ACTIONS BY SRN
TRAINING AND TECHNICAL ASSISTANCE Reproduce Environmental Guides as Manual Distribute Environmental Guidelines Manual to SRN, ONGs Supply Environmental Experts for SRN Training	**TRAINING AND TECHNICAL ASSISTANCE** Organize EA Workshops for SRN Regional Engineers and Staff, Mayors, NGOs and Contractors Sponsor TA for the Use of EA Manual by SRN, Mayors and Contractors
PROCEDURES Incorporate Infrastructure Environmental Indicators into Project Requirements Promote Use of Infrastructure Environmental Indicators as Project Indicators in USAID Strategic Work Plan for all NGO, GOES and SRN contracts. Promote Use of EA Guidelines and Criteria For USAID Projects executed by SRN, MOP, ISDEM, ANDA, SEMA and ONGs Promote National Legislation for EA in Infrastructure Projects	**PROCEDURES** Incorporate EA Process in Project Design and Construction Include Environmental Criteria as Project Criteria Include EA Guidelines as Requirements in Agreements between SRN and ONGs

Once this manual is printed, we recommend that USAID provide the funds to hire a training team, that would work in collaboration with the SRN and the DMD. This training team would consist of a senior environmental specialist familiar with the environmental impact issues of the MEA infrastructure projects, a senior civil engineer familiar with how MEA and infrastructure projects are administered in the country, and a meeting facilitator, who will be responsible for logistical planning of the seminars.

6.2 Training and Technical Assistance, SRN

Recommendation 4: Organize EA Workshops for SRN Regional Staff, Carpistas, Mayors, NGOs and Project Contractors

Senior staff at the SRN, as well as the regional field staff, indicated that there is a need to provide practical guidelines and training to staff and all parties engaged in these projects for improved environmental assessment. Consequently, we propose conducting a series of workshops, one to two days in length in each of the 5 regional offices of the SRN. This workshop would be designed to give attendees a better understanding of the issues related to environmental considerations of project planning, design and implementation, using the manual as a teaching guide. Visits to actual infrastructure projects will be included as part of this task, to demonstrate "real" examples. We anticipate that this effort would take at minimum 6 weeks, allowing 1 week for each region, which would include setting up the program, checking out field sites, conducting the workshop etc.

These workshops would be sponsored by the SRN, and include participation by all parties engaged in similar project activities, whether they be GOES, NGOs, or other donors. We urge USAID/ES to explore matching funds from other sources such as the World Bank, Enterprise for the Americas, etc. to support this initiative. If the manual can be completed and printed within a period of 6 months, we feel that these workshops could be conducted in the 3rd or 4th quarter of 1995.

Recommendation 5: Sponsor Technical Assistance for Use of Manual to SRN, Mayors and Contractors

As part of a TA process, the SRN should send a team of two specialists back into the field six months after conducting the above workshops. This team will determine how the guidelines are being used, if environmental considerations are actually being undertaken, and make suggestions for future actions.

6.3 Recommended Procedures for USAID

We suggest several approaches to incorporate the above recommendations into USAID programming. These actions will support the overall goals of AID Washington, in its desire to *Manage for Results*, thereby ensuring that these small-scale infrastructure projects are following sustainable development practices. Furthermore, we believe that USAID/ES can take a leading role in the region by implementing these measures and demonstrate a successful and practical

methodology that could be adopted in other missions for similar projects. There is also a strong possibility that these activities could be supported with regional and global program funds, ensuring that the decreasing program budgets associated with MEA and NPR would not be impacted. Lastly, these measures are in reality bridges between several sectoral programs that in the past have traditionally been programmed, administered and executed in non-overlapping fashions. Now, the Mission has the opportunity to use a set of relatively inexpensive tasks to provide integration between the three Strategic Objectives (Peace and Reconstruction, Natural Resources and the Environment, and Education and Health) referred to earlier in this report. For these reasons, we see a logic in using external funds to develop these actions.

To accomplish the above actions, USAID/ES should incorporate environmental indicators into its project requirements for all small-scale infrastructure programs and contractors. Examples of these projects include:

> The AID 320 project for potable water and sanitation which will be carried out during the next two years through CARE, CREA and PCI. These international NGO's, have the capacity to apply and refine, with the support of their technicians, the environmental criteria for project design and to apply mitigation measures on adverse environmental impacts.
>
> MOP, through its environmental unit, can carry out an evaluation of the environmental impact of construction of rural roads, for the E IV component, of the National Reconstruction Plan and incorporate mitigation measures. During construction and when works are finalized they should follow up for the application of mitigation measures using indicators of environmental impact hereby proposed.
>
> At ISDEM, where AID develops an institutional strengthening program for municipal governments, an environmental unit has been institutionalized as part of the national system for environmental impact, which is being promoted in the country. Through this unit at ISDEM, mayors and contractors for municipal works could be trained on the application of environmental criteria and mitigation measures.
>
> AID also develops potable water projects with ANDA, the institution which administrates those services at the national level. ANDA could incorporate environmental criteria and mitigation measures as standard practices.

This would also include promoting the use of these indicators, or other similar ones, in all new Work Plans implemented by GOES, SRN, and NGOs. USAID/ES should also distribute a memo informing all contractors working in small-scale infrastructure projects of the availability of EA Guidelines and new environmental criteria, and encourage using these measures. These measures, related to infrastructure projects, should also be part of USAIDs environmental legislation efforts with GOES.

6.4 Recommended Procedures for SRN

The SRN should incorporate the environmental impact and mitigation guidelines into its

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administrative process of project design and construction. We have presented the project flow in Exhibit 8, and show below for the same flow chart where we think environmental considerations can be implemented. Another useful procedure that would assist in establishing improved environmental planning for the SRN would be the adoption of the environmental criteria (see Exhibit 6) as project criteria. Finally, we urge that the SRN Director require all executing agencies and organizations (e.g., ONGs, MOP, ANDA, CEL) to include the EA Guidelines in their technical assistance and project planning and implementation activities.

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Table 8. MEA PRN INFRASTRUCTURE PROCESS AND THE INTRODUCTION OF ENVIRONMENTAL ASSESSMENT

1.	Call to the community to hold a "cabildo abierto".
2.	Draw up of minutes where projects requested by the community are identified.
3.	Municipal Council and Mayor define priorities and eligible projects according to SRN criteria.
4.	SRN receives request from the Mayor, rated in order of priority.
5.	SRN sends field technicians. Prepares project profile, including costs and feasibility (ANDA, MOP, MAG, etc.)*
6.	Council and Mayor call a cabildo (open meeting) to explain rationale for final selection of projects.
7.	SRN contracts for preparation of carpetas (blueprints) of projects and delivers them to the Mayors*
8.	The Mayor requests funds to the Departmental Office including "carpeta" (blueprints).
9.	SRN designates funds.
10.	A call for public bids at the municipal level (poster) or the administration carries it out.*
11.	Award Committee selects a construction company, if it is applicable.
12.	Mayor and Departmental SRN representative are responsible for control and follow-up during implementation of work.*
13.	Final acceptance of construction work by Mayor and Departmental representative.

* Environmental impacts may be introduced in the above steps.

APENDICE A

"Términos de Referencia"

TERMS OF REFERENCE

The overall purpose of the services described below is to conduct an environmental assessment for MEA infrastructure subactivities and Major Infrastructure activities supported under the NRP Project Agreement (519-0394).

Preparation of this EA for infrastructure subactivities project will include the following tasks:

1. Obtain and review pertinent documents relating to the project including the following:

   a) NRP Project Agreement Proposal, El Salvador, 1992;
   b) A.I.D. Project Agreement with NRP;
   c) An Assessment of USAID/El Salvador's Pilot Potable Water and environmental Support Project, WASH, May 1988;
   d) Environmental Assessment of the Public Service Improvement Project; Component III - Water Supply, Sanitation and Health;
   e) The IEE for the National Reconstruction Project; and
   f) Action Plan for Caminos Vecinales Improvement Project.

2. In conjunction with A.I.D. and SRN, conduct a scoping exercises to identify significant issues to be addressed in the EA.

3. Develop a schedule of work and draft outline of the EA.

4. Describe the proposed actions for the various elements of the project (Social and Economic Reactivation and Infrastructure Components) and alternatives to these actions. Include a No Action alternative for comparative purposes.

5. Describe the environment that will be affected by the proposed actions and their alternatives in a generic way.

6. Describe globally the environmental impacts of the proposed actions and alternatives including the No Action alternative in a comparative form. The environmental impacts to be described will include short and long-term impacts, direct and indirect impacts, irreversible or irretrievable commitment of resources in general basis of the various types of projects.

7. Make broad spectrum recommendations on measures to mitigate any adverse environmental impacts of the proposed actions, also assess the potential for all of these activities to result in increased deforestation by opening up areas to colonization and by making previously inaccessible areas accessible to timber operations. In addition, prepare guidelines for mitigation measures and check lists for each type of project.

8. Review environmental criteria for sub-project selections. If none exists, propose

appropriate criteria and guidelines to guide sub-project identification, design, development, implementation, monitoring, and evaluation.

9. Review proposed training, operation and maintenance programs. Provide guidelines for training SRN and worker organizational technical assistance personnel in environmentally-sound project design, implementation, monitoring, operation and maintenance, aimed at developing an adequate level of competence in this area.

10. Review technical assistance capability to the SRN. As appropriate, recommend institution strengthening programs with respect to strengthening the process of environmental review of projects.

11. Prepare an Environmental Review Document (ERD) and propose an internal environmental review system for SRN for the various types of future construction projects, guiding identification, design, development, implementation and monitoring of these activities.

12. Accomplish all of the above in close collaboration with USAID/El Salvador project management and environmental officers, as well as with designated SRN personnel.

13. Conduct briefing and debriefing sessions at the initiation and termination of the EA for USAID/El Salvador and SRN.

14. Provide regular (weekly) oral updates on the EA to USAID/El Salvador during the course of the work.

15. Prepare and submit an initial draft report of the EA document in Spanish for review by USAID and SRN five days prior to departure from El Salvador.

16. Submit a final draft EA report to USAID/El Salvador and the LAC Bureau Environmental Officer for review and comment within two weeks of departure from El Salvador. USAID/El Salvador and LAC will have two weeks to review and submit written comments to the Contractor.

17. Submit a final EA report, incorporating the comments received, to USAID/El Salvador, and to the LAC Bureau Environmental Officer for review and approval within two weeks of receipt of the written comments from USAID/El Salvador and LAC Environmental Officer. The report will be submitted in English (10 copies) and Spanish (10 copies).

APENDICE B

"Publicaciones e Informes"

List of Documents

An Assessment of Responsibilities, Roles, and Functions of the Secretariat for National Reconstruction.
Management Systems International, 1994

An Assessment of USAID/El Salvador's Pilot Potable Water and Environmental Support Project.
J.P. Chudy, C. Rull and C. Solars, May 1988, WASH

Anexo Informes Ecologicos, Grupo No. C-2, Consulta, S.A. Dic., 1993

Auditoria ambiental de projectos FIS. C. Ochoa. 1994

Directorio de Institutiones Privides de Desorrollo de El Salvador, 1992
PNUD, 1992

El Salvador Project Paper, Peace and National Recovery Plan, Project no. 519-0394.
AID/LAC/p-732

Environmental Assessment of the Public Services Improvement Project, Component III- Water Supply, Sanitation, and Health
L. F. Requena and C. Parra, 1990.

Estudio Ecologico Informe Final Etapa A, Programa Rehabilitacion Y Mejoramiento de Caminos Rurales III Etapa Subgrupo C-1, Rivera-Harrouch, S.A. Nov., 1993

Estudio de Letrinas Aboneras, Departamento de Salud Comunitaria, Ministario de Salud Publica y Asistencia Social
Louis Berger International, 1991

Fortalecimiento y Potencial de las ONGs en el Desarrollo, Reconstruccion y Pacificacion en el Salvador.
Proyecto Prodepas-Pact

Guia Para Firmas Consultoras De Supervision, Para Elaborar Planes de Proteccion Ambiental para Caminos Rurales. N. Gonzalez. 1994

Guidelines for Compliance with NEPA, 22 CFR 216 and Section 533 for Environmental Assessments Involving Timber Extraction
USAID LAC, 1992

Informe Final de Evaluacion de Impacto Ambiental, Republica de El Salvador, Ministerio de Obras Publicas, Dirreccion Generales de Caminos, Suelos y Materiales S.A., 1994.

Informe de Medio Ambiente, Programa de Rehabilitacion Y Mejoramiento de Caminos Rurales III Etapa Subgrupo B-2, Consultora Technica S.A., Enero 1994.

Inventario de Caminos Vecinales en Zonas ex-conflictivas
Louis Berger International, Inc. August 1994
Vol. 1 Final Report
Vol. 2 Instructions and form for the inventory of caminos vecinales
Vol. 3 Instructions for the utilization of the caminos vecinales data management system
Vol. 4 Quantities of work and estimated rehabilitation costs for four alternatives, be camino vecinal
Vol. 5 Consolidated summary of the present condition of the caminos vecinales, by camino vecinal
Vol. 6 Photographic file
Vol. 7 Road maps of the caminos vecinales, by municipality

Manual Basico de Evaluacion del Impacto en el Ambiente y la Salud
Centro Panamericano de Ecologia Humana y Salud, 1990

Manual Operativo, Alcaldias Municipios, Municipalidades en Accion.
SRN, May 1993

Plan de Accion, Administracion tecnico financiera y ejecucion del mejoramiento de caminos vecinales y obras de paso componente E. IV convenio de donacion proyecto AID no. 519-0394
Secretaria de Reconstruccion Nacional, Agosto 1994

Plan de Accion, Municipalidades en Accion/1993
SRN, May 1994

Planes de Proteccion Ambiental Para Caminos Rurales. N. Gonzalez 1993

Plan de Reconstruccion Nacional, Vols I and II.
Ministerio de Planificacion y Coordinacion del Desarrollo Economico y Social, March 1992.

Public Services Improvement Project No. 519-0320, Final Report
Louis Berger International, Inc. 1994

Reporte Final, Evaluacion del Proyecto de Estabilizacion Social y Fortaleciento de Desarrollo Municipal
Checci and Company, 1994

Sistemas de Control de Calidad Ambiental en el Fondo Inversion Social (FIS). B. Batalha and C. Ochoa. 1994

APENDICE C

"Lista de Proyectos MEA/PRN desde 1994"

Proyectos PRN en las areas de Caminos,Agua, Salud y Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
Depto. : SANTA ANA			
Municipio : CANDELARIA DE LA FRONTERA			
Tipo 01			
	EMPEDRADO FRAGUADO	1A AV NTE Y CALLE 2 DE FEBRERO PTE	402
	EMPEDRADO Y FRAGUADO	ALDEA BOLANOS C/LA PARADA	677
	EMPEDRADO Y FRAGUADO	BA.STO. DOMINGO Y AV. DOMINGO PENATE	677
	EMPEDRADO Y FRAGUADO	COL. EL MILAGRO C/EL JUTE	677
	MEJORAMIENTO DE CALLE	C/LA CRIBA	402
	REPARACION DE CALLE	C/CASAS DE TEJA	402
Tipo 06			
	INT ENERGIA ELECTRICA	C/TIERRA BLANCA CRIO/LAS ANIMAS	677
	INT. ENERGIA ELECTRICA CRIO/LA GARITA II ETAPA	CRIO/LA GARITA	402
	INT. ENERGIA ELECTRICA II ETAPA	CRIO/BOCA DE LA MONTANA	402
Municipio : COATEPEQUE			
Tipo 01			
	ADOQUINADO MIXTO	4A. CALLE OTE	677
	ADOQUINADO MIXTO	AV GERARDO BARRIOS Y 3A CALLE PTE	402
	CONSTRUCCION PUENTE	SOBRE RIO LINO C/SN JACINTO CRIO/EL PROGRESO	402
	REPARACION DE CALLE	C/SAN FELIPE	677
Tipo 04			
	INT AGUA POTABLE	C/EL TINTERAL CRIO/EL CAULOTE	402
Tipo 06			
	INT ENERGIA ELECTRICA	C/LA JOYA COL LAS LUPITAS	677
	INT ENERGIA ELECTRICA	CRIO/PLAN DE LAS MARIAS Y CASITAS	677
	INT. ENERGIA ELECTRICA	C/EL JOCOTON	402
	INT. ENERGIA ELECTRICA	CIO/LOS RECINOS, C/LOS CONACASTES	402
	INTRODUCCION ENERGIA ELECTRICA	C/EL CERRO CAS/PLAN DE LAS MARIAS	402

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent

Municipio : CHALCHUAPA

Tipo 01

CONST CORDON CUNETA Y BASE SUELO-CEMENTO		402
CORDONEADO SUELO-CEMENTO	8A AV NTE HASTA 6A CALLE PTE	669
CORDONEADO SULEO-CEMENTO	1A. AV SUR Y 3A C PTE	669

Tipo 04

DOT TUB DE CONCRETO 30" Y 36" P/COLECTOR AGUAS LLU	C/LA LIBERTAD	402

Tipo 06

INT ENERGIA ELECTRICA	COL. BUENA VISTA II SECTOR NTE	402
INT ENERGIA ELECTRICA	COL. SAN EDGARDO	402
INT ENERGIA ELECTRICA	COL. TAZUMAL II ETAPA	402
INT ENERGIA ELECTRICA	COL. BUENA VISTA I	669

Municipio : EL CONGO

Tipo 01

ADOQUINADO MIXTO	AV CEFERINO MANCIA BA SN FRANCISCO	402
ADOQUINADO MIXTO	CALLE AL CEMENTERIO II ETAPA	677
ADOQUINADO MIXTO	PJE JESUS V DE MANCIA Y CALLE LA JABONERA	402
ADOQUINADO MIXTO	PJE STO DOMINGO Y CALLE 5 DE NOV	402
APERTURA CAMINO VECINAL	C/EL PEZOTE A C/SN JOSE LAS FLORES	402
CONST MURO DE RETENCION	SECTOR LA JOBONERIA C/GUINEO	402
EMP. FRAGUADO	C. ANTIGUA LAGO DE COATEPEQUE	402
REP CAMINO VECINAL	DEL CONGO A C/EL RODEO	402
REP. CAMINO VECINAL	C/EL GUINEO	402
REPARACION DE CAMINO	C/SAN JOSE LAS FLORES, CAS/EL ROSARIO	402
REPARACION DE CAMINO VECINAL	C/SAN JOSE LAS FLORES	677

Tipo 04

TUBERIA DOBLE 60"	C/EL CONGO	677

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuen
Municipio : EL PORVENIR			
Tipo 01			
	CONST. CALLE	CRIO/SINGUIL, C/SAN CRISTOBAL	402
	CONSTRUCCION DE UN PUENTE	C/EL ROSARIO	402
	EMP. FRAGUADO	COM. EL PROGESO (A)	402
	EMPEDRADO FRAGUADO	COM EL PROGRESO	402
	REPARACION DE CALLE	C/SAN JUAN CHIQUITO A C/STA ROSA SENCA	677
	REPARACION DE CAMINO VECINAL	C/SANTA ROSA SENCA	677
Tipo 04			
	CONST. DRENAJES Y COLOC. DE TUBOS	CRIO/EL CERRON, C/SAN CRISTOBAL	402
Tipo 06			
	ALUMBRADO PUBLICO	C/SN CRISTOBAL CRIO/EL CERRON	677
	INT ENERGIA ELECTRICA	C/STA ROSA SENCA COM. AGREDA	677
	INT. ENERGIA ELECTRICA	COM. EL SOCORRO II ETAPA,C/SAN CRISTOBAL	402
	INT. ENERGIA ELECTRICA	CRIO/LAS PIEDRITAS, C/SAN CRISTOBAL	402
Municipio : MASAHUAT			
Tipo 04			
	INT. AGUA POTABLE A MASAHUAT		774
Tipo 06			
	INT ENERGIA ELECTRICA	C/HONDURITAS	727
	INT ENERGIA ELECTRICA	CRIO/EL ZAPOTE C/LA RUDA	727
	INT ENERGIA ELECTRICA	CRIO/PITAL Y TORTUGUERO C/EL CARMEN SN SEB	727
Municipio : METAPAN			
Tipo 01			
	CORDONEADO SULEO CEMENTO	5A C OTE Y PTE TRAMO 3A AV N Y CARRET.	402
Tipo 06			
	ELECTRIFICACION	C/TECOMAPA, CAS/LA BARRA	402
	INT ENERGIA ELECTRICA	C/EL MALPASO CRIO/EL CAPULIN	677
	INT ENERGIA ELECTRICA	C/TECOMAPA CRIO/CHUCUMBA	677
	INT ENERGIA ELECTRICA	CRIO/PIE DE LA CUESTA C/SN MIGUEL INGENIO	669
	INT ENERGIA ELECTRICA]	CRIO/LOS RAMOS C/LA CEIBITA	402

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

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Codigo tipo	Nombre del Proyecto	Ubicacion	Cuen

Municipio : SAN ANTONIO PAJONAL

Tipo 01

EMPEDRADO FARGUADO	CALLE PPAL	402
EMPEDRADO FRAGUADO	CTON. EL TABLON	677
EMPEDRADO FRAGUADO	CTON/EL TABLON	402
EMPEDRADO FRAGUADO	ENTRADA PPAL. A STGO. DE LA FRONTERA	677
MEJORAMIENTO DE CALLE	C/LOS ANGELES	402
REP. CAMINO II ETAPA	C/SANTA CATARINA	402
REP. DE CALLE	C/EL ANGEL, CRIO/SANTA GERTRUDIS	402
REPARACION CAMINO II ETAPA	C/PIEDRONA CRIO/EL MOJON	677
REPARACION DE CALLE	A C/LAS PIEDRONAS	402
REPARACION DE CALLE	C/SANTA CATARINA	677

Tipo 06

EXTENSION ENERGIA ELECTRICA	C/LOS ANGELES	402
INT. ENERGIA ELECTRICA	CRIO/EL CONACASTILLO, C/LA PIEDRONA	402

Municipio : SAN SEBASTIAN SALITRILLO

Tipo 01

EMPEDRADO FRAGUADO	2A. AV. SUR Y 1A. C. OTE.	677
EMPEDRADO FRAGUADO	3A AVENTE Y 2A CALLE OTE	402
EMPEDRADO FRAGUADO	CALLE COL LA REINA C/STA ROSA	402
REP. CAMINO VECINAL	RIO AMULANGA Y COL. MONTECARLO A PILAS CRIO/AMATES	402
REPARACION DE CALLE	C/STA. ROSA COL. LA REYNA	677

Tipo 06

INT ENERGIA ELECTRICA	COL SAN JUAN C/STA ROSA	677
INTRODUCCION ENERGIA ELECTRICA	C/LOS AMATES, COL. EL ZAPOTE	402

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent.

Municipio : SANTA ANA

Tipo 01

ADOQUINADO MIXTO	COL. 10 DE MAYO C/CANTA RANA	669
ADOQUINADO MIXTO	COL. 5 DE MARZO C/PRIMAVERA	669
ADOQUINADO MIXTO	COL. SAN JOSE, C/NATIVIDAD	402
AMPLIACION DE CALLE	C/PINALITO	402
ARREGLOS PASAJES	COL LA UNION C/PRIMAVERA	669
BASE SUELO-CEMENTO Y COMPRA DE GRAVA	COL. ALTOS DEL PALMAR	402
CONST PUENTE	C/LOMA ALTA	669
CONST. PUENTE VEHICULAR S/RIO SUQUIAPA	CRIO/SAN LUIS LA PLANTA, C/NANCINTEPEQUE	402

Tipo 04

INT AGUA POTABLE	C/EL PORTEZUELO COL LOS CEDROS	402
INT AGUA POTABLE II ETAPA	COMUNIDAD SIHUACOOP.	941

Tipo 06

INT ENERGIA ELECTRICA	LOT. LA FINQUITA C/EL PORTEZUELO	669

Municipio : SANTA ROSA GUACHIPILIN

Tipo 01

CONST PUENTE VEHICULAR	S/QUEBRADA APANTA C/PALO GALAN	774

Tipo 06

INT. ENEGIA ELECTRICA	CRIO/LA MOTANITA, C/SAN FRANCISCO APANTA	774
INT. ENERGIA ELECTRICA	CRIO/EL CHAHUITON	774
INT ENERGIA ELETRICA	C. AL CEMENTERIO	774

Municipio : SANTIAGO DE LA FRONTERA

Tipo 01

ADOQUINADO MIXTO	BARRIO EL CASTILLO	677
AMPLIACION DE CALLEJONES URBANOS		402
CONST PUENTE VEHICULAR	C/STA CRUZ	677
MEJORAMIENTO DE CALLE	C/EL FLOR PARAJE GALAN	402
MEJORAMIENTO DE CALLE	CTON. LAS PILETAS	677
REPARACION DE CALLE	C/CHILAMATE	677
REPARACION DE CALLE	C/SANTA CURZ CRIO/SAN LUIS	402

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
Tipo 06			
	REPARACION DE CALLE	DEL CEMENTERIO A C/LA DANTA	402
	INT ENERGIA ELECTRICA	C/LA DANTA CRIO/MONTE GRANDE	402
Municipio : TEXISTEPEQUE			
Tipo 01			
	CONST PUENTE VEHICULAR	C/SAN MIGUEL S/RIO AGUA FRIA	727
Tipo 04			
	INT AGUA POTABLE	C/CUJUCUYO	958
	INT AGUA POTABLE	C/SANTO TOMAS	958
Tipo 06			
	INT DE ENERGIA ELECTRICA	C/CHILCUYO CRIO/SAN JOAQUIN	776
	INT DE ENERGIA ELECTRICA	C/COSTA RICA CRIO/LAS MESAS	776
	INT DE ENERGIA ELECTRICA	C/SAN MIGUEL CRIO/BARRANQUILLA	776
	INT ENERGIA ELECTRICA	C/SANTO TOMAS CRIO/SAN MARCOS	776
	INTRODUCCION ENERGIA ELECTRICA	C/EL JUTE, CAS/BADO DE ARENA	776
Depto. : CHALATENANGO			
Municipio : AGUA CALIENTE			
Tipo 01			
	CONCRETEADO	CALLES Y AV BA EL CENTRO	776
	CONST CAJA PUENTE SOBRE QUEB. HONDA	C/EL ENCUMBRADO	727
	CONTINUAC. CONCRETEADO DE CALLE PPAL.		727
	FINALIZACION DE CARRETERA	C/CERRO GRANDE	776
	MEJORAMIENTO DE CALLE	C/EL ENCUMBRADO CRIO/QUESERITA	727
	MEJORAMIENTO Y APERTURA DE CAMINO	DE C/AGUA FRIA A C/SAN PABLO	776
Tipo 06			
	ELECTRIFICACION LINEA METAYATE		776
	INT ENERGIA ELECTRICA	C/STA ROSA CRIO/EL ESCAMIL	727
	REP Y CONEXION RED ELECTRICA	C/AGUA ZARCA CRIO/SAN ANTONIO	727

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : ARCATAO

Tipo 01

APERTURA DE CAMINO	BARRIO SN JOSE A 3 COLONIAS	727
CONCRETEADO	CALLE BARRIO AL CENTRO	774
CONCRETEADO	CALLE LA RONDA II ETAPA	727
RECONSTRUCCION DE CARRETERA	A C/TEOSINTE	727
REPARACION DE CALLE AL CEMENTERIO	C/EL SITIO	774
REPARACION DE CARRETERA	QUE CONDUCE A ARCATAO	727

Tipo 06

ELECTRIFICACION	LINEA NVA TRINIDAD-ARCATAO	774

Municipio : AZACUALPA

Tipo 01

CONCRETEADO DE CALLE	1A Y 3A AVENIDA NTE Y S. Y CALLE LA CRUZ	677
CONCRETEADO DE CALLE	AL C/EL CIRINAL	677
EMPEDRADO CONCRETEADO	PASAJE A BA. EL CENTRO	677

Tipo 04

COLOC. TUB P/INT AGUA POTABLE	C/EL LLANO	677
COLOCACION TUB P/AGUA POTABLE	CRIOS/LA LOMA Y EL SINCUYO	677
COLOCACION TUB P/INT AGUA POTABLE	C/EL CIRINAL	677

Municipio : CITALA

Tipo 01

CANALIZACION DEL RIO LEMPA Y CONST GAVIONES	C/SAN FRANCISCO	774
EMPEDRADO CONCRETEADO	VARIOS TRAMOS DE CALLE	774
MEJ DE CALLE Y TUBERIAS	C/SAN LORENZO	727
MEJORAMIENTO DE CALLE	CRIO/LOS HORNITOS	774
MEJORAMIENTO DE CAMINO	AL DESVIO C/SAN RAMON	727
REHABILITACION DE CALLE	CRIO/JOCOTILLO AL PTE STA INE	727

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent

Municipio : COMALAPA

Tipo

APERTURA Y MEJ DE CALLE	DE C/EL MORRO A C/EL TABLON	402
CONST. PUENTE	CALLE DE C/EL MORRO A CRIO/LA PEDRERA	402
CONSTRUCCION OBRA DE PASO	S/QUEBRADA LA COYOTERA	677
EMPEDRADO Y CONCRETADO	CALLE SOBRE AV. DELGADO	402
EMPEDRADO Y CONCRETEADO DE PASAJE	PJE LOS LEONES	677
EMPEDRADO Y CONRETADO	CALLE SOBRE AV. LA RONDA	402
EMPEDRADO,CONCRETEADO	AVENIDA DR.MORAN	677
MEJORAMIENTO DE CALLE	C/CHOROSCO AL C/CANDELARIA	677

Tipo 04

INT SERVICIO DE AGUA POTABLE	C/JUNTA CRIO/CUCHILLA Y CHOROSO	402

Municipio : CONCEPCION QUEZALTEPEQUE

Tipo 01

CONCRETEADO	CALE PRINCIPAL	402
CONST. PUENTE HAMACA S/RIO GUASTENA	C/EL ROSARIO	402
EMP. FRAGUADO DE CALLE	CAS/EL CAMPO	402
EMPEDRADO FRAGUADO	CALLE CRIO/LOS CERRITOS	677
EMPEDRADO FRAGUADO	CALLE EN BA. CONCEPCION	677
EMPEDRADO FRAGUADO	CASERIO LAS FLORES	402
EMPEDRADO FRAGUADO	CRIO/SAN JOSE CALLE PPAL	677
EMPEDRADO Y CONCRETADO	CALLE PRINCIPAL	402
EMPEDRADO Y FRAGUADO	3ra CALLE ORTE.BARRIO SAN JACINTO	677
EMPEDRADO Y FRAGUADO	CALLE CENTRAL	677

Tipo 04

COLOCACION TUB P/AGUAS NEGRAS	CRIO/SAN JOSE	402

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent

Municipio : CHALATENANGO

Tipo 01

ADOQUINADO COMPLETO	CALLE MORAZAN (1 TRAMO)	774
CONCRET. CALLE PPAL	BO. EL CALVARIO	774
CONCRETADO	1 AVENIDA NTE	774
CONCRETADO	4A AVENIDA SUR	774
CONCRETADO	FINAL 6A AVENIDA SUR	774
CONCRETEADO	4A AVENIDA NTE	774
CONCRETEADO	C PPAL CUPATORO	727
CONCRETEADO	CALLE MORAZAN (2 TRAMO)	774
CONCRETEADO	PJE EL MANGUITO BA LA SIERPE	727
CONCRETEADO DE CALLES Y AV. DE CHALATENANGO	5A CALLE OTE	774
CONCRETEADO DE CALLES Y AVENIDAS	6A CALLE PTE Y 5A AV SUR	774
CONCRETEADO DE CALLES Y AVENIDAS	CALLE A GUARUILLA	774
CONCRETEADO DE CALLES Y AVENIDAS	CALLE DOLORES MARTELL	774
CONCRETEADO DE CALLES Y AVENIDAS	REPARTO SAN ANTONIO	774
CONST OBRA DE PASO S/QUEBRADA SECA	REUBICACION NUCLEO N.2	774
DOTACION DE BOMBA	C/SAN BARTOLO	774
PUENTE SOBRE RIO TAMULASCO	C/CHIAPAS CRIO/CANYUCO	774

Tipo 03

DOTACION DE AMBULANCIA HOSPITALARIA	CRUZ ROJA DE LA CIUDAD	727

Municipio : DULCE NOMBRE DE MARIA

Tipo 01

CONCRETEADO	BARRIO SN JOSE	677
CONCRETEADO	CALLE AL GPO ESCOLAR	402
EMPEDRADO FRAGUADO DE CALLE	C/GUTIERREZ CALLE PPAL	402
EMPEDRADO Y FRAGUADO	CALLE PPAL C/SITIOS ARRIBA	677
MEJORAMIENTO DE CALLE	C/ LOS HERRERA	677
MEJORAMIENTO TOTAL DE CALLE	C/SITIO ABAJO A C/LOS ACHIOTES	402
REPARACION DE CALLE	C/EL OSARIO I ETAPA	402

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 04			
	REP. CANERIA AGUA POTABLE	CUIDAD	677
Municipio : EL CARRIZAL			
Tipo 01			
	APMLIACION,MEJORAMIENTO Y CONST. PUENTE EN CALLE	C/TRINIDAD	774
	EMPEDRADO CONCRETEADO	CALLE BA LAS FLORES	727
	MEJ DE CAMINO	DE C/VAINILLAS HASTA C/PETAPAS	727
Tipo 06			
	ELECTRIFICACION	LINEA LAGUNA-EL CARRIZAL	774
Municipio : EL PARAISO			
Tipo 01			
	CONST CUNETA C/REVESTIMIENTO	BARRIO LAS FLORES URBANO	402
	MEJORAM. CALLE QUE CONDUCE A C/EL TABLON	C/EL TABLON	402
	REP Y MEJORAMIENTO CALLE PPAL.	C/STA BARBARA CRIO/TAMARINDO	677
	REP. Y MEJ. CALLE (CONCRETEADO)	CALLE PRINCIPAL COL. EL ROBLE	677
Tipo 06			
	ALUMBRADO ELECTRICO	COL. EL ROBLE I ETAPA	402
	INT ENERGIA ELECTRICA	CRIO/CERRO PARTIDO	402
	LUZ ELECTRICA	C/LOS CORTECES Y C/VALLE NUEVO	402
Municipio : LA LAGUNA			
Tipo 01			
	CONCRET. C. PPAL.	C/LOS PRADOS	774
	CONCRETEADO	CALLE EL CILINDRON	774
	CONCRETEADO	CALLES STA ANITA Y EL CHAPARRO	774
	CONCRETEADO DE LA CALLE CURVA EL MANZANAR	C/LA LAGUNA	774
	CONTINUACION CONCRET. C. PPAL.	CRIO/LOS GUEVARA	774
	MEJ DE CAMINO	DE LA LAGUNA A C/PACAYAS	727
	MEJOR. CAMINO	C/LOS GUEVARA A CAS/CUATRO PINOS	774
	MEJORAMIENTO DE CALLE	C/SAN JOSE A C/LOS PRADOS CRIO/OCOTALITO	774

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent

Municipio : LA PALMA

Tipo

CONCRETEADO DE CALLE	C/EL GRAMAL HACIA CRIO/EL CABALLERO	774
CONCRETEADO Y CORDONEADO	CALLE 22 DE JUNIO	774

Tipo 04

INSTALACION AGUA POTABLE	C/GRANADILLAS CRIO/LAS CUMBRES	727

Tipo 06

INT ENERGIA ELECTRICA	C/EL GRAMAL CRIO/CABALLERO	727

Municipio : LA REINA

Tipo 01

AMPLIACION DE CALLE 1 1/2 KM	C/EL TIGRE A CRIO/AGUACAYO	402
CONST APERTURA DE CAMINO VECINAL.	CRIO/POTRERIO C/SAN JOSE A OBRAJUELO	402
REP. Y AMPLIACION CARRETERA	DE LA REYNA A C/TALCHALUYA	677

Tipo 06

INT DE ENERGIA ELECTRICA	RIO/RINCON C/LAS PENAS	402
INT ENERGIA ELECTRICA	C/TECOMATES	677
INT. ENERGIA ELECTRICA	C/TILAPA CRIO/EL BARRANCON	677

Municipio : LAS VUELTAS

Tipo 01

CONCRETEADO CALLE PPAL	Y CALLES DE ACCESO A ESCUELA C/LA CEIBA	774
MEJORAMIENTO DE CALLE	C/EL CONACASTE A CRIO/EL TERRERO	774
MEJORAMIENTO DE CALLE	DE LA MINAS A C/LA LAGUNA	774
REAPERTURA Y MEJORAMIENTO DE CALLE	C/SICAHUITE	774

Municipio : NOMBRE DE JESUS

Tipo

CONCRETEADO	CALLE CENTRAL C/POTRERILLOS	727
CONCRETEADO DE CALLE	BA EL CALVARIO	727
CONST DE PUENTE SOBRE QUEBRADA ZACAMIL.		727
CONSTR. DE OBRA DE PASO	HDA. VIEJA	774
CONSTR. OBRA DE PASO	HDA. VIEJA	774
CONTINUAC. EMP Y CONCRETEADO	CALLE QUE VA A C/LOS ESCALANTES	774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
	EMPEDRADO CONCRETEADO	CALLE PPAL	727
	MEJORAMIENTO DE CARRETERA	DE NOMBRE JESUS A PRESA 5 DE NOV.	727
	REPARACION DE CAMINO VECINAL	ESCUELA LOS ESCALANTES	727
	REPARACION DE CARRETERA	C/LAS PLAZUELAS	774

Municipio : NUEVA CONCEPCION

Tipo

	CONCRETEADO	CALLE PPAL. SOBRE LA AV SUR	727
	CONCRETEADO II ETAPA	C PPAL 8A CALLE PTE	727
	CONCTRUCCION DE PUENTE HAMACA (ADENDA)	C/TABLAS CRIO/LOS JOBOS	774
	CONST CALLES	AL CRIO/LAS CANAS	727
	CONST PUENTE	S/RIO TAPETAYO Y 2 QUEBRADAS	727
	CONSTRUCCION BOVEDA S/QUEBRADA LAS CAVAS	C/POTRERO SULA	774
	CONSTRUCCION DE BOVEDA	SOBRE QUEBRADA EL YILO	774
	CONSTRUCCION PUENTE HAMACA	C/LAS TABLAS CRIO/LOS JOBOS	727
	EMPEDRADO CONCRETEADO DE CALLE	CALLES FRANCISCO PARRILLAS	774

Tipo 04

	INT AGUA POTABLE II ETAPA	C/ARRANCADOS (ADENDA)	958
	INT DE AGUA POTABLE	C/POTENCIANA	958
	INTRODUCCION AGUA POTABLE II ETAPA	CRIO/ARRACADOS	958

Tipo 06

	INT ENERGIA ELECTRICA	CRIO/CONACASTILLO	727
	INT ENERGIA ELECTRICA	CRIO/EL MAGUEY C/POTENCIANA	727
	int.de energia electrica	C/LAS CANAS Y EL TINTERO	774

Municipio : NUEVA TRINIDAD

Tipo 01

	CONST DE PUENTE SOBRE RIO SUMPUL		727
	CONST. PUENTE	SOBRE RIO GUALSINGA	774
	MEJO. CALLE C/ZACAMIL HASTA EL SITIO	C/ZACAMIL CAS/EL SITIO	774
	MEJORAMIENTO DE CARRETERA	CRIO/EL ZAPOTE C/ZACAMIL HASTA CRIO/HUALINGA	727
	REAPERTURA DE CALLE	BARRIO LA CRUZ	774
	REAPERTURA Y MEJ DE CALLE	DESDE EL CHAPARRO A C/CARASQUE	774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent:
	REP Y REAPERTURA DE CALLE	RIO HUALSINGA CRIO/LOS POZOS C/JAGUATALLA	774
Tipo 06			
	ELECTRIFICACION	LINEA SN JOSE LAS FLORES	774
Municipio : OJOS DE AGUA			
Tipo 01			
	EMPEDRADO CONCRETEADO DE CALLE	C/EL ZAPOTAL I ETAPA	774
	EMPEDRADO FRAGUADO	CALLES PRINCIPALES	727
	FINALIZACION DE PUENTE	SOBRE QUEBRADA EL CONVENTO	774
	REPARACION DE CALLE	C/EL COYOLAR	774
	REPARACION DE CALLE	QUE CONDUCE A C/EL TABLON	774
	ampliac.y mejor de c.ppal	C/MONTANITA	774
Tipo 04			
	REP DEL SERVICIO DE AGUA POTABLE	C/EL PORTILLO	958
Municipio : POTONICO			
Tipo 01			
	CONCRETEADO DE CALLE DE ACCESO	C/MONTE REDONDO	677
	CONTINUACION CONCRETEADO	BARRIO LA VEGA	402
	EMPEDRADO CONCRETEADO	CALLE ACCESO A BA STA TECLA	677
	EMPEDRADO CONCRETEADO	PASAJE RAMIREZ	402
	MURO DE RETENCION	SOBRE CARRETERA QUE VA A CANCASQUE	677
	REPARACION CARRETERA	DE POTONICO A CERRON GRANDE	677
Tipo 03			
	CONST DE BODEGA P/ALIMENTOS	EN UNIDAD DE SALUD	677
Municipio : SAN ANTONIO DE LA CRUZ			
Tipo 01			
	APERTURA DE CAMINO	CRIO/LOS RAMIREZ	727
	CONST CAJA PUENTE	S/QUEBRADA DEL PUEBLO	727
	CONST CAJA PUENTE S/QUEB ACAPATE	CRIO/LOS MORALES	727
	CONST CAJA PUENTE S/QUEB LA SOLEDAD	C/SAN BENITO CRIO/EL TAMARINDO	727
	CONST CAJA PUENTE SOBRE QUEBRADA LOS GUARDADOS		727
	EMP FRAGUADO DECAMINO	CRIO/LA LAGUNETA C/SANTA ANA	727

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
	EMP. FRAGUADO C/SUPERFICIE TERMINADA	CAMINO A ESC CALLE PPAL	774
	EMPE. FRAG. CALLE CANALETAS	C/SAN BENITO CRIO TAMARINDO	774
	EMPEDRADO FRAGUADO	EN CAMINO CRIO/LOS ORTEGA	727
	EMPEDRADO FRAGUADO CON SUPERF. TERMINADA		727
	REPARACION DE CALLE PRINCIPAL	SAN ANTONIO DE LA CRUZ	774
	REPARACION DE CAMINO	C/SANTA ANA CRIO/CHAVARRIA	774
Tipo 04			
	MEJ DEL SERVICIO DE AGUA POTABLE		958
	MEJ. SERVIO DE AGUA POTABLE		727
Tipo 06			
	INT ENERGIA ELECTRICA	C/SAN BENITO CRIO/LOS GUARDADOS	774

Depto. : LA LIBERTAD

Municipio : ANTIGUO CUSCATLAN

Tipo 01

	CONST MURO Y MEJ DE PASAJES	COMUNIDA EL MILAGRO	402
	CONSTRUCCION DE MUROS Y GRADAS	COMUNIDAD LAS TORRES	402
	CONT. CONST. MURO PROTECCION	COM. EL TANQUE	402
	FINALIZ. CAMINO II ETAPA	LOS MANGONES	402
	MEJORAMIENTO DE CAMINO II ETAPA	COM EL MILAGRO	402
	MURO DE CONTENCION	URB JARD. DE GUADALUPE	677
Tipo 03			
	CONST. SERVICIOS SANITARIOS	COM LA PUERTA C/PUERTA DE LA LAGUNA	677
Tipo 06			
	INT ENERGIA ELECTRICA	COM LAS TORRES	677

Municipio : CIUDAD ARCE

Tipo 01

	ADOQUINADO MIXTO	CALLE SIMEON CANAS 4A C PTE B SN JOSE	402
	ADOQUINADO MIXTO	PASAJE COSTA RICA BA SAN JACINTO	402
	CONST OBRA DE PASO	C/EL CONACASTE	677
	EMPEDRADO FRAGUADO DE CALLE	2A ZONA C/SANTA LUCIA	402
	REPARACION CALLE	C/STA ROSA 2 ETAPA CRIO/CAFETALITO	677

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
Tipo 03			
	REPARACION DE CALLE	C/LA REFORMA	402
Tipo 06			
	COMPRA DE CAMION RECOLECTOR DE BASURA		774
	CONST MURO DE CONTENCION UNIDAD DE SALUD	BARRIO LA ESPERANZA	677
	INT ENERGIA ELECTRICA	C/LA ESPERANZA	677
Municipio : COLON			
Tipo 01			
	ADOQUINADO COMPLETO	2A AVENIDA NORTE C/LOURDES	402
	ADOQUINADO COMPLETO	C/EL CAPULIN PJE EL SINAI	677
	ADOQUINADO COMPLETO	C/LOURDES AV. MAXIMILIANO HERNANDEZ	677
	ADOQUINADO MIXTO	CALLE PPAL. C/EL LIMON COL. EL PROGRESO	677
	ADOQUINADO MIXTO CALLE PPAL	COL ZALDANA	402
	CONST CORDON CUNETA	7A CALLE LOUERDES Y CUYUGUALO	402
	CONST CUNETA Y BALASTADO	1A AVENIDA SUR C/LOURDES	402
	CONSTR. CORDON CUNETA BALAST. DE CALLE	LAS MORAS	402
Tipo 03			
	COMPRA DE CAMION RECOLECTOR DE BASURA		774
Tipo 04			
	CONST TANQUE DE CAPT. AGUAS LLUVIAS	C/LAS BRISAS	402
Municipio : COMASAGUA			
Tipo 01			
	ADOQUINADO MIXTO	CALLE PPAL BARRIO EL CALVARIO	402
	REP DE CALLE	C/EL FARO CRIO/LA LIMA	402
Tipo 06			
	COMPRA E INST 44 LAMP DE MERCURIO		774
	INT ENERGIA ELECTRICA	C/EL CONACASTE CRIO/EL CASIQUE	677
	INT ENERGIA ELECTRICA	C/EL MATAZANO CRIO/LAS NUBES	677
	INT. ENERGIA ELECTRICA	COL. EL COCALNO 2,C/EL CONACASTE	402

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Código tipo	Nombre del Proyecto	Ubicacion	Cuenta

Depto. : SAN SALVADOR

Municipio : AGUILARES

Tipo 01

ADOQUINADO	1A CALLE PTE	774
ADOQUINADO	3A AVENIDA NTE Y 3UR	774
ADOQUINADO COMPLETO	2A CALLE PTE	774
ADOQUINADO COMPLETO	3A CALLE PTE BA EL CENTRO	774
ADOQUINADO COMPLETO	AV FERROCARRIL C/LOS MANGOS	774
ADOQUINADO COMPLETO	AVENIDA CENTRAL SUR	774
ADOQUINADO COMPLETO	C CENTRAL COL ROMERO C/LOS MANGOS	727
ADOQUINADO COMPLETO	C PPAL Y PJES 5 Y 6 COL PALACIOS	727
ADOQUINADO COMPLETO	CALLE CENTRAL PTE	727
ADOQUINADO EN OJE ALBERTO BLOCK "F"	COL SALINAS C/LOS MANGOS	727
ADOQUINADO MIXTO	COL SAN JOSE C/PINALITOS	774
CONST PUENTE VEHICULAR	C/LA FLORIDA	774
EMPEDRADO FRAGUADO	AV LOS ANGELES COL SALINAS C/LOS MANGOS	727

Municipio : APOPA

Tipo

ADOQ. COMPLETO CALLE DE ACCESO	COL. LOS ANGELES	774
ADOQUINADO	CALLE A Y B COL GUADALUPE	727
ADOQUINADO COMPLETO Y CORDON CUNETA	CALLE ACCESO COL POPOTLAN	774
ADOQUINADO COMPLETO Y CORDON CUNETA	CALLE PPAL COL STA MARIA	774
CONF CALLES,CANL,BALASTREADO,EMP Y FRAG	DE C/SN NICOLAS A C/CABANAS	774
CONST PUENTE VEHICULAR	C/LOS RENDEROS CRIO/LAS CHICAS	774

Tipo 04

INT AGUA POTABLE	COM EL PINO	774
INT AGUA POTABLE	COM SAN MARTIN DE PORRES	774
INT DE AGUA POTABLE	COM SAN SEBASTIAN	774

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent

Municipio : AYUTUXTEPEQUE

Tipo 01

ADOQUINADO COMPLETO DEL PJE	PTE. COL. SAN ANTONIO	677
CONST ADOQUINADO COMPLETO	COL LAS BRISAS DE EDEN	402
EMPEDRADO FRAG DE CALLE	AV SN CARLOS COL EL RETIRO C/LOS LLANITOS	677
EMPEDRADO FRAG DE CALLE PPAL	AV EL CARMEN C/LOS LLANITOS	677
EMPEDRADO FRAGUADO	CUESTA LAS PILAS DE LAS MORAS C/EL ZAPOTE	402
EMPEDRADO FRAGUADO CALLE ACCESO	COLS. STA RITA N.1 , 2 Y 3	677
MURO DE CONTENCION Y TUBERIA DE DRENAJE	C/LOS LLANITOS COPL/EL CARMEN	402

Tipo 03

DOT CAMION RECOLECTOR DE BASURA		774

Tipo 08

INT ENERGIA ELECTRICA	COLONIA MONTE VICTOR	402
INT ENERGIA ELECTRICA II ETAPA	C/LOS LLANITOS	402

Municipio : CUSCATANCINGO

Tipo 01

ADOQUINADO COMPLETO	AV SN ANT Y SV. LOS ANGELES	727
ADOQUINADO MIXTO	AV LA REYNA COL SN ANT 2 KM 11 C/SN LUIS MARIONA	677
ADOQUINADO MIXTO	AVENIDA STA MARGARITA	402
ADOQUINADO MIXTO	C ASTURIAS COL SN ANT NO 2 C/SN LUIS MARIONA	402
ADOQUINADO MIXTO	C PPAL DE LA CALLE AL CEMENTERIO CAMPO AMOR	402
ADOQUINADO MIXTO	CALLE ARAUJO COL STA ROSA	402
ADOQUINADO MIXTO	CALLE BOLIVAR COL. STA. ROSA	677
ADOQUINADO MIXTO	CALLE PPAL COL SAN FRANCISCO	402
ADOQUINADO MIXTO	CALLE PPAL COL TAZUMAL	677
ADOQUINADO MIXTO	PJE COLON OL CUSCATLAN CHAIN	402
ADOQUINADO MIXTO 3 ETAPA	CALLE EL PORVENIR	727
ADOQUINADO MIXTO I ETAPA	AV JOSE SIMEON CANAS COL. STA SABINA	677
CONCRETEADO	C PPAL COL STA MARGARITA RTO 1 Y 2	727
CONCRETEADO	CALLE DELGADO COL SAN LUIS 2	402
CONST CASA COMUNAL TIPO A	C/SN LUIS MARIONA COL MONTECARMELO 2	677

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
Tipo 06			
	ELECTRIFICACION	LOTIF. SAN ANTONIO SUR C/SAN LUIS MARIONA	402
	INT ENERGIA ELECTRICA	COM ARCAS DE NOE C/SAN LUIS MARIONA	402
Municipio : EL PAISNAL			
Tipo 01			
	ADOQUINADO DE CALLE	BARRIO SAN JOSE	727
	OBRAS DE PROTCC. CAMBIO DE CAUCE	RIO MATIZATE	774
	REP DE CAMINO	COM RUTILIO GRANDE CRIO/EL VERDILLO	727
	REPARACION DE ADOQUINADO	CALLE EL CENTRO	727
Tipo 04			
	MEJ SISTEMA DE AGUA POTABLE		727
Tipo 06			
	INT ENERGIA ELECTRICA	C/POTRERO GRANDE CRIO/EL TULE	727
	INT ENERGIA ELECTRICA	LOTIF SAN JOSE C/LA CABANA	727
Municipio : GUAZAPA			
Tipo 01			
	ADOQUINADO COMPLETO	CALLE COL JARDIN CRIO/AGUA FRIA	727
	ADOQUINADO COMPLETO	CALLE JOAQUIN MAYORGA	727
	ADOQUINADO COMPLETO	CALLE JOSE MATIAS DELGADO	727
	ADOQUINADO DE CALLE	AL CRIO/COLON	727
	CONST PUENTE VEHLS/RIO GUAZA	C/LOMA DE RAMOS CRIO/LOS HERNANDEZ	727
	EMP FRAGUADO DE CALLE	C/ZACAMIL CRIO/EL RODEO N2	774
	EMPEDRADO CONCRETEADO	AVENIDA CENTRAL	727
	REPARACION DE CALLE	C/NANCE VIERDE CRIO/DOLORES	727
	SUPERV P/CONST PUENTE S/RIO GUAZA	C/LOMA DE RAMOS CRIO/LOS HERNANDEZ	774

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent

Depto. : CUSCATLAN

Municipio : CANDELARIA

Tipo

ADOQUINADO MIXTO	BARRIO EL CENTRO	677
ADOQUINADO MIXTO	CALLE PPAL. Y LA RONDA	402
AMPLIACION Y BALASTADO DE CALLE	DESVIO C PANORAMICA C/MIRAFLORES ABAJO	402
EMPEDRADO FRAG Y MURO DE RET.	C/SAN ANTONIO	402

Tipo 06

INT ENERGIA ELECTRICA	C/MIRAFLORES ARRIBA	402
INT ENERGIA ELECTRICA	C/SAN JOSE LA CEIBA	677
INT ENERGIA ELECTRICA	C/SAN JUAN MIRAFLORES ABAJO	677

Municipio : COJUTEPEQUE

Tipo 01

ADOQUINADO COMPLETO	CALLE J F LOPEZ	677
EMP. FRAGUADO	9A AV. NORTE FRENTE A CRUZ ROJA	402
EMPEDRADO FRAG Y MURO	CALLE SAN JUAN C/MADRECACAO	402
EMPEDRADO FRAGUADO C. LA RONDA II ETAPA	BO. SAN JOSE	402
const baterias de tubos	BARRIO SAN JUAN	677

Tipo 06

INT ENERGIA ELECTRICA	C/MADRECACAO	677
INT ENERGIA ELECTRICA	COM LA ESPERANZA	677
INT. ENERGIA ELECTRICA	C/EL CARRIZAL II ETAPA	402
INT. ENERGIA ELECTRICA	C/EL TEMPISQUE	402

Municipio : EL CARMEN

Tipo- 01

ADOQUINADO MIXTO	PASAJE PPAL.	402
CONST. EMP.FRAGUADO Y MURO	C/SANTA LUCIA	677
EMPEDRADO FRAG II ETAPA	C/CANDELARIO	402
EMPEDRADO FRAGUADO	C/CONCEPCION	402
EMPEDRADO FRAGUADO	C/SAN ANTONIO	402
EMPEDRADO FRAGUADO	C/SAN SEBASTIAN	402

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Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
	EMPEDRADO Y FRAG Y REP DE CALLE	C/EL CALVARIO	402
	EMPEDRADRO FRAGAUDO	C EL CALVARIO	677
	REP DE CALLE	C/LA LATIADA QUE VA A SAN RAF CEDROS	774
	REP DE CALLE	C/SAN ANTONIO QUE VA A SAN RAF CEDROS	774
	REPARACION DE CALLE	C/CANDELARIA	677
	REPARACION DE CALLE	CTON. LA PAZ	677

Municipio : EL ROSARIO

Tipo

	AMP Y CONST EMPEDRADO FRAGUADO	CRIO/EL AMATILLO	727
	CONST EMP FRAG 3 PEND DE VIA DE ACCESO III ETAPA	C/SAN MARTIN	727
	CONST EMPEDRADO FRAG III ETAPA	C/AMATILLO	727
	EMPEDRADO FRAGUADO II ETAPA	C/AMATILLO	727

Tipo 04

	CONST.LINEA DE E ELEC AL SIST.DE BOMBEO DE A.POT.		958
	INT AGUA POTABLE	C/EL AMATILLO	727
	INT AGUA POTABLE	VILLA EL ROSARIO	958
	SUPERV. DE INT. DE AGUA POTABLE		958

Tipo 06

	INT ENERGIA ELECTRICA	C/SAN MARTIN II ETAPA	727
	INT. ENERGIA ELECTRICA	CRIO. Y C/SAN MARTIN	774

Depto. : LA PAZ

Municipio : CUYULTITAN

Tipo 01

	ADOQUINADO COMPLETO	ENTRADA PPAL COL LAS PALMERAS	402
	ADOQUINADO COMPLETO	ENTRE CALLE STA CATALINA Y CALLE RONDA SUR	402
	EMP. FRAGUADO Y CORDONEADO	CALLE INAGURACION 2A ETAPA	677
	EMP. FRAG C/CORDON CUNETA Y MURO RET.	C. QUE COND. A ESC. C/SAN ANTONIO	402
	EMPEDRADO FRAG Y CORDONEADO	CALLE A COOP. STA CATARINA	677
	EMPEDRADO FRAGUADO C/CORDON	C/SAN ANTONIO CRIO/SANTA EMILIA	402
	EMPEDRADO Y FRAGUADO Y CORDONEADO	C/QUE VA A CRIO. BELLA VISTA C/ SAN ANTONIO	677
	EMPEDRADO Y FRAGUADO, CORDONEADO	C. AL CRIO. LAS PIEDRITAS C/SN ANTONIO	677

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Escuela

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
	EMPEDRADO Y FRAGUADO, CORDONEADO	C/SAN ANTONIO CALLE CENTRAL	677
	EMPEDRAO FRAGUADO Y CORDONEDAO	C/SAN ISIDRO COL ALTAMIRA	402
	emp frag c/cordon cuneta y Obra de Paso	S/RIO QUIJINICUILAPA C/SN ANT CRIO/LA LOMA	402

Municipio : EL ROSARIO

Tipo

	CONSTRUCCION DE PUENTE S/RIO TILAPA	C/EL CERRO	402
	EMPEDRADO FRAG. CON CORDON CUNETA	CALLE QUE VA AL RASTRO	677
	EMPEDRADO FRAGUADO	2A AV NTE Y 5A C OTE	402
	EMPEDRADO FRAGUADO C/CORDON CUNETA	CALLE AL C/TILAPA ABAJO	402
	EMPEDRADO Y FRAGUADO CON CORDON	PJE. EL SALTO 2A. ETAPA	677
	REPARACION CALLE	A C/AMATEPE	402

Tipo 04

	INT AGUA POTABLE	C/AMATEPEC PJE CARBALLO	677
	INT AGUA POTABLE	SUBURBIOS DEL BARRIO SAN JOSE	402

Tipo 06

	INT ENERGIA ELECTRICA	C/AMATEPE LOTIFICACION LA PAZ	402
	INT ENERGIA ELECTRICA	C/EL CERRO CRIO/EL TUNAL	677
	INT ENERGIA ELECTRICA	C/EL PEDREGAL	402
	MEJ Y AMPLIACION DE ENERGIA ELECTRICA		402

Municipio : JERUSALEN

Tipo 01

	CONST EMEPDRADO FRAGUADO CORDON CUNETA IV ETAPA	C/EL ESPINO	727
	CONST EMPEDRADO FRAGUADO C/CORDON CUNETA	C/EL ESPINO	727
	EMP.FRAG.CON CORDON CUNETA	CAM.VEC.A IGLESIA ADVENTIS	774
	EMP.FRAG.CORDON CUNETA.	CAM.VEC.QUE COND.C/CONACASTE	774
	EMPEDRADO FRAGUADO C/CORDON CUNETA	C/LOS ROMEROS	774
	EMPEDRADO FRAGUADO C/CORDON CUNETA	CALLE PANORAMICA 3A ETAPA	774
	EMPEDRADO FRAGUADO CON CORDON CUNETA	CALLE LA RONDA II ETAPA	727
	EMPEDRADO FRAGUADO CORDON Y CUNETA	CAMINO VECINAL C/VERACRUZ ARRIBA	727
	REP. CAM. VEC. QUE CONDUCE A		774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 06			
	ELECTRIFICACION		774
Municipio : MERCEDES DE LA CEIBA			
Tipo 01			
	AMP DE REP DE 400 ML DE EMPEDRADO FRAG	C/SAN LUIS	774
	CONST PUENTE VEHICULAR	(ADENDA)	774
	EMP. FRAG. C/CORDON CUNETA CAMINO VEC.	FUENTE DE AGUA CRIO/LAS TOMASONAS	774
	EMPEDRADO DE CALLE VECINAL	C/SN LUIS	727
	EMPEDRADO FRAG C/CORDON CUNETA	CALLE LA RONDA	727
	EMPEDRADO FRAG EN TRAMO	C/CONCEPCION AL C/CHAPERNO	727
	EMPEDRADO FRAGUADO C/CORDON CUNETA	CALLE QUE CONDUCE A JERUSALEM	727
	EMPEDRADO FRAGUADO DE CALLE	C/CONCEPCION	727
	REP CAMINO	C/EL CHAPERNO	774
	continuacion de concreteado	CALLE PPAL.	727
	emp.frag.c/cordon cuneta	A FUENTE AGUA MANO DE LEON	774
	emp.frag.con cordon cuneta	C.EL COPINOL	774
Tipo 03			
	EQUIPAMIENTO DE UNIDAD DE SALUD		727
Tipo 06			
	ELECTRIFICACION		774
	INT ENERGIA ELECTRICA	C/EL GUAYABILLO	774
Municipio : OLOCUILTA			
Tipo 01			
	ADOQUINADO COMPLETO	PASAJE A	402
	ADOQUINADO COMPLETO Y CORDONEADO	C PLANES DE LAS DELICIAS C. PPAL PLAZA CENTRAL	677
	CONST PUENTE PEATONAL	COMUNIDAD EL CARMEN	677
	EMPEDRADO FRAG. CON CORDON CUNETA	BARRIO SN JOSE C. PPAL.	677
	EMPEDRADO, FRAG Y CORDONEADO	BA EL CALVARIO	677
	EMPEDRAO FRAGUADO C/CORDON CUNETA	C/LA ESPERANZA CRIO/MARROQUIN	402
	EMPEDRAO FRAGUADO CORDON CUNETA	BARRIO EL CARMEN	402
	REPARACION DE CAMINO VECINAL	C/SANTA FE	402

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent
Tipo 06			
	INT ENERGIA ELECTRICA	C/CHILAMATE	402

Municipio : PARAISO DE OSORIO

Tipo 01			
	CONCRETEADO DE EMPEDRADO SECO	C/LA FLORIDA	774
	EMP FRAGUADO Y CORDONEADO	CRIO/EL CEMENTERIO	774
	EMPEDRADO FRAGUADO Y CORDONEADO	CALLE AL SALAMO C/ZACATALES ABAJO	774
Tipo 03			
	CONST TAPIAL PERIMETRAL Y DOT MOB	EN PUESTO DE SALUD	727
	LETRINIZACION DE FOSA	BO. EL CENTRO	774
	LETRINIZACION DE FOSO	CINES/ZACATALES ARRIBA Y ABAJO	774
Tipo 04			
	CONST COLECTOR AGUAS LLUVIAS	CALLE LA RONDA Y AV VICENTE R BA EL CENTRO	727
	INT AGUA POTABLE (3 CANTARERAS)	CRIO/EL CEMENTERIO	958
	INT AGUA POTABLE(3 CANTARERAS)	COL LAS PALMERAS	958
Tipo 06			
	ALUMBRADO PUBICO TOTAL	PARAISO DE OSORIO	774
	ELECTRIFICACION		774
	INT. ENERGIA ELECTRICA	CRIOS/EL COPINOL,LOS MARTINEZ Y HOJA DE SAL	774

Municipio : SAN ANTONIO MASAHUAT

Tipo 01			
	ADOQUINADO MIXTO	C PPAL BARRIO EL CENTRO	677
	EMP-FRAG. CON CORDON CUNETA Y MURO	C/SN JOSE LA INSTANCIA	677
	EMPEDRADO FRAGUADO CON CORDON CUNETA	C/SN JOSE LOS SOLARES	677
	EMPEDRADO FRAGUADO CORDON CUNETA	CALLE QUE VA ERM C SOCORRO	677
	EMPEDRADO FRAGUADO Y RAMPA	C/BELEN	402
	EMPEDRADO FRAGUADO,CORDON CUNETA	C/BELEN	677
	REP CAMINO VECINAL	DE SN ANT MASAHUAT A SN ANT LA LOMA	402
	REP CAMINO VECINAL	DEL SN JUAN TEP. HASTA C/LA LOMA	774
	REP DE CAMINO VECINAL	C/BARAHONA A C/SN J LOS SOLARES	774

Tipo : 01 - Concreto 02 - [illegible]

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 03			
	DOT MOBILIARIO P/UNIDA DE SALUD		402
Tipo 06			
	INT ENERGIA ELECTRICA I ETAPA	C/SAN JOSE LOS SOLARES	402
	INT. ENERGIA ELECTRICA I ETAPA	C/SAN JOSE LA INSTANCIA	402

Depto. : CABAÑAS

Municipio : CINQUERA

Tipo 01

REPARACION DE CAMINO VECINAL	C/SAN NICOLAS	776

Tipo 04

AMPLIACION AGUA POTABLE		776

Municipio : GUACOTECTI

Tipo 01

ADOQUINADO MIXTO	6A CALLE PTE A GUACOTECTI	776
REP CALLE	C/EL BANADERO CRIO/EL PORTILLITO	727
REP CAMINO VECINAL	C/EL BANADERO CRIO/EL BANADERO II ETAPA	727
REP CAMINO VECINAL	DESDE CRIO/LA ANTENA A TEMPISQUE	727
REP CAMINO VECINAL	DESDE RANCHO EL PIPITO HASTA CRIO/ANTENA	727
REP CAMINO VECINAL Y CONST PUENTE	C/BANADERO	727
REPARACION DE CAMINO VECINAL	C/TEMPISQUE	727
REPARACION DE CAMINO VECINAL	CRIO/PALO BONITO C/BANADERO	776

Tipo 03

CONST TAPIAL EN UNIDAD DE SALUD		727

Tipo 06

MEJ SERVICIO DE ALUMBRADO PUBLICO		727

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuent:

Municipio : ILOBASCO

Tipo 01

ADOQUINADO MIXTO	FINAL CALLE PERDOMO	727
CONST ADOQUINADO MIXTO II ETAPA	FINAL CALLE B PERDOMO	727
CONST PUENTE	SOBRE RIO COPINOL CRIO/EL TRANSITO	727
REP DE CAMINO VECINAL	SAN FRANCISCO IRAHETA	774
REPARACION DE CAMINO	C/CALERA Y AZACUALPA	727

Tipo 06

INT ENERGIA ELECTRICA	C/LOS LLANITOS II ETAPA	727
INT ENERGIA ELECTRICA	COL TEPEYAC C/SAN JOSE	727

Municipio : JUTIAPA

Tipo 01

ADOQUINADO MIXTO	CALLES URBANAS	727
REP DE CAMINO VECINAL	TEJUTEPEQUE A CRIO/CONCEPCION Y TRILLADERA JUTIAPA	774
REP DE CAMINO VECINAL DE ESTACION	CAROLINA	774
REP.APERTURA Y CONST PUENTE	RUTA JUTIAPA-LOS LLANITOS-LA CRIBA	774
REPARACION DE CAMINO VECINAL	CRIO/LOS REMEDIOS	774

Tipo 04

INT AGUA POTABLE	C/LLANO LARGO	774

Tipo 06

INT ENERGIA ELECTRICA	C/CAROLINA	727
INT ENERGIA ELECTRICA	C/PALACIOS	727

Municipio : SAN ISIDRO

Tipo 01

ADOQUINADO MIXTO	5 CALLE PTE.	774
ADOQUINADO MIXTO	AV 15 DE MAYO	774

Tipo 06

ELECTRIFICACION	LINEA DE SVIO ILOBASCO-SN ISIDRO	774
INT ENERGIA ELECTRICA	CRIO/EL JIQUILILLO C/EL AMATE	727
INT ENERGIA ELECTRICA	C/LOS JOBOS, CRIO/EL JUTE	774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : SENSUNTEPEQUE

Tipo 01

ADOQUINADO MIXTO	6A CALLE PTE DE SENSUNTEPEQUE A GUACOTECTI	774
ADOQUINADO MIXTO	FINAL 1A CALLE ORIENTE	727
ADPQUINADO MIXTO	5A AVE NTE BA SAN ANTONIO	774
CONCRETEADO	3A C ORIENTE	774
CONSTRUCCION PUENTE	SOBRE RIO CACAHUATAL (ADENDA)	774
EMP. FRAGUADO Y CORDONEADO DE CALLES	CTNES/EL VOLCAN Y LOS LLANITOS	774
EMPEDRADO FRAGUADO	COL LOS MILAGROS	774

Tipo 04

INT DE AGUA POTABLE	C/SAN NICOLAS	958

Tipo 06

ALUMBRADO PUBLICO EN CIUDAD		774
INT ENERGIA ELECTRICA	CRIO/EL PLAYON	727

Municipio : TEJUTEPEQUE

Tipo 01

ADOQUINADO	CALLE PPAL (ENTRADA A TEJUTEPEQUE)	727
ADOQUINADO	CALLE PPAL ENTREDA A TEJUTEPEQUE	727
ADOQUINADO COMPLETO Y MIXTO	EN 4A C PTE Y AV IRINEO CHACON	727
CONCRETEADO	4AVENIDA SUR	774
CONCRETEADO DE CALLE	C.SALOME FRANCIA Y 1 CALLE PTE	727
REP CAMINO VECINAL	C/PLATANARES	727
REPARACION CAMINO VECINAL	CRIO/BUENOS AIRES	774
REPARACION CAMINO VECINAL I ETAPA	CRIO/LAS LOMAS A CRIO/TRILLADERA	727
REPARACION DE CALLE ANTIGUA	QUE VA A ILOBASCO	774

Tipo 03

LETRINIZACION	CRIO/LAS LOMAS	774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 06			
	INT ENERGIA ELECTRICA	C/CERRO DE LA CRUZ	727
	INT ENERGIA ELECTRICA	CRIO/TAMAGAS	727
Municipio : VILLA VICTORIA			
Tipo 01			
	ALQUILER EQUIPO,MANO DE OBRA P/COLADO PUENTE	S/RIO GUAMULECA C/SAN FELIPE	727
	REPARACION CAMINO VECINAL	C/ROJITAS	774
	REPARACION DE CAMINO	C/AZACUALPA I ETAPA	774
Tipo 03			
	LETRINIZACION	C/SANTA MARTA CRIO/SAN FELIPE	774
Tipo 06			
	INT ENERGIA ELECTRICA	C/LAS ROJITAS	727
Municipio : VILLA DOLORES			
Tipo 01			
	CONCRETEADO DE CALLES URBANAS	BA EL CALVARIO	774
	REPARACION CAMINO VECINAL Y CONST PUENTE	C/CHAPELCORO	727
Tipo 06			
	ELECTRIFICACION		774
Depto. : SAN VICENTE			
Municipio : APASTEPEQUE			
Tipo 01			
	CONCRETEADO	CALLE RAYMUNDO LAZO Y FINAL LA COTE	774
	CONST OBRA DE PASO CON TUBERIA	C/SAN JACINTO CRIO/EL TASAJO	727
	CONST OBRA DE PASO CON TUBERIA	C/SAN JUAN DE MERINOS	727
	CONSTRUCCION GRADAS DE ACCESO	LA AV SUR BA SANTA ROSA	774
	CONSTRUCCION PUENTE BOVEDA	C SAN NICOLAS CRIO/EL ZAPOTE	774
	EMPEDRADO FRAGUADO C/CORDON CUNETA	PJE LAS CARRERAS	774
	EMPEDRADO, FRAGUADO Y CORDONEADO	PJE LOS ANGELES	774
	REP DE CAMINO VECINAL	AL C/GUAYABO	727
	REPARACION CALLE VECINAL	CRIO/LAS ANIMAS	774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 03			
	CONSTRUCCION CENTRO DE EMERGENCIAS		774
	RECONSTRUCCION DE UNIDAD DE SALUD		727
Tipo 06			
	ELECTRIFICACION II ETAPA	COMUNIDAD LA BOVEDA C/CALDERAS	774
	INT ENERGIA ELECTRICA	COLONIA LOS ANGELES	727
Municipio : GUADALUPE			
Tipo 01			
	CONCRETEADO	AV TIMOTEO LIEVANO	727
	CONCRETEADO	CALLES URBANAS	727
	EMPEDRADO Y FRAG Y CORDON CUNETA DE PJE	BA CONCEPCION	774
	OBRA DE PASO	SOBRE RIO CARBONERA	774
	REP CAMINO VECINAL	DE NVO TEPETITAN AL INFIERNILLO	774
Tipo 04			
	INT AGUA POTABLE SISTEMA MULTIPLE	C/SA EMIGDIO	774
Tipo 06			
	ELECTRIFICACION		774
	INT ENERGIA ELECTRICA	C/SAN ANTONIO LOS RANCHOS II ETAPA	774
Municipio : SAN CAYETANO ISTEPEQUE			
Tipo 01			
	EMPEDRADO C/CORDON CUNETA	CALLE VIEJA	402
	EMPEDRADO ENTRADA	CALLES PRINCIPALES	402
	EMPEDRADO II ETAPA	C/CANDELARIA ARRIBA	402
	EMPEDRADO SECO, CORDON Y TUBERIA		402
	EMPEDRADO, CORDONEADO Y CUNETEADO	C/CANDELARIA ABAJO	677
	REPARACION DE CALLE	C VUELTA EL GLOBO	677
Tipo 06			
	AMPLIACION ENERGIA ELECTRICA	C/SAN JOSE CERRO GRANDE	402
	ELECTRIFICACION II ETAPA	C/CANDELARIA ABAJO	402
	INT ENERGIA ELECTRICA	C/CANDELARIA ARRIBA	677

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : SANTA CLARA

Tipo 01

CONCRETEADO	1A AVENIDA SUR	774
CONCRETEADO	CALLES URBANAS	727
EMPREDADO FRAGUADO 500 M.	CALLE A SALIDA A C/AMATITAN	774
REP DE CAMINO VECINAL	DE STA ROSA A SN JACINTO POR CRIO/MONTANA Y CHIMIE	774
REPARACION CAMINO VECINAL	C/SAN JUAN DE MERINOS CRIO/EL TABLON	774
REPARACION DE CAMINO VECINAL	CRIO/EL COYOL	774

Tipo 06

ELECTRIFICACION II ETAPA	C/NACASPILO	727
INT ENERGIA ELETRICA	C/AGUA HELADA	727

Municipio : SANTO DOMINGO

Tipo 01

ADOQUINADO MIXTO	AV 5 DE NOVIEMBRE BA LA CRUZ	677
CONCRETEADO	CALLES URBANAS	402
CONCRETEADO DE CALLE	DE ESTA VILLA A SN SEB	727
REP DE CAMINO	C/LOS RODRIGUEZ POR CRIO/VILLATOROS	402
REP. CAMINO VECINAL	C/TALPETATES	677

Tipo 06

INT ENERGIA ELECTRICA	BA LA CRUZ	402
INT ENERGIA ELECTRICA	C/ISCANALES Y TALPETATE	402
INT ENERGIA ELECTRICA	CRIO/JIBOITA	402

Municipio : SAN ESTEBAN CATARINA

Tipo 01

CORDONEADO Y CUNETEADO	CALLES URBANAS	774
REAPERTURA DE CAMINO VECINAL	CRIO/LA HACIENDITA Y LOS AYALITOS	727
REP CAMINO VECINAL	C/LA HACIENDITA DESVIO AMATITAN	727
REPARACION CAMINO VECINAL	C/AMATITAN ARRIBA CRIO/EL CHILILLO	774
REPARACION DE 97 MTS LINEALES DE CALLE	FINAL 8A AVENIDA NORTE	774

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 03			
	AMPLIACION Y EQUIPAMIENTO DE UNIDAD DE SALUD		774
Municipio : SAN ILDEFONSO			
Tipo 01			
	CONCRETEADO	CALLE PRINCIPAL II ETAPA	774
	EMPEDRADO FRAGUADO	CALLES URBANAS	727
	REPARACION CAMINO VECINAL	C/LAS LAJAS	774
	REPARACION CAMINO VECINAL	CRIO/LAS AHOGADAS II ETAPA	774
	REPARACION CAMINO VECINAL	CTNES/MARADIAGA,EL DIVISADERO C/CANDELARIA LEMPA	774
	REPARACION DE CAMINO VECINAL	C/EL LIMON CRIO/LAS CONCHAS	774
Tipo 06			
	ELECTRIFICACION		774
	INT ENERGIA ELECTRICA	C/LAS LAJAS Y CANOAS CRIO/BUENA VISTA	727
	INT ENERGIA ELECTRICA	C/SAN LORENZO CRIO/PLAN DE VENADO	727
Municipio : SAN LORENZO			
Tipo 01			
	REPARACION DE CALLE	C/LA CRUZ CRIO/LOS CUBIAS	677
	REPARACION DE CALLE	C/STA LUCIA HASTA C/SN FRANCISCQUITO	677
	REPARACION DE CALLE PPAL	C/LAS ANIMAS	402
	REPARACION DE CMINO	HACIA EL RIO EL CHORRO	402
Tipo 03			
	DISPENSARIO MEDICO	C/SAN FRANCISCO	402
Tipo 04			
	INT AGUA POT.	COL. SAN MARTIN	402
Depto. : USULUTAN			

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : SAN DIONISIO

Tipo 01

FINALIZACION DE TAPIAL	C/ISLA DE LA PIRRAYA	727
REP CAMINO Y CONST OBRA DE PASO	C/IGLESIA VIEJA	727

Tipo 06

INT ENERGIA ELECTRICA	C/IGLESIA VIEJA	727
INT ENERGIA ELECTRICA	C/ISLA SAN SEBASTIAN Y LA PIRRAYA	727
INT ENERGIA ELECTRICA	C/MUNDO NUEVO	727
INT ENERGIA ELECTRICA	C/MUNDO NUEVO 2	727
INT ENERGIA ELECTRICA	C/SAN FRANCISCO	727
MEJ ALUMBRADO PUBLICO		727

Depto. : SAN MIGUEL

Municipio : CAROLINA

Tipo 01

ADOQUINADO COMPLETO	VIAS DE ACCESO	774
ADOQUINADO COMPLETO	VIAS URBANAS	774
CONST ADOQUINADO COMPLETO	CALLE PPAL BARRIO SAN AGUSTIN	893
CONST OBRA DE PASO	S/RIO CAROLINA A SN ANT DEL MOSCO	774
CONST PUENTE S/RIO LAS VEGAS	C/SANTA CLARA	727
CONSTRUCCION OBRA DE PASO	S/QUEBRADA EL CAJON C/LA CEBITA	774
SUPERVISION CONST PUENTE S/RIO LAS VEGAS	CRIO/LAS CHACARAS	727

Municipio : CIUDAD BARRIOS

Tipo 04

CONSTRUCCION SISTEMAS DE AGUAS NEGRAS		774
INT DE AGUA POTABLE	C/SAN JUAN	958
REFORZAMIENTO Y AMPLIAC. SIST. AGUA POTABLE	C/LLANO DEL ANGEL	958

Tipo 06

INT ENERGIA ELECTRICA	COL BOILLAT	774
INT ENERGIA ELECTRICA	COL GUTIERREZ	774
MEJORAMIENTO Y AMPLIACION DE ALUMBRADO PUBLICO		774

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : COMACARAN

Tipo 01

ADOQUINADO COMPLETO 250 ML	BARRIO NUEVO	402
AMPLIAC. MEJ DE CALLES	EN AREA CENTRAL	402
CONST OBRA DE PASO	RIO TAISIGUAT C/EL COLORADO	402
MEJORAMIENTO DE CAMINO 4 KMS	DE C/EL JICARAL A C/EL HORMIGUERO	677
MEJORAMINETO DE CAMINO 3.5 KMS	DE COMACARAN A C/EL COLORADO	677
REP CAMINO VECINAL	C/COLORADO CRIO/LA PARROQUIA	402
REP CAMINO VECINAL	COMACARAN-ULUAZAPA	774

Tipo 04

MEJ SISTEMA AGUA POTABLE I FASE		677
MEJ SISTEMA AGUA POTABLE II FASE		677

Tipo 08

AMPLIACION ENERGIA ELECTRICA	CRIO/LA JOYA	677
INT ENERGIA ELECTRICA	C/EL COLORADO CRIO/LA PARROQUIA	402
INT ENERGIA ELECTRICA TRIFASICA II FASE		402

Municipio : CHAPELTIQUE

Tipo 01

ADOQUINADO COMPLETO	VIAS URBANAS	774
ADOQUINADO COMPLETO 798.30 ML	CALLES URBANAS	727
CONST MURO DE RET.CERCADO PEMTRAL.S.S. Y MOB.	ESC RURAL MIXTA C/LAS GUARUMAS	774
OBRA DE PASO	S/RIO CHAPELTIQUE A GUATAJIAGUA	727
REPARACION CAMINO VECINAL	C/LOS ZELAYAS	774

Tipo 04

REFORZAMIENTO DE SISTEMA AGUA POTABLE	DE CAJA A TANQUE DE CAPTACION	958

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Municipio : CHINAMECA			
Tipo 01			
	ADOQUINADO COMPLETO, EMP Y FRAGUADO	3A AV NTE	774
	REPARACION CAMINO VECINAL	C/LAS MESAS	774
Tipo 04			
	INT AGUAS NEGRAS	11A CALLE OTE Y 2A AVENIDA NTE.	938
Tipo 06			
	MEJORAMIENTO Y AMPLIACION ALUMBRADO PUBLICO		727
Municipio : CHIRILAGUA			
Tipo 01			
	ADOQUINADO COMPLETO 260 ML	VIAS URBANAS	677
	REP CAMINO VECINAL	C/GUADALUPE	402
	REPARACION DE CAMINO	C/SAN PEDRO AL C/CONCEPCION	402
	REPARACION DE CAMINO	C/TIERRA BLANCA A /LA ESTRECHURA	402
Tipo 06			
	INT ENERGIA ELECTRICA	C/ESTRECHURA CRIO/PAJARITOS	402
Municipio : EL TRANSITO			
Tipo 01			
	ADOQUINADO COMPLETO 150 ML	2A. CALLE PTE SALIDA A SN JORGE	677
	ADOQUINADO COMPLETO 150 ML	4A AV NTE Y SUR	677
	CONT. MURO DE RETENCION	QUEBRADA EL TRANSITO	774
	REP CAMINO VECINAL	TRANSITO-SN RAF. OTE	774
	REPARACION DE CAMINO VECINAL	C/LLANO EL COYOL	402
Tipo 06			
	DOT LAMPARAS P/ALUMBRADO PUB.	2A AV NTE Y SUR	677

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : LOLOTIQUE

Tipo 01

ADOQUINADO COMPLETO 200 ML Y COL TUB DE CEMENTO		677
CONST MURO DE RETENCION	C/VALENCIA	677
REP DE CAMINO	C/EL JICARO	402
REPARACION DE CALLE	C/CONCEPCION	402
REPARACION DE CAMINO	C/EL PALON CRIO/LAS ANONAS	402

Municipio : MONCAGUA

Tipo

ADOQUINADO COMPLETO	2A AVENIDA SUR	402
REP CAMINO VECIANI.	DESVIO CHILAMATE, RODEO Y POCHOTA	677
REPARACION DE CAMINO	C/EL JOBO	402
REPARACION DE CAMINO	C/LA FRAGUA	402
REPARACION DE CAMINO	CRIO/LLANO EL HIGO C/TANGOLONA	402
REPARACION DE CAMINO	MONCAGUA-QUELEPA	774

Tipo 05

AMPLIACION ENERGIA ELECTRICA	C/EL RODEO	677
AMPLIACION ENERGIA ELECTRICA	C/PAPALON	677
AMPLIACION ENERGIA ELECTRICA	C/PLATANAR CRIO/LA CEIBITA	402
INT ENERGIA ELECTRICA	C/EL JOBO	677

Municipio : NUEVA GUADALUPE

Tipo 01

ADOQUINADO COMPLETO 250 ML	CALLE LOS HEROES	677
CONST 120 ML ADOQUINADO	CALLE A PLANTA DE BOMBEO AGUA	677
CONST 265 ML ADOQUINADO COMPLETO	7A AV NTE Y 9 CALLE PTE	677

Tipo 04

PERF POZO, INST EQ BOMBEO CONST TANQUE Y SIST TUB		402

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 06			
	MEJORA SISTEMA ENERGIA ELECTRICA	C/SAN LUIS	677

Depto. : MORAZAN

Municipio : ARAMBALA

Tipo 01

REAPERTURA DE CAMINO VECINAL	C/TIERRA COLORADA (SECTOR A Y B)	774
REP Y APERTURA DE CAMINO VECINAL	CRIOS/PINALITO,MANZANARES,CNTARITO Y TORILES	727
REPARACION CAMINO VECINAL	CRIO/LOS RAMIREZ C/PUEBLO VIEJO	774
REPARACION Y APERTURA DE CAMINO VECINAL	CRIO/EL OJUSTE C/CUMARO	774

Municipio : CACAOPERA

Tipo

ADOQUINADO COMPLETO	CALLES URBANAS	727
MEJ DE CALLE		774

Tipo 03

MEJ DE UNIDAD DE SALUD	DOT MOB Y EQ.	774

Tipo 04

MEJ SISTEMA DE AGUA POTABLE		727

Tipo 06

MEJORMIENTO DE ALUMBRADO PUBLICO		774

Municipio : CORINTO

Tipo

INT ENRGIA ELECTRICA	C/CORALITO CRIO/ESCORPION	727

Municipio : CHILANGA

Tipo 01

CONST EMPEDRADO FRAGUADO	C/EL CHAPARRAL CRIO/QUEBRADA HONDA	402
CONST EMPEDRADO SECO EN CALLES URBANAS	BA EL CALVARIO Y BA CONCEPCION	402
FINALIZACION CONST OBRA DE PASO		402
MEJORAMIENTO CAMINO	C/LAJITAS ARRIBA CRIO/LOS MATA	402
REPARACION CAMINO LLANO VERDE	C/PEDERNAL CRIO/LOS VASQUEZ	402

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 03			
	AMP UNIDAD DE SALUD,TAPIAL,DOT MOB Y EQ. MEDICO	UNIDAD DE SALUD	774
Tipo 04			
	INT AGUA POTABLE	CRIO/LOS MATA C/LAJITAS ARRIBA	677
Municipio : DELICIAS DE CONCEPCION			
Tipo 01			
	REP CAMINO VECINAL	C/LA CUCHILLA CRIO/LOS ROMEROS	774
	rep y adoquinado completo	CALLE AL MERCADO	774
Tipo 03			
	CONST MURO Y TAPIAL P/PUESTO DE SALUD		774
Tipo 04			
	FINALIZACION DE INT AGUA POTABLE	CRIO/LA COMIDERA	958
	INT AGUA POTABLE	CRIO/LA COMIDERA	893
Tipo 06			
	AMPLIACION DE ENERGIA ELECTRICA	C/LA CUCHILLA CRIO/LOS GARCIA	774
	AMPLIACION SERVICIO ELECTRICO	C/EL VOLCAN CRIO/LOS SORTO	727
	INT ENERGIA ELECTRICA	C/EL LIMON CRIO/LOS VENTURA	727
	INT ENERGIA ELECTRICA	C/LA CUCHILLA	727
Municipio : EL DIVISADERO			
Tipo 01			
	ADOQUINADO COMPLETO	BA SAN JOSE	402
Tipo 03			
	REP UNIDAD DE SALUD,EQUIPAMIENTO Y CONST TAPIAL		774
Tipo 04			
	CONST CAJAS P/CONTROL SUMINIST. AGUA POT		402
Tipo 06			
	AMPLIAC. ENERGIA ELECTRICA	CRIO/EL RINCON	677
	AMPLIACION ENERGIA ELECTRICA	BARRIO SAN JOSE	677
	INT ENERGIA ELECTRICA	BARRIO NUEVO	677
	INT ENERGIA ELECTRICA	C/LOMA LARGA ABAJO	402
	MEJ. ENERGIA ELECTRICA	C/SAN PEDRO	677

Tipo : 01 = Caminos 02 = Salud 03 = Agua 04 = Energia

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Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : EL ROSARIO

Tipo 01

ADOQUINADO	CALLES URBANAS	774
REP Y AMPLIACION DE CAMINO	CRIO/EL PEDRERO	774
REP Y APERTURA DE CAMINO	CRIO/EL RINCON A CORINTO	774
REP Y APERTURA DE CAMINO	CRIO/EL TABLON	774
REPARACION DE CALLE	CAS/EL AMATILLO, C/LA LAGUNA	774

Municipio : GUALOCOCTI

Tipo

ADOQUINADO COMPLETO	CALLE PPAL	727
CONST 359 ML ADOQUINADO MIXTO	CRIO/SAN LUCAS	774
REP Y AMPLIACION DE CALLE	CRIO/SN LUCAS A RIO TOROLA	774
REPARACION CAMINO	DE GUALOCOTI A CRIO/GUALPUCA	727
REPARACION Y AMPLIAC. DE CAMINO	CRIO/EL PACUN A CRIO/LAS MARIAS	774

Municipio : GUATAJIAGUA

Tipo

FINALIZACION ADOQUINADO COMPLETO	ZONA URBANA	774

Municipio : JOATECA

Tipo

REAPERTURA Y AMPLIAC. DE CAMINO	C/VOLCANCILLO CRIO/CANAS	774
REP Y REAPERTURA DE CAMINO VECINAL	C/PATURIA CRIO/LA LAGUNA	774
REPARACION DE CAMINO VECINAL.	C/VOLCANCILLO	774

Municipio : JOCOAITIQUE

Tipo

REAPERTURA DE CAMINO VECINAL.	CRIO/LA JOYA C/EL RODEO	774
REPARACION DE CAMINO VECINAL.	C/EL RODEO CRIO/EL CORDONCILLO	774
REPARACION Y REAPERTURA DE CAMINO VECINAL.	C/EL RODEO CRIO/EL RINCON	774
REPARACION Y REAPETURA DE CAMINO	C/EL ODEO CRIO/CURURO	774

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Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : JOCORO

Tipo

ADOQUINADO COMPLETO	BA. SAN FELIPE	677
ADOQUINADO COMPLETO	VIAS URBANAS	402
MEJ. DE CAMINO	C/SAN JOSE CRIO. LA MORENA	677
MEJ. DE CAMINO VECINAL	CRIO. VALLE NUEVO	677
MEJ. DE CAMINOS	CRIO. LOS LAZOS DESVIO EL CASTANO	677
REP DE CAMINO	C/SAN JUAN Y C/LOS LAURELES	402
REPARACION VIAS DE ACCESO	CRIO/LOS CAIMITOS	402

Tipo 06

INT ENERGIA ELECTRICA	C/FLAMENCO CRIO/LOS ALTARES	402
INT ENERGIA ELECTRICA	C/LAS MARIAS CRIO/LOS ROMEROS	402

Municipio : LOLOTIQUILLO

Tipo 01

ADOQUINADO COMPLETO 344 ML	COL EL REHITO	402
CONST OBRA DE PASO	CRIO/LOS ROBLES	677
FINALIZACION ADOQUINADO COMPLETO 200 ML	CALLE PPAL	402
REAPERTURA DE CAMINO	C/GUALINDO ARIUBA CRIO/LA MANZANILLA	677
REP CALLE EN ESCUELA	C/GUALINDO ARRIBA	402
REPARACION DE CALLE	CRIO/LA BRUJA	402
REPARACION DE CALLE Y EMPALMES C/OBRA DE PASO	C/GUALINDO CENTRO	402

Tipo 06

INT ALUMBRADO PUBLICO		677
INT ENERGIA ELECTRICA	C/GUALINDO ABAJO CRIO/LAS CRUCES	677
INT ENERGIA ELECTRICA	C/GUALINDO ABAJO CRIO/TEMPISQUE	677

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : MEANGUERA

Tipo 01

CONSTRUCCION DE ADOQUINADO	DESVIO A LA POBLACION DE MEANGUERA	774
REPARACION DE CAMINO	C/SOLEDAD	727
REPARACION DE CAMINO	DESVIO EL BARRIAL C/POZA HONDA	727

Municipio : OSICALA

Tipo

CONST ADOQUINADO	BARRIO EL CALVARIO	774
CONST ADOQUINADO BARRIO EL CENTRO		774
REPARACION DE CAMINO	CRIO/AGUA ZARCA AL CRIO/LA LOMA	727

Tipo 06

INT ENERGIA ELECTRICA	C/AGUA ZARCA CRIO/GUAJINIQUIL	727
INT ENERGIA ELECTRICA	EN C/CERRO EL COYOL	727

Municipio : PERQUIN

Tipo 01

REP DE CAMINO VECINAL	CRIO/EL VOLCANCILLO - CRIO/CASA BLANCA	774

Municipio : SAN CARLOS

Tipo

ADOQUINADO COMPLETO		677
ADOQUINADO COMPLETO	AV. MORAZAN	402
ADOQUINADO COMPLETO	CALLE AL CEMENTERIO	402
MEJORAMIENTO CAMINO	C/VALLE NUEVO	677
MEJORAMIENTO DE CAMINO	C/SAN DIEGO	677
MEJORAMIENTO DE CAMINO	CRIO LOS UMANA	402

Tipo 04

INT AGUA POTABLE		402

Tipo 06

AMPLIAC. ENERGIA ELECTRICA	C/SAN DIEGO	677
AMPLIACION ENERGIA ELECTRICA	DE CRIO/EL FOCO A CRIO/EL NANCE	677
INT. ENERGIA ELECTRICA	C/LA JAGUA	402

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Municipio : SAN FERNANDO			
Tipo 01			
	REP Y APERTURA DE CAMINO VECINAL	C/AMATILLO /CANAVERAL	774
	REP Y APERTURA DE CAMINO VECINAL	C/CANAVERALES	727
Tipo 04			
	MEJ SERVICIO DE AGUA POTABLE		938
Municipio : SAN FRANCISCO GOTERA			
Tipo 01			
	ADOQUINADO COMPLETO	2A AVENIDA SUR	774
	ADOQUINADO COMPLETO	COL MORAZAN Y GRACIAS A DIOS	774
	MEJ DE VIA DE ACCESO	C/EL ROSARIO CRIO/LAS CONCHAS	774
	MEJORAMIENTO VIA DE ACCESO	C/EL TRIUNFO DESVIO EL FOCO	774
	REAPERTURA DE CAMINO	C/CACAHUATALEJO CRIO/PAPALON	774
Tipo 03			
	AMP MODULO C REHAB FISICA MENTAL	EN CENTRO DE SALUD	774
Tipo 06			
	INT ENERGIA ELECTRICA	C/EL NORTE CRIO/EL ARAUTE	727
	INT ENERGIA ELECTRICA	C/EL TRIUNFO CRIO/LOS ROMEROS	727
Municipio : SAN ISIDRO			
Tipo 01			
	ADOQUINADO COMPLETO	SAN ISIDRO	893
	CONSTRUCCION ADOQUINADO COMPLETO	BO. EL CALVARIO	774
Tipo 03			
	CONST TAPIAL Y DOT EQ. MED Y MOB	PUESTO DE SALUD SAN ISIDRO	774
Municipio : SAN SIMON			
Tipo 01			
	MEJORAMIENTO VIA DE ACCESO	SN SIMON-CIUDAD BARRIOS	774
	REP. CAMINO VECINAL	C/QUEBRADA, J/SAN SIMON	774

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Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta
Tipo 04			
	REP GANARAL DEL SISTEMA DE AGUA POTABLE		958

Depto. : LA UNION

Municipio : ANAMOROS

Tipo 01			
	ADOQUINADO COMPLETO (ADENDA)	CALLES URBANAS	774
	CONST ADOQUINADO COMPLETO	CALLE URBANAS	891
Tipo 06			
	INT ENERGIA ELECTRICA	C CARBONAL CRIO MEDRANO BENITEZ	774
	INT ENERGIA ELECTRICA	C HUERTAS VIEJAS CRIO/LOS HERNANDEZ	774

Municipio : BOLIVAR

Tipo 01			
	ADOQ Y REPARACION DE CUNETAS	AREA URBANA	402
	ADOQUINADO COMPLETO 230 ML		402
	CONST ADOQUINADO COMPLETO 300 ML	C LA PAZ	402
	REP DE CAMINO QUE DEL DESVIO EL MARANON VA A	C/EL TRANSITO	402
	REPARACION DE CAMINO 1 KMS	C LA RINCONADA CALLE AL CEMENTERIO	402
Tipo 04			
	INT AGUA POTABLE	C/LA PAZ	677
	INT AGUA POTABLE	C LA RINCONADA	677
Tipo 06			
	DOT LAMPARA PARA ALUMBRADO PUBLICO		677
	INT ENERGIA ELECTRICA I ETAPA	CRIO/CANDELARIA DE ALBOROZ	677
	INT ENERGIA ELECTRICA II ETAPA	CRIO/CANDELARIA DE ALBOROZ	677
	INTRODUCCION ENERGIA ELECTRICA	CAS LOS GARCIA, C/GUADALUPE	402
	INTRODUCCION ENERGIA ELECTRICA	CAS LOS HERNANDEZ, C/ALBORNOS	402

Codigo tipo	Nombre del Proyecto	Ubicacion	Cuenta

Municipio : CONCEPCION ORIENTE

Tipo 01

CONST ADOQUINADO COMPLETO 5000 ML	CALLES URBANAS	774

Municipio : CONCHAGUA

Tipo

CONST ADOQUINADO COMPLETO		677
CONST ADOQUINADO COMPLETO	CALLES URBANAS	402
FINALIZACION CONST ADOQUINADO COMPLETO	CALLES URBANAS	402
REPARACION C. VECINAL	C-PUNTA DE JOCOTE A C-HUISQUIL	402

Tipo 06

INT ENERGIA ELECTRICA	COL NVA ESPERANZA C/HUISQUIL	402

Municipio : EL CARMEN

Tipo 01

CONSTRUCCION ADOQUINADO COMPLETO		402
CONSTRUCCION EMPEDRADO FRAGUADO	C/COLOMENA	402
FINALIZACION DE ADOQUINADO MIXTO		402

APENDICE D

"Proyectos de Infraestructura Mayor"

PROYECTOS DE REHABILITACION DE CARRETERAS Y CAMINOS SELECCIONADOS PARA LA FASE DE CONTINGENCIA DEL PLAN DE RECONSTRUCCION NACIONAL

DEPT	MUNICIPIO	NOMBRE PROYECTO	LONGITUD Km
CHAL	Chal L. Vuel, de A.	Chalatenango-Las vueltas-Ojos de Agua	21.50
CHAL	E. Carr.-Oj. agua	El carrizal-Ojos de Agua	9.10
CHAL	Sn. Ant. de la Cruz	Presa 5 de Novienbre-San Antonio de la Cruz	6.40
CHAL	Arc.,N. d. Jesus	Arcatao-Nombre de Jesus	6.00
CHAL	Arcatao	Arcatao-Canton Zazalapata	2.70
CHAL	S. J. Las Flores	San Jose Las Flores-Hacienda Vieja	0.80
CHAL	N. d. Jesus	P. 5 Nov-Nombre de Jesus-Canton Potrerillos	2.00
CHAL	S. J. flo.,Nva. Trin.	San Jose las Flores-Manaquil	2.90
MORA	Per. Tor. El R.	Perquin-Torola	13.70
MORA	S. Fernando	R(Perquin-Torola)-San Fernando	0.32
MORA	El Rosario	CA:7-El Rosario	9.70
MORA	Perquin	R(CA:7-Sabanetas)-El Zancudo	4.00
MORA	Arambala	R(CA:7-Sabanetas)-El Carrizal-Nahuaterique	6.40
MORA	Perquin	CA:7-Sabanetas-Frotera con Honduras	21.00
MORA	Jocoaitique	CA:7-Jocoatique	1.76
MORA	Aram.,joat.	CA:7-Arambala-Joateca	18.00
MORA	Gualococti	CA:7-Canton La Joya	5.00
MORA	Meanguera	CA:7-El Guajiniquil	2.24
USUL	Us.,Juc	CA:2-playa el Espino	23.95
USUL	Jucuaran	R(CA:2-Playa el Espino)Jucuaran	8.00
CHAL	Dulc. N. de Maria S. Fernando	R(Chalatenango-CA:4)-El Tablon-S. Rafael-Dulce N. de M.-San Fernando. Tramo(Dulce N.de M..-S. Fern.)	28.50
		TOTAL	193.97

PROYECTOS DE CONTROL DE RIOS

DEPT	MUNICIPIO	NOMBRE PROYECTO
S. Vicente	Tecoluca	Central Inundaciones Bajo Rio Lempa
Usulutan	Jiquilisco	Central Inundaciones Bajo Rio Lempa
Usulutan	Ereguaiquin	Construccion Muro de Retencion

APENDICE E

"Lista de Proyectos Visitados"

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov,9	Santa Ana	Santa Rosa Gu	Electrificación	Crio. La Montañita	Introduccion de energia electrica, incluye colocación de postes, cables y transformador. Lineas primarias y secundarias.	E 01	El tendido electrico sigue la ruta de la calle.
Nov,9	Santa Ana	Santa Rosa Gu	Electrificación	Calle al Cementerio	Introduccion de energia electrica, incluye colocación de poste,cables y transformador. Lineas primarias y secundarias.	E 02	El tendido eléctrico sigue la ruta de la calle.
Nov ,9	Santa Ana	Santa Rosa Gua	Camino Vecina	Sta. Rosa–C. El Mataz	Nivelación, compactación y canalización.	C 01	Reparación de camino de tierra ya existente evitando la formación de estancamientos de agua y lodo.
Nov , 9	Santa Ana	Santa Rosa Gua	Mejora de Calle	Calle La Ronda	Empedrado –fraguado , cunetas .	S 01	Se han mejorado las condiciones del drenaje, evitando la formación de estan–camientos de agua y lodo.
Nov ,9	Santa Ana	Santa Rosa Gua	Agua Potable	Sn. José Capulín	Captación de fuente , tanque de almacenamiento y cantareras.	W 01	Proyecto en construcción, requiere seguimiento la zona de protección y la calidad del agua.
Nov , 9	Santa Ana	Santa Rosa Gua	Camino Vecina	Sta. Rosa–Masahuat	Convenio DGC/SRN	E IV–01	La DGC/MOP ejecutará el proyecto. E IV DGC No. 1
Nov,11	Santa Ana	Texistepeque	Mercado Munic	Zona Urbana , Texistep	Obra nueva , incluye instalaciones sani-tarias y saneamiento de los alrededores .	M 01	Proyecto en construcción, requiere seguimiento drenaje sanitario de una zanja, frente al mercado.
Nov ,11	Santa Ana	Texistepeque	Agua Potable	Cantón Cujucuyo	Pozo excavado , sistema de bombeo , tanque almac., distrib. colectiva y domic.	W 02	Pozo , caseta de bombeo y tanque protegidos. Incluye desinfección.

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov , 11	Santa Ana	Texistepeque	Agua Potable	Cantón Santo Tomás	Sistema de bombeo,tanque de alma–cen. Distribución colectiva y domiciliar.	W 03	Proyecto en construcción, usará un pozo existente; es necesario verificar potabilidad del agua
Nov ,11	Santa Ana	Texistepeque	Puente Agua F	Cantón San Miguel	Puente vehicular	B 01	Material de construcción abandonado dentro y a la orilla del cauce.
Nov ,15	San Miguel	Ciud . Barrios	Agua Potable	Llanos los Angeles	Captación de fuente,cambio de tuberia tanque de almacenamiento, distribución.	W 04	Captación y tanque protegido. Sistema incluye desinfección; pero actualmente no se aplica.
Nov , 15	San Miguel	Ciud. Barrios	Colector agues	Ciudad Barrios	Tubos, pozos de visita, cabezal de descarga.	SW 01	El proyecto pudo haber considerado un tratamiento previo a la descarga directa al río.
Nov , 15	San Miguel	Ciud. Barrios	Electrificación	Colonia Boillat	Introducción incluye colocación de postes, cables y transformador .	E 03	El tendido eléctrico sigue la misma ruta de la calles.
Nov , 16	Morazán	Sn Fernando	Constr. de Alca	Zona Urbana	Construcción y servicios básicos.	A 01	Servicios sanitarios con fosa séptica.
Nov , 16	Morazán	Sn Fernando	Reparación esc	San Fernando	Techos servicios sanitarios .	SC 01	Obra de poca magnitud.
Nov , 16	Morazán	San Fernando	Camino Vecine	Sn Fernando – Torola	Convenio DGC / SRN	E IV – 13	El proyecto será ejecutado por DGC/MOP. E IV DGC No. 13

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov , 16	Morazán	Perquín	Camino Vecina	Perquin–San Fernando	Convenio DGC / SRN	E IV–17	El proyecto será ejecutado por DGC/MOP. E IV DGC No. 17
Nov , 16	Morazán	Perquín	Construcc Alca	Zona Urbana , Perquín	Construción servicios básicos .	M 02	No iniciado.
Nov , 16	Morazán	Yoloalquín	Agua Potable	Caserio El Volcán	Captación de fuente, tanque y distribuciónb colectiva y domiciliar.	W 05	Estancamiento de agua y desarrollo de mosquitos.
Nov , 16	Morazán	Yoloalquín	Camino Vecina	Yoloalquin– Cacaopera	Reapertura , nivelación , conformación	C 02	Uso de maquinaria para reapertura y conformación.
Nov , 16	Morazán	Yoloalquín	Electrificación	Yoloalquín	Introducción incluye colocación de poste, cables y transformador .	E 04	El tendido eléctrico sigue la ruta de la calle.
Nov 17 ,	La Unión	Anamorós	Electrificacón	zona Urbana Anamoró	Colocación de postes y lamparas .	E 05	Mejora de alumbrado en la zona urbana central.
Nov , 17	La Unión	Nueva Esparta	Camino Vecina	Nueva Esparta– Monte	Nivelación, conformación, balastro	C 03	Proyecto terminado. Reparación de camino.
Nov , 17	La Unión	Anamorós	Camino Vecina	Anamorós a Ilalique	Nivelación, tramos empedrados, andenes y aperturas	C 04	El material removido se estaba colocando inadecuadamente en el cauce de una quebrada.
Nov , 17	La Unión	Polorós	Mejora de calle	Zona Urban , Polorós	Adoquinado completo y cunetas .	S 02	Mejora el tráfico y el drenaje.

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EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov , 17	La Union	Nueva Esparta	Electrificación	Caserio El Trapichito	Introducción incluye colocación de postes, cables y transformador.	E 06	El tendido eléctrico sigue la ruta de la calle.
Nov , 18	San Miguel	El Transito	Protección Inur	Ca. Panamericana	Construcción de gaviones en la margen del cauce .	F 01	Algunos tramos dañados por maquinaria que extrae arena del cauce.
Nov , 19	Usulutan	Jiquilisco	Protección Inur	Margen del Rio Lempa	Conformación de una borda de sacos de arena .	F 02	Obra de infraestructura mayor que requería de un EIA completo.
Nov , 19	Usulutan	Tecoluca	Camino Vecina	Zona Oeste, Rio Lempa	Convenio DGC / SRN	E IV–07	Este proyecto será ejecutado por la DGC/MOP. E IV No. 7
Nov , 23	San Salvador	El Paisnal	Agua Potable	Area Urbana , El Paisna	Mejora de suministro al incorporar una fuente adicional y ampliación de tubería.	W 06	El suministro es de 8 horas al día por sector.
Nov , 23	San Salvador	El Paisnal	Electrificación	Ruta El Paisnal–Aguila	mejora de postes ,cables y sistema .	E 07	El tendido eléctrico sigue la ruta de la calle.
Nov , 23	San Salvador	El Paisnal	Camino Vecina	Cantón El Bordillo	Incluye conformación, nivelación, empedrados y reapertura .	C 05	Se recupera trazo existente.
Nov , 23	San Salvador	El Paisnal	Mejora de calle	Calle Sn Jose, El Paisna	Adoquinado y cunetas .	S 03	Se ha mejorado el tráfico y el drenaje.
Nov , 23	San Salvador	Guazapa	Puente	Sobre Rio Guaza	Puente vehicular	B 02	Se observó materiales de construcción y otros desperdicios dentro del cauce del rio

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov , 23	San Salvador	Apopa	Mercado Munic	Zona Urbana, Apopa	Obra nueva incluye dos niveles .	M 02	Notable falta de limpieza.
Nov , 24	Cuscatlan	El Rosario	Agua Potable	Cantón El Mutouy	Capatación de manantial, linea de impelencia, sistema de bombeo y electrico.	W 07	Captación protegida, incluirá sistema de desinfección.
Nov , 24	Cuscatlan	El Rosario	Mercado Munic	Zona Urban , El Rosario	Obra nueva , incluye fosa septica .	M 03	Ninguna.
Nov , 24	Cuscatlan	El Rosario	Electrificación	Caserio San Martin	Colocación de postes , cable primario y secundario .	E 08	Tendido eléctronico a la orilla de la calle.
Nov , 24	Cuscatlan	Jose Guayabal	Camino Vecina	El Salitre–Guayabal	Nivelación y compactación.	C 06	El material utilizado es tierra suelta y tendrá poca duración.
Nov , 24	Cuscatlan	Jose Guayabal	Camino Vecina	Cantón Llano Grande	Nivelación y compactación , incluye puente vehicular .	C 07	Puente no iniciado.
Nov , 24	Cuscatlan	Jose Guayabal	Construcción de escuela	Zona SubUrbana Guay.	Construcción de aulas.	SC 02	La escuela no cuenta con agua.
Nov , 24	Cuscatlan	Jose Guayabal	Electrificación	Las Moras/ La Asuncion	Colocación de postes, cables y transformador .	E 09	El tendido eléctrico tiene 12 km de longitud y sigue la ruta de la calle.
Nov , 25	La Libertad	Quezaltepeque	Electrificación	Col. Primavera Quezalt.	Introducción de energia electrica que incluye colocación de poste , cable y transformador .	E 10	Un poste ofrece riesgo de accidente con vehículos.

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EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov , 25	La Libertad	Quezaltepeque	Mejora de Calle	Col . Valenzuela, Queza	adoquinado y cunetas .	S 04	Se mejoró tráfico y drenaje.
Nov , 25	La Libertad	Quezaltepeque	Mejora De Calle	10 av. sur,Quezaltepeq	Concreteado y cunetas .	S 05	Se mejoró tráfico y drenaje.
Nov , 25	la Libertad	San Matias	Mejora de calle	Calle Central de S. Matía	Adoquinado completo y cunetas .	S 06	Se mejoró tráfico y drenaje.
Nov , 25	La Libertad	Pablo Tecachico	Electrificación	Cantón Moncagua	Introducción electrica,incluye coloca-ción de postes, cable y transformador .	E 11	Excesiva poda de árboles.
Nov , 25	La Libertad	Pablo Tacachico	Electrificación	Cantón Los Mogotes	Introducción electrica , incluye coloca-ción de postes , cable y transformador.	E 12	El tendido eléctrico sigue la ruta de la calle.
Nov , 25	La Libertad	Opico	Mejora de calle	2a. Calle Ote. Opico	Adoquinado completo y cunetas .	S 07	Se mejoró tráfico y drenaje.
Nov , 29	Chalatenango	Miguel de Merce	Agua Potable	Sn Miguel de Mercedes	Captación, linea de impelencia , tanque de distribución .	W 08	Incluye desinfección.
Nov , 29	Chalatenango	Miguel de Merce	Camino Vecina	Cantón Los Guardado	Nivelación , obras de protección, drenajes y compactacion .	C 08	Obras en ejecución, al finalizar verificar drenaje en muro de baden.
Nov , 30	Chalatenango	Sn Fco. Morazan	Camino Vecina	Sumpul Chacones	Reapertura , conformación y nivelación	C 09	Zona frágil de alta montaña con bosque de coniferas. Los drenajes se harán en segunda etapa.

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EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Nov , 30	Chalatenango	Sn Fco. Morazan	Puente	Suburb Fco. Morazan	Puente vehicular .	B 03	Ninguna.
Nov , 30	Chalatenango	Sn Fco. Moraza	Camino Vecina	Cantón Tecelnte	Conformación , nivelación y compactación	C 10	Ninguna.
Nov, 30	Chalatenago	Sn Fco. Morazan	Mejora de calle	Calle principal	Cocreteado .y cunetas .	S 08	Tráfico y drenaje mejorado.
Nov , 30	Chalatenango	Sn Fco. Moraza	Construcc Alcaldía	Urban Zone	Construcción de instalaciones y Servicios	A 02	Incluye fosa séptica. Incluye fosa séptica.
Nov , 30	Chalatenango	Citalá	Protección Inur	Citalá	Colocación de gaviones de piedra .	F 03	Anclajes adecuados.
Dic , 1	Chalatenango	La Palma	Electrificación	Cantón Los Gramales	Introducción electrica ,colocación de postes y cables .	E 13	Zona frágil, alta montaña de pinares. El tendido sigue ruta de calle.
Dic , 1	Chalatenango	La Palma	Mejora de Calle	Calle 22 de junio	concreteado y cunetas .	S 09	Tráfico y drenaje mejorado.
Dic , 1	Chalatenango	San Ignasio	Puente	Caserio El Rosario	Puente de bóveda .	B 04	Cauce de grandes avenidas.
Dic , 1	Chalatenango	San Ignasio	Mejora de Calle	Calle Lomas de La Cruz	Concreteado y cunetas .	S 10	Tráfico y drenaje mejorado.

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 1	Chalatenango	San Ignasio	Mejora de calle	De ANTEL a Cayaguan	concreteado y cunetas .	S 11	Tráfico y drenaje mejorado.
Dic , 2	Chalatenango	Las Vueltas	Camino Vecina	Conacasta – El Terrero	Reapertura con maquinaria y conformación.	C 11	La vegetación ha cubierto el camino.
Dic , 2	Chalatenango	Ojos de Agua	Puente	Quebrada El Convento	Puente Vehicular .	B 05	Ninguna
Dic , 2	Chalatenango	Ojos de Agua	Mejora de Calle	Calle Principal, Ojos De	Empedrado fraguado.	S 12	Tráfico y drenajes mejorado.
Dic , 2	Chalatenango	Ojos de Agua	Agua Potable	Ojos de Agua	Captación, linea de impelencia, tanque y distribución.	W 09	Incluye desinfección.
Dic , 2	Chalatenago	Ojos de agua	Puente	C Trinidad, El Currizal	Puente vehicular .	B 06	Ninguna
Dic , 2	Chalatenango	El Carrizal	Camino Vecina	Vainilla – Petapas	Nivelación, conformación y compactación.	C 12	Obras de drenaje en segunda etapa.
Dic , 2	Chalatenango	El Carrizal	Mejora de Calle	Calle Las Flores, Cartiz.	Concreteado y cunetas .	S 13	Mejora de tráfico y drenaje.
Dic , 2	Chalatenango	Dulce Nombre	Camino Vecina	Sn Fernando – Dulce N	Convenio DGC / SRN	E IV – 04	Proyecto será ejecutado por DGC/MOP.
Dic , 2	Chalatenango	Carrizal	Camino Vecina	Chalatenango El Carrizal	Convenio DGC / SRN	E IV – 05	Proyecto será ejecutado por DGC/MOP.

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 2	Chalatenango	San Ignasio	Camino Vecina	San Ignasio–Las Pilas	Convenio DGC / SRN	E IV–18	Proyecto será ejecutado por DGC/MOP.
Dic , 2	Chalatenango	La Palma	Camino Vecina	La Palma– Agua Caliente	Convenio DGC / SRN	E IV–03	El proyecto será ejecutado por DGC/MOP.
Dic , 6	San Vicente	Apastepeque	Centro de Salu	Zona Urb . Apastepequ	ampliación de salas y facilidades .	H 01	La fosa séptica quedó bajo la contrucción por lo que debe ser reubicada la tubería.
Dic , 6	San Vicente	Apastepeque	Electrificación	Comunidad la Bóveda	Introducción incluye colocación de postes, cables y transformador.	E 14	El tendido eléctrico sigue la ruta de la calle. Proyecto finalizado.
Dic , 6	San Vicente	San Ildefonso	Mejora deCalle	Zona Urbana, Sn Ildefo	Concreteado y cunetas .	S 14	Se mejoró el tráfico y el drenaje.
Dic , 6	San Vicente	San Ildefonso	Camino Vecina	Cantón Las Lajas	Nivelación , conformación y drenajes .	C 13	Reparación de camino existente. Proyecto finalizado.
Dic , 6	San Vicente	San Ildefonso	Electrificación	Cantón las Lajas	Introducción incluye colocación de postes, cables y transformador .	E 15	Proyecto finalizado. Tendido eléctrico sigue la ruta de la calle.
Dic , 6	San Vicente	San Ildefonso	Electrificación	Zona Urban. San Ildefo	Ampliación incluye colocación de postes y cables.	E 16	El tendido sigue la ruta de la calle. Proyecto terminado.
Dic , 6	San Vicente	Santa Clara	Camino Vecina	Crio. Montana–Chimilil	empedrado fraguado , cunetas .	C 14	Proyecto en ejecución. Mejorar drenajes.
Dic , 6	San Vicente	Santa Clara	Electrificación	Cantón Agua Helada	Introducción que incluye colocación de poste , cable, transformador .	E 17	Proyecto finalizado. El tendido eléctrico sigue la ruta de la calle.

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EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 6	San Vicente	Santa Clara	Electrificación	Cantón Santa Rosa	Incluye colocación de postes , cables y transforamdor .	E 18	Proyecto terminado. Sigue la ruta de la calle.
Dic , 6	San Vicente	Santa Clara	Electrificación	Cantón Nacaspilo II	Incluye colocación de postes , cables y transformador .	E 19	Segunda etapa de proyecto terminado. El tendido sigue la ruta de la calle.
Dic , 6	San Vicente	Esteban Catarina	Centro de Salu	Zona Urban , Catarina	Construcción de laboratorio y servicios sanitarios .	H 02	Proyecto en ejecución. Incluye fosa séptica y campo de riego.
Dic , 6	San Vicente	Esteban Catarina	Camino Vecina	Cantón Haciendita	Reapertura de camino .	C 15	Proyecto en ejecución.
Dic , 6	San Vicente	Esteban Catarina	Camino Vecina	desvio Amatitán	Nivelación , conformación y drenajes .	C 16	Reparación de camino. Proyecto terminado.
Dic , 6	San Vicente	Verapáz	Mejora de Calle	Cantón Molineros	Empetrado Reguado.	S 15	Se mejoró tráfico y drenajes.
Dic , 6	San Vicente	Verapáz	Camino Vecina	C/ San Jerónimo Limón	Reparación de camino. Nivelación, conformación y drenajes.	C 17	Proyecto terminado. Requiere obras de protección lateral un tramo.
Dic , 6	San Vicente	Verapáz	Puente	Quebrada seca,Rodrigu	Puente vehicular .	B 07	Proyecto terminado.
Dic , 6	San Vicente	Guadalupe	Agua Potable	Cantón San Emigdio	Excavación de pozo , sistema de bombeo tanques de distribución .	W 10	Proyecto en ejecución.
Dic , 6	San Vicente	Guadalupe	Mejora de Calle	Zona Urban ,Guadalup	concreteado y cunetas .	S 16	Proyecto terminado.

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 7	La Paz	Pedro Nonualco	Camino Vecina	Cantón Nahuistepeque	Reparación de camino	C 20	Falta terminar canaletas.
Dic , 7	La Paz	Pedro Nonualco	Mejora de Calle	4a calle Pte. S Pedro N	Concreteado	S ;8	Tráfico y drenaje mejorado.
Dic , 7	La Paz	Jerusalen	Camino Vecina	Cantón Conacaste	Empedrado fraguado, cordón y cuneta.	C 21	Proyecto terminado.
Dic , 7	La Paz	Mercedes Ceiba	Puente	Zona Urbana	Puente vehicular ,	B 09	Proyecto terminado.
Dic , 7	La Paz	Mercedes Ceiba	Camino Vecina	Cantón Mano de León	empedrado fraguado,cordón cuneta .	C 22	Proyecto terminado.
Dic , 7	La Paz	Mercedes Ceiba	Camino Vecina	Cantón El Chapamo	Reparación de camino .	C 23	Proyecto terminado.
Dic , 7	La PAZ	Maria Ostuma	Camino Vecina	Cantón El Cerro	Reparación de camino .	C 24	Falta lomo de cordón de piedra.
Dic , 9	Cabañas	Sensuntepeque	Agua Potable	Cantón San Nicolas	Captación, linea de impelencia, tanque cantareras	W 14	Proyecto concluirá desinfección. Todavía no se ha colocado hipocloredor.
Dic , 9	Cabañas	Ilobasco	Camino Vecina	Ctón Sn Fco del monte	Nivelación , compactación , balastrado badenes , obras de protección.	C 25	Proyecto en ejecución. Reparación de camino.
Dic , 9	Cabañas	Jutiapa	Camino Vecina	Cantón Carolina	Nivelación, conformación y compactado.	C 26	Proyecto terminado.

EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 6	San Vicente	Verapáz	Camino Vecina	Nvo. Tepetitán – Infiernil	Reparación Incluye nivelación, empedrados.	C 18	Proyecto en ejecución.
Dic , 6	San Vicente	San Sebastián	Camino Vecina	Caserio Los Dominguez	Raparación Incluye nivelación , conformación	C 19	Proyecto terminado.
Dic , 6	San Vicente	San Sebastián	Agua Potable	Zona urbana	Mejora de captación y construcción de vaderos publicos .	W 11	Proyecto finalizado.
Dic , 7	La Paz	Paraiso Osorio	Letrinas	Cantón Zacatales	Letrinas de hoyo seco unifamiliares .	L 01	Proyecto terminado. Riesgo de inundación en zona baja.
Dic , 7	La Paz	Paraiso Osorio	Letrinas	Barrio El Centro	Letrinas de hoyo seco unifamiliares.	L 02	Proyecto terminado.
Dic , 7	La Paz	Paraiso Osorio	Electrificacion	Canton Hoja de Sal	Introducción Incluye colocación de poste, cables y transformador .	E 20	El tendido eléctrico sigue la ruta de la calle.
Dic , 7	La Paz	Paraiso Osorio	Electrificacion	Caserio Los Martinez	Introducción Incluye colocación de poste, cables y transformador .	E 21	El tendido eléctrico sigue la ruta de la calle.
Dic , 7	La Paz	Paraiso Osorio	Agua Potable	Colonia Las Palmeras	Tuberias y cantararas .	W 12	Ampliación de sistema.
Dic , 7	La Paz	Paraiso Osorio	Agua Potable	Caserio El Cementerio	tuberias y cantareras .	W 13	Ampliación de sistema. Administrado por ANDA.
Dic, 7	La Paz	Paraiso Osorio	Mejora de calle	Zona Urbana. P de Oso	Empedrado fraguado .	S 17	El tráfico y el drenaje mejorado.

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EL SALVADOR EA MEA–PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 9	Cabañas	Jutiapa	Electrificación	Cantón Carolina	Introducción que incluye colocación de postes, cables y transformador .	E 22	Proyecto terminado.
Dic , 9	Cabañas	San Isidro	Mejora de Calle	Av.15 de mayo	Adoquinado mixto .	S 19	Tráfico y drenaje mejorado.
Dic , 9	Cabañas	Tejutepeque	Camino Vecina	Parabólica – Sta Bárba	Reapertura de camino , conformación , compactación .	C 27	Proyecto en ejecución, ha requerido maquinaria para remover vegetación.
Dic , 9	Cabañas	Tejutepeque	Camino Vecina	C. San Fco. Echeverria	Nivelación , compactación .	C 28	Reparación de camino.
Dic , 9	Cabañas	Tejutepeque	Camino Vecina	Cantón Platanares	Conformación, empedrados, compactación.	C 29	Reparación de camino.
Dic , 9	Cabañas	Tejutepeque	Letrinas	Caserio las Lomas	Letrinas de hoyo seco unifamiliar	L 05	Cada familia ejecuta la excavación.
Dic , 13	Usulutan	El Triunfo	Electrificación	Crio. El Triangulo	introducción incluye colocación de postes, cables y transformador.	E 23	El cable ha sido robado. El tendido sigue la ruta de la calle.
Dic , 13	Usulutan	Jiquilisco	Mejora de calle	Zona Urbana ,Jiquilisco	Adoquinado completo .		El tráfico y drenaje mejorado.
Dic , 13	Usulutan	Jiquilisco	Electrificación	Puerto Avalos	Introducción incluye colocación de postes, cables y transformador.	E 24	El tendido eléctrico sigue la ruta de la calle.
Dic , 13	Usulutan	Jiquilisco	Camino Vecina	Canton Hule Chacho	Nivelación,conformación y compactación.	C 30	Reparación de camino. En ejecución. El material para nivelación muy suelto.

EL SALVADOR EA ME'.-PRN INFRAESTRUCTURA
REPORTE DE VIAJES DE CAMPO

FECHA	DEPARTA-MENTO	MUNICIPIO	PROYECTO	UBICACION	DESCRIPCION	CODIGO	OBSERVACION
Dic , 13	Usulutan	San Dionisio	Electrificación	Cantón Iglesia Vieja	introducción de energia incluye colocación de postes,cables y transformador .	E 25	El tendido sigue la ruta de la calle.
Dic , 13	Usulutan	San Dionisio	Camino Vecinal	Cantón Iglesia vieja	Nivelación, conformación y compactación.	O 31	Reparación de camino y obra de paso.

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APENDICE F

"Lista de Personas Entrevistadas"

Lista de Personas Visitadas

USAID

Tom Hawk	MEA
Aldo Miranda	MEA
Marc Scott	IRD
John Sullivan	IRD
Jim Hebron	Jefe, Division de Infraestructura Mayor
Peter Gore	Asesor Medio Ambiente
Flor de Maria Rivera	IRD, Unidad de Ingenieria
Ing. Ernesto Giron	IRD, Unidad de Ingenieria
Ing. Rafael Callejas	Oficina de Salud
Henry Aldepher	NRP

SRN

Norma de Dowe	Director
Elizabeth Rebollo	Jefe, Departamento de Fortalecimiento Municipal
Amalia Espinal	Ingeniero

SRN - Region Central

Ing.Ricardo Vega	Gerente Regional
Ing. Carlos Villacorta	
Arq. Elizabeth Velasquez	
Arq. Hugo Dardon	

Gobierno Municipal Region Central

Sr. Juan Garcia	Alcalde de El Paisnal
Sr. Miguel Sanchez Perez	Presidente Comunidad El Berdillo
Sr. Gerardo Antonio Garcia	Regidor Alcaldia de EL Rosario .
Sr.Mauricio Ramón Alvarado	Sindico Alcaldia de Guazapa
Sr Romeo Gonzales	Alcalde de Apopa
Sr. Francisco Artiga	Alcalde de San Jose Guayabal
Sr Ney Godofredo Diaz	Alcalde de Quezaltepeque

SRN Region Paracentral - San Vicente

Ing. William Góchez	Gerente Regional
Arq. Gilma de Gonzales	
Ing. Francisco Monroy	Representante departamental
Ing . Carlos Rivas	

Gobierno Municipal Region Paracentral

Sr. Pedro Alirio Vasquez	Alcalde de Santiago Nonualco
Sr. Oscar Perla	Alcalde de Jutiapa

SRN Region Occidental - Santa Ana

Ing. Tomas Velasquez	Jefe
Ing. Olimpo Azenon	Oficial Tecnico, Departamento de Santa Ana
Celina de Ortiz	Oficial Administrativo, Depto. de Santa Ana

Gobierno Municipal Region Occidental

Sr. Luis Enrique Parada	Alcalde de Texistepeque
Sr. Andres Miravalle	Alcalde de Santa Rosa Guachipilin
Sr. Carlos Calderon Flores	Sindico Acaldia de Santa Rosa Guachipilin

SRN Region Chalatenango

Ing.Gabriel Soriano	Gerente Regional
Ing. D. Finlander Rivera	Subgerente Regional
Arq.Carlos Garcia	
Ing.Roberto Castro	
Ing. Jaime Jaimes	

Gobierno Municipal - Region Chalatenango

Sr Gilberto Rivera	Alcalde de las vueltas
Sr. Jose Efrain Leon	Alcalde de El Carrizal

SRN Region Oriental - San Miguel

Ing. Mauricio Aguirre	Jefe
Valcazar Gonzalez	Oficial Tecnico, Departamento de La Union
Jorge Alberto Rodriguez	Oficial Tecnico
Julio Cesar Sanchez	Oficial Tecnico

Gobierno Municipal - Region Oriental

Sr. Rosendo Fuentes	Alcalde Ciudad Barrios
Sr. Andres Canales	Consejo
Sr. Efrain Ramos	Alcalde de San Fernando .
Sr. Ismael Garcia	Alcalde de Anamorós

MOP

Salvador Acosta	Supervisor BID, Carreterras MOP, Unidad de EA
Ernesto Lopes Cepeda	Especialista Ambiental, Unidad de EA

ANDA

Jose Atlio Avendano	Chief, Environmental Unit

ISDEM

Oscar Medina	Technical Manager

CEL

Jose Napolean Lazo	Chief, Natural Resources and Environment Unit

National Rural Electric Cooperative Association (NRECA)

Myk Manon	Project Chief
Alden Kitson	Program Coordinator

BID

Benjamin Yannes	Environmental specialist

APENDICE G

"Proyectos de Infraestructura Visitados y Evaluación Ambiental"

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 1
EA Caminos Vecinales

Negative Environmental Impacts .	Caminos vecinales field EA-code														
	C 01	C 02	C 03	C 04	C 05	C 06	C 07	C 08	C 09	C 10	C 11	C 12	C 13	C 14	C 15
Pérdida de fertlidad de suelo	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Alteración de habitats	A	A	A	A	A	A	A	A	M	A	M	A	A	A	A
Afectación de area naturales .	A	A	A	A	A	A	A	A	P	A	P	A	A	A	A
Afectación de tránsito y desove	P	P	P	P	P	P	P	P	E	P	E	P	P	P	P
Interrupción de cadena alimenticia	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Eliminación irreversible de espec.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Apertura para vectores de enfer.	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Riesgos de accidentes	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Destrucción arqueológica	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Relocalización de cementerios	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Afectación de perfil de montaña	A	A	A	A	A	A	A	A	E	A	E	A	A	A	A
Promoción de torrentes	P	P	P	P	P	P	P	P	E	P	P	P	P	P	P
Abandono de materiales de cons	A	A	A	E	P	P	P	P	P	P	P	P	P	P	P
Promoción de inundación de tierras	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 1
EA Caminos Vecinales

Negative Environmental Impacts .	Caminos vecinales field EA-code														
	C 01	C 02	C 03	C 04	C 05	C 06	C 07	C 08	C 09	C 10	C 11	C 12	C 13	C 14	C 15
Cambio en régimen de lluvia	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambio en régimen de vientos	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Aumento de nivel de agua subt .	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Aumento de sedimentos en agua	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aumento de turbidéz en agua	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Contaminación por aceites	P	P	A	A	P	A	A	A	A	A	P	A	A	A	A
Alteración de cauces	M	A	A	M	A	A	P	A	A	A	A	A	A	A	A
Alteración de régimen de drenaje	M	M	M	E	E	A	P	E	E	M	M	E	M	P	M
Ruido y vibraciones	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Producción de polvo	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Alteración de Calidad visual	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambio de uso de la tierra	A	A	A	A	A	A	A	A	P	A	A	A	A	E	A
Pérdida sobre producción agric .	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambios geomorfológicos	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Desestabilización de suelos	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Remoción Parcial de vegetación	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Deforestación	M	M	M	M	M	M	A	A	M	M	M	M	A	A	A
Deterioro en banco de materiales	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Promoción de erosión	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Cambios edafológicos	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 1
EA Caminos Vecinales

Negative Environmental Impacts .	Caminos vecinales field EA-code															
	C 16	C 17	C 18	C 19	C 20	C 21	C 22	C 23	C 24	C 25	C 26	C 27	C 28	C 29	C 30	C 31
Cambio en régimen de lluvia	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambio en régimen de vientos	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Aumento de nivel de agua subt .	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Aumento de sedimentos en agua	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Aumento de turbidéz en agua	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Contaminación por aceites	A	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A
Alteración de cauces	A	A	A	A	A	A	A	A	A	A	A	E	A	A	A	A
Alteración de régimen de drenaje	M	E	M	M	M	M	M	M	M	M	M	E	M	M	M	M
Ruido y vibraciones	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Producción de polvo	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Alteración de Calidad visual	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cambio de uso de la tierra	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Pérdida sobre producción agric .	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambios geomorfológicos	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Desestabilización de suelos	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Remoción parcial de vegetación	A	A	A	A	A	A	A	A	A	A	A	E	A	A	A	A
Deforestación	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Deterioro en banco de materiales	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Promoción de erosión 1_/	M	P	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Cambios edafológicos	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 1
EA Caminos Vecinales

Negative Environmental Impacts .	Caminos vecinales field EA-code															
	C 16	C 17	C 18	C 19	C 20	C 21	C 22	C 23	C 24	C 25	C 26	C 27	C 28	C 29	C 30	C 31
Pérdida de fertlidad de suelo	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Alteración de habitats	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Afectación de area naturales .	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Afectación de tránsito y desove	P	P	P	P	P	P	P	P	P	P	P	E	P	P	P	P
Interrupción de cadena alimenticia	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Eliminación irreversible de espec.	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Apertura para vectores de enfer.	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Riesgos de accidentes	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Destrucción arqueológica	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Relocalización de cementerios	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Afectación de perfil de montaña	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Promoción de torrentes	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Abandono de materiales de cons	A	A	A	A	A	A	A	A	A	P	A	P	A	P	P	A
Promoción de inundación de tierras	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

Tabla No 2
EA Electrificaciones

Negative Environmental Impacts .	ELECTRIFICATION EA-CODE														
	E 01	E 02	E 03	E 04	E 05	E 06	E 07	E O8	E 09	E 10	E 11	E 12	E 13	E 14	E 15
Remoción parcial de vegetación	E	E	A	A	A	A	A	A	A	A	E	E	A	A	A
Deforestación	A	A	A	A	A	A	A	A	A	A	E	A	A	A	A
Afectación de especies amenaz	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
promoción de erosión	P	A	A	A	A	A	A	A	A	A	P	A	A	A	A
Modificación de drenajes	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Afectación de habitats	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
riesgos de contacto para human	A	A	A	A	A	A	A	A	A	P	A	P	A	A	A
conflictos por la ruta de paso	A	A	A	A	A	A	A	A	A	P	E	A	A	A	A
riesgos de accidentes	A	A	A	A	A	A	A	A	A	P	A	A	A	A	A
ruido y vibraciones	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Producción de polvo	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Alteración de calidad visual	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
cambio de uso de la tierra	A	A	A	A	A	A	A	A	A	A	P	A	P	A	A
Desestabilización de suelos	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambios edafológicos	P	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Destrucción arqueológica	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Afectación de areas naturales	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Arrastre de sedimentos	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Peligro de incendio por campame	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A
Cont por excretas por campame	A	A	A	A	A	A	A	A	A	A	P	A	A	A	A

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 2
EA Electrificaciones

Negative Environmental Impacts .	ELECTRIFICATION EA-CODE									
	E 16	E 17	E 18	E 19	E 20	E 21	E 22	E 23	E 24	E 25
Remoción parcial de vegetación	A	A	A	A	A	A	A	A	A	A
Deforestación	A	A	A	A	A	A	A	A	A	A
Afectación de especies amenaz	A	A	A	A	A	A	A	A	A	A
promoción de erosión	A	A	A	A	A	A	A	A	A	A
Modificación de drenajes	A	A	A	A	A	A	A	A	A	A
Afectación de habitats	A	A	A	A	A	A	A	A	A	A
riesgos de contacto para human	A	A	A	A	A	A	A	A	A	A
conflictos por la ruta de paso	A	A	A	A	A	A	A	A	A	A
riesgos de accidentes	A	A	A	A	A	A	A	A	A	A
ruido y vibraciones	E	E	E	E	E	E	E	E	E	E
Producción de polvo	E	E	E	E	E	E	E	E	E	E
Alteración de calidad visual	E	E	E	E	E	E	E	E	E	E
cambio de uso de la tierra	A	A	A	A	P	P	A	A	A	A
Desestabilización de suelos	A	A	A	A	A	A	A	A	A	A
Cambios edafológicos	A	A	A	A	A	A	A	A	A	A
Destrucción arqueológica	A	A	A	A	A	A	A	A	A	A
Afectación de areas naturales	A	A	A	A	A	A	A	A	A	A
Arrastre de sedimentos	E	E	E	E	E	E	E	E	E	E
Peligro de incendio por campame	A	A	A	A	A	A	A	A	A	A
Cont . por excretas por campame	A	A	A	A	A	A	A	A	A	A

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

Tabla No 3
EA Suministro de agua

Negative Environmental Impacts .	Water Supply field EA- code													
	W01	W02	W03	W04	W05	W06	W07	W08	W09	W10	W11	W12	W13	W14
Afectación de ecosistemas	P	A	A	M	A	A	A	A	A	A	A	A	A	A
Alteración de areas naturales	P	A	A	A	A	A	A	A	A	A	A	A	A	A
Deforestación	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Remoción parcial de vegetación	P	A	A	A	A	A	A	A	A	E	A	A	A	A
Abandono de materiales	P	E	A	A	A	A	A	E	A	P	A	A	A	E
Promoción de erosión	A	A	P	A	P	A	A	P	A	A	A	A	A	A
Modificación de drenajes	P	A	P	A	A	A	A	P	A	A	A	A	A	A
Formación de estancamientos	P	P	P	P	E	E	P	P	P	P	A	A	A	P
Conflictos por la ruta de paso	P	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambios de usos del suelo	P	P	P	P	A	A	A	A	A	A	A	A	A	A
Ruido y vibraciones	P	E	E	E	E	E	E	E	E	E	E	E	E	E
Producción de polvo	P	E	E	E	E	E	E	E	E	E	E	A	A	E
Riesgo de enfermedades hídric	P	Pr	Pr	P	P	Pr	P	Pr	Pr	Pr	P	Pr	Pr	P
Afectación a otros usos	P	A	A	A	A	A	A	A	A	A	A	A	A	A
Desestabilización de suelos	A	A	A	A	P	A	A	A	A	A	A	A	A	A
Aumento de población local	P	E	P	P	P	P	P	P	P	P	P	P	P	P
Destrucción arqueológica	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Promoc Arrastre de sedimentos	P	E	E	E	E	E	E	E	E	E	A	A	A	E
Cont. por excretas de trabajador	P	E	E	E	E	E	E	E	E	E	E	A	A	E
Interferencia de tráfico por cons	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Disminución de otros suministros	P	A	A	A	A	A	A	A	A	A	A	A	A	A
Aumento de aguas servidas	P	E	P	E	E	E	P	E	E	P	E	E	E	P
Captación total de manantial	P	A	A	Pr	E	E	E	E	E	A	E	A	A	A

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

Tabla No 4
EA Puentes

Negative Environmental Impacts .	Bridge field EA-code							
	B01	B02	B03	B04	B05	B06	B07	B08
Afectación de ecosistemas	A	A	A	A	A	A	A	A
Remoción parcial de vegetación	A	A	A	A	A	A	A	A
Deforestación	A	A	A	A	A	A	A	A
Promoc Arrastre de sedimentos	E	E	E	E	E	E	E	E
Abandono de materiales	E	E	A	E	A	A	A	A
Colocación de desechos en cauce	E	E	A	E	A	A	A	A
Modificación de la hidrologia	A	A	E	A	A	A	A	A
Riesgo por crecidas	A	E	A	E	A	A	A	A
Promoción de erosión	A	A	A	A	A	A	A	A
Formación de estancamientos	A	A	A	A	A	A	A	A
Ruido y vibraciones	E	E	E	E	E	E	E	E
Producción de polvo	E	E	E	E	E	E	E	E
Aumento de población local	P	P	P	P	P	P	P	P
Impacto visual	M	M	M	M	M	M	M	M
Alteración por bancos de prest .	A	E	A	A	A	A	A	A
Temor al uso	A	A	A	E	E	E	A	E
Modificación de cauces	A	A	A	A	A	A	A	A
Interferencia de tráfico por cons	E	A	E	A	A	A	E	A
Cont. por excretas de trabajador	E	E	E	E	E	E	E	E
Extracción de materiales en rio	E	E	A	A	A	A	A	A

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 5
EA Letrinas

Negative Environmental Impacts .	Letrines field EA-code		
	L 01	L 02	L 03
Malos Olores	A	A	A
Desarrollo de vectores en letrina	Pr	Pr	Pr
Contaminación de agua subterr.	A	A	A
Riesgo de deslizamiento de letrina	P	A	A
Riesgo de arrastre por crecidas	P	A	A
Abandono de materiales	A	A	A
Deforestación	A	A	A
Remoción parcial de vegetación	A	A	A
Promoción de erosión	A	A	A
Promoc Arrastre de sedimentos	A	A	A
Ruido y vibraciones	E	E	E
Producción de polvo	E	E	E
Aumento de población local	P	P	P
Impacto visual	E	M	M

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 6
EA Edificaciones .

Negative Environmental Impacts .	Edificaciones field EA-code								
	Mercados			Escuelas		Alcaldias		C de salud	
	M 01	M 02	M 03	Sc01	Sc02	A01	A02	H01	H02
Generación de desechos	M	M	M	M	M	M	M	M	M
Iluminación deficiente	Pr	Pr	Pr	Pr	Pr	Pr	Pr	Pr	Pr
Ventilación deficiente	Pr	Pr	Pr	Pr	Pr	Pr	Pr	Pr	Pr
Vertido directo aguas servidas	M	M	M	M	M	M	M	M	M
Abandono de materiales Const.	A	A	A	A	A	A	A	A	A
Deforestación	A	A	A	A	A	A	A	A	A
Remoción parcial de vegetación	A	A	A	A	A	A	A	A	A
Promoción de erosión	A	A	A	A	A	A	A	A	A
Promoc Arrastre de sedimentos	P	P	P	P	P	P	P	P	P
Ruido y vibraciones	E	E	E	E	E	E	E	E	E
Producción de polvo	E	E	E	E	E	E	E	E	E
Aumento de población local	P	P	P	P	P	P	P	P	P
Impacto visual	M	M	M	M	M	M	M	M	M
Modificación de uso del suelo	E	E	E	A	A	A	A	A	A
Desestabilización del suelo	M	M	M	M	M	M	M	M	M
Riegos de acc. durante construc.	P	P	P	P	P	P	P	P	P

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Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 7
EA Mejoramiento de calles

Negative Environmental Impacts .	Street Improvement field EA-code														
	S 01	S 02	S 03	S 04	S 05	S 06	S 07	S 08	S 09	S 10	S 11	S 12	S 13	S 14	S 15
Deforestación	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Remoción parcial de vegetación	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Abandono de materiales	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Promoción de erosión	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Modificación de drenajes	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Formación de estancamientos	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Conflictos por la ruta de paso	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Incremento riesgo de accidentes	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Ruido y vibraciones	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Producción de polvo	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Alteración de calidad visual	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambio de uso de la tierra	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Desestabilización de suelos	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Cambios edafológicos	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Destrucción arquoológica	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Promoc Arrastre de sedimentos	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Cont. por excretas de trabajador	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Interferencia de tráfico por cons	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Key :
m =mitigated
p = potential
pr =prevented
E = executed
A= absent

EL SALVADOR EA MEA-NRP INFRASTRUCTURE
FIELD ENVIRONMENTAL ASSESMENT

Tabla No 7
EA Mejoramiento de calles

Negative Environmental Impacts .	Street Improvement field EA-code			
	S 16	S 17	S 18	S 19
Deforestación	A	A	A	A
Remoción parcial de vegetación	A	A	A	A
Abandono de materiales	A	A	A	A
Promoción de erosión	A	A	A	A
Modificación de drenajes	A	A	A	A
Formación de estancamientos	A	A	A	A
Conflictos por la ruta de paso	A	A	A	A
Incremento riesgo de accidentes	P	P	P	P
Ruido y vibraciones	E	E	E	E
Producción de polvo	E	E	E	E
Alteración de calidad visual	A	A	A	A
Cambio de uso de la tierra	A	A	A	A
Desestabilización de suelos	A	A	A	A
Cambios edafológicos	A	A	A	A
Destrucción arqueológica	A	A	A	A
Promoc Arrastre de sedimentos	E	E	E	E
Cont. por excretas de trabajador	A	A	A	A
Interferencia de tráfico por cons	E	E	E	E

APENDICE H

"Evaluación Preliminar del Proyecto Central de Desbordamiento del Río Lempa"

PRELIMINARY ASSESSMENT OF THE RIO LEMPA SAND BAG BANK FLOOD CONTROL CONSTRUCTION PROJECT

Kenneth M. Green, Sc.D.
Ing. Carlos Roberto Ochoa
DATEX, Inc.

November 21, 1994

BACKGROUND

In the course of the Environmental Assessment of MEA and NRP Major Infrastructure Project, the USAID Mission staff asked if the Datex Team could undertake a preliminary assessment of the Rio Lempa sand bag bank flood control construction project. During the course of our field visit to the Usulutan area, the Datex Team travelled with the local SRN technical staff officer to visit the site of this project which is located approximately 7 km south of San Marcos Lempa on the eastern bank of the river, just west of the Salinas El Sisiguayo road junction.

The project was undertaken at the request of the local communities to USAID, and the USAID mission provided funds through the NRP 0394 program to the Secretariat of Reconstruction to undertake this project on an "emergency" basis during the middle of 1994. Consequently, normal SRN project request, review and approval procedures were not followed for this project to allow for completing this project before maximum Rio Lempa flood levels were reached during the rainy season.

The area lies within the flat (sea level) alluvial floodplain of the mouth of the Rio Lempa. Geologically, this area contains fertile lands which over hundreds of years have accumulated annual deposits of upland runoff, containing excellent organic and mineral compounds. The Holdridge Life Zone unit in this area is Subtropical Humid Forest. The existing land cover and land use (as reflected in a very short "windshield" survey), is heterogeneous agriculture (pasture, sugarcane, maize, sorghum), rural villages and individual casitas, and riverine forest encompassing the Nancuchinami forest reserve.

The project consists of two strips (230 meters and 450 meters) of sand bag banks constructed 1.5 meters high with a base of 450 cm and a top of 110 cm. This pyramid structure is stabilized with iron rods secured in concrete footers with chicken wire mesh used to cover the river side of the artificial bank. A second flood protection project, not visited in this field trip, was completed during the same time frame on the west bank of the river. The purpose of this banking was to prevent flood waters from flowing east into the agriculture lands, road and settlements. Flooding into these areas was prevented by a combination of lower than expected rainfall and the completion of the sand bag bank project.

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RECOMMENDED ACTIVITIES

This project represents efforts to control an unpredictable situation that is linked to numerous ***land use, watershed management, hydrologic and socio-economic*** factors. The environmental impact of this project is considered by the Team to be of a positive threshold, and should have received at minimum an environmental review to determine direct and indirect positive and negative impacts. Furthermore, the Team believes that this project ***reflects the need for USAID to work in collaboration with GOES and appropriate authorities to develop a long term strategy for managing the lower Rio Lempa watershed*** so that viable options for dealing with this problem can be identified.

The Datex Team recommends that at minimum a one month preliminary environmental assessment be conducted on this problem and project to define a long term strategy that includes the components discussed below.

1. **Hydrologic Study**. Analysis is required of the hydrologic features of the lower watershed including climatic features, rainfall patterns, reservoir capacity, water release procedures, average water flow and velocity, watershed geology , and watershed topography.

2. **Watershed Management**. Detailed mapping (1: 2,500-5,000 scale) of land use and land cover, using recent and historic data (e.g., aerial photography and satellite imagery) is needed. The description of agricultural practices, including soil conservation techniques, needs to be identified for the major crop types and communities. Estimates of soil erosion and sediment loadings must be estimated for each major bio-physical land unit.

3. **Biological/Ecological Inventory**. The fact that the Nancuchinami Reserve is located in this area makes it imperative to define the distribution of major ecological habitats in the area. This component needs to address the status of major communities and species (e.g., birds, mammals, major tree species). The relationship of these natural communities to the annual flooding regime should be identified.

4. **Socio-economic Analysis**. The economic benefit attributable to farming this area needs to be estimated as well as the demographics of the population. Agricultural and population census data needs to be acquired, and if this data is deficient, develop a quick sampling methodology to acquire this data.

5. **Institutional Activities**. Identification of active GOES and NGO organizations, including summary of activities and target populations and communities is required. This will of course include the area in both the lowland and upland areas of the lower Rio Lempa watershed.

This EA should also include at minimum two workshop activities, one targeted at the management level of GOES and NGO organizations and the second at the municipio level. The

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first workshop would be one day long and address major policy issues. The second workshop activities will be conducted as "town" meetings in the major municipios to gather the views of the people living in the floodplain.

EA TEAM COMPOSITION

1. **Team Leader**. Environmental assessment experience, experience working with AID, environmental analysis background in natural resources evaluation, biodiversity, land use analysis, institutional collaboration and knowledge of El Salvador.

2. **Hydrologist**. Experience working in El Salvador with CEL, knowledge of hydroelectric power planning, hydrology, and geology and soil classification. Experience in the planning, design and construction of reservoirs and flood control structures.

3. **Watershed Management Specialist**. Knowledge of agroecology in the tropics, soil mánagement, community based agriculture policy and development. Familiarity with CEL watershed management programs, MAG, and other GOES institutions.

4. **Socio-economic Specialist**. Experience working with communities in El Salvador, particularly with design and implementation of technical assistance projects aimed at the agricultural sector. Demonstrated experience working with rural communities including group facilitation and conducting focus group meetings.

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APENDICE I

"Asistentes al Taller de Trabajo en San Vicente"

Enero 24, 1995

Uso de Guías de Criterio, evaluación de impactos y medidas de mitigación de impactos ambientales.

Objetivo: Revisar fichas (guías) técnicas para su aplicación práctica y entendible

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Reunión con Alcaldes

ASISTENCIA

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Gladys Santamaría de Jaimes	San Vicente	Alcaldesa
Arcenio Olmes Carrillo	San Esteban Catarina	Alcalde
Ladislao López Guerrero		
BuenaVentura Durán	San Sebastián	Alcalde

PHOTOS

CAMINOS VECINALES

Examples of caminos which require attention for environmental considerations in the design of road rehabilitation. Photos cv1 and cv2 show unstable banks, the result of earlier cuts as part of road construction. These banks will continue to erode, particularly during the rainy season. Erosion will cause the eroded soil to accumulate along the side of the roadbed, or if agglomerates are present, result in large boulders falling onto road. The soil type shown in cv2, is a typical latosol that often is undermined from heavy rains and can slip, or become a local landslide. When this cuts are down slope from the roadbed, the erosion and land slipping can result in the road caving in or falling downhill.

cv1

cv2

CAMINOS VECINALES

Improper design or drainage and water diversion channels result in road bed gulling (see cv3). Simple diversion ditches filled with stones and boulders will divert water runoff off the road surface and avoid this type of damage (see cv4). The placement of drainage stones is necessary to break the flow of water and prevent runoff damage to areas below the drainage channel. In very steep road sections, engineering studies can predict heavy and accelerated runoff, which would require the building of a retaining pond at the end of the drainage channel to collect sediment, and slow runoff flow.

cv3

cv4

CAMINOS VECINALES

The stones and boulders in the road bed of the photo in cv5 that will be rehabilitated should be cleared and used in the construction of drainage channels and retention ponds. Some of the caminos had concrete strips laid down for road bed stabilization (cv6). This construction might appear as a cheaper way to pave part of the road surface, but will wear down in a short time because the center part, that remains unpaved, will erode rapidly because it will act as a water ditch. Eventually, this center ditch will erode out and the concrete strips will break up from hydraulic pressure during heavy rainfall, and undermining.

cv5

cv6

CAMINOS VECINALES

Use of locally available aggregate, sand, and small boulders should be tied to minimizing environmental damage during extraction (photos cv7. cv8, cv9, cv10). The example shown illustrates efficient and economical means to rehabilitate road and ensure that the road surface remains stabilized.

cv7

cv8

cv9

cv10

CAMINOS VECINALES

In photos cv 11 and cv12, the road crew is building the road surface right in the middle of a stream that the road runs across. The design plans and construction included no mitigation measures to prevent runoff into the streambed. There should have been a diversion channel built and a culvert constructed. These measures are better engineering design criteria as well as environmental criteria.

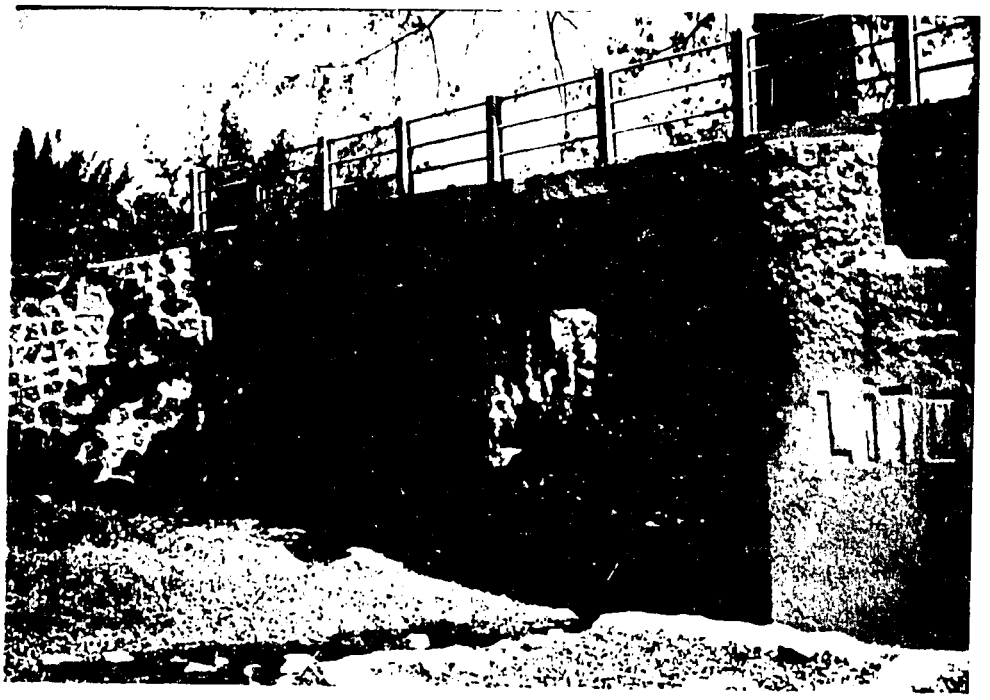
cv11

cv12

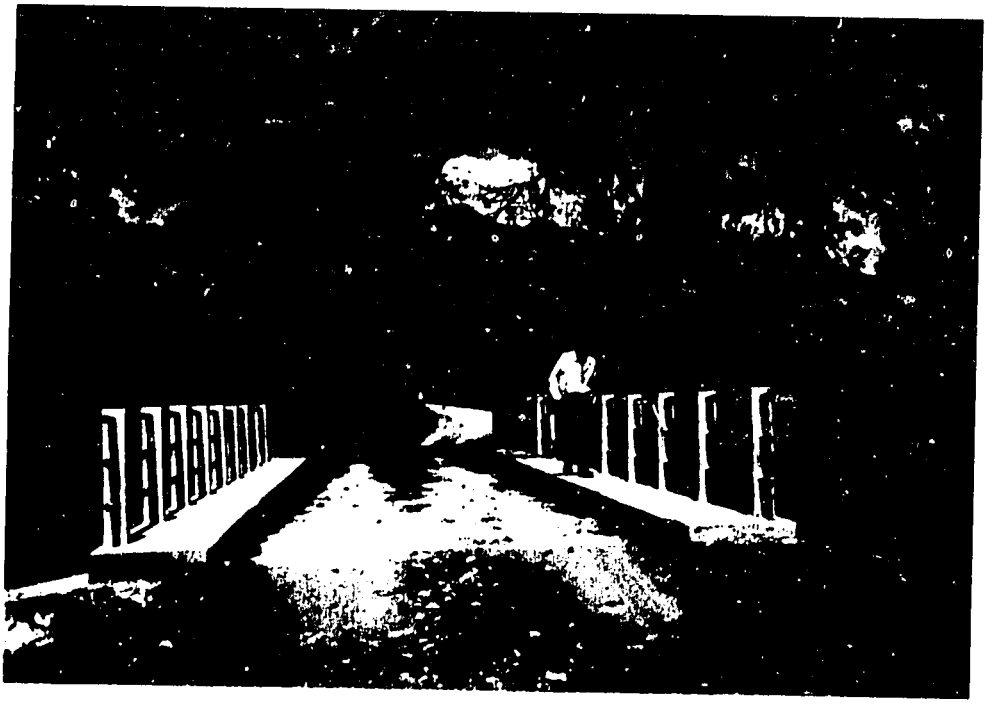
BRIDGES

This bridge (b1 and b2) was constructed with sufficient pedestrian accommodation, including walkway and guard rail.

b1



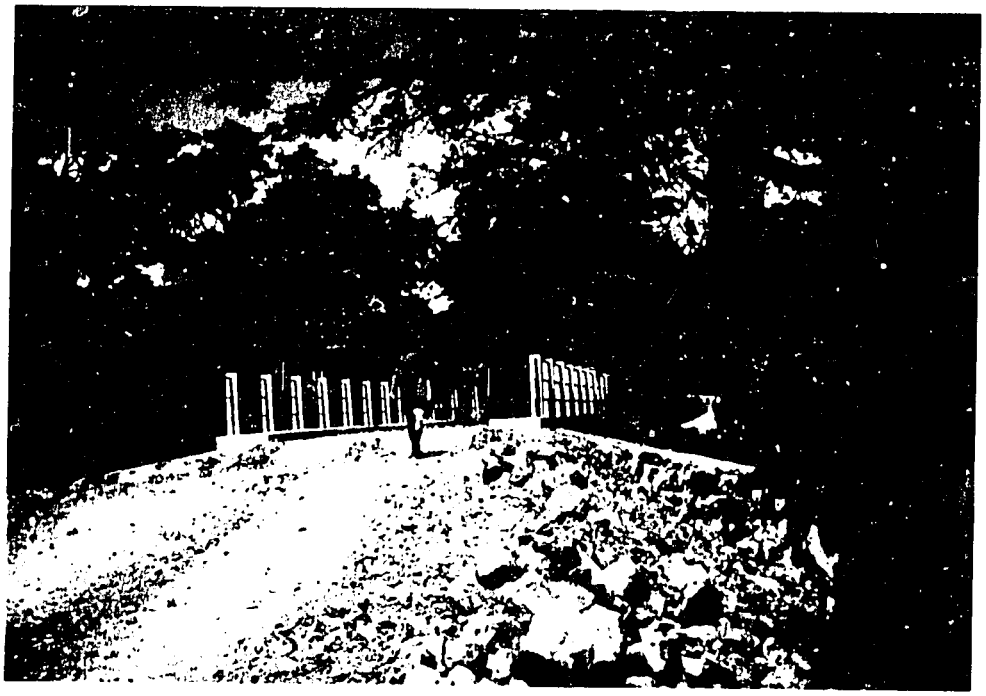
b2



BRIDGES

There is insufficient runoff and erosion protection (b3) on the bridge approach and there is no signage on the turns to the bridge.

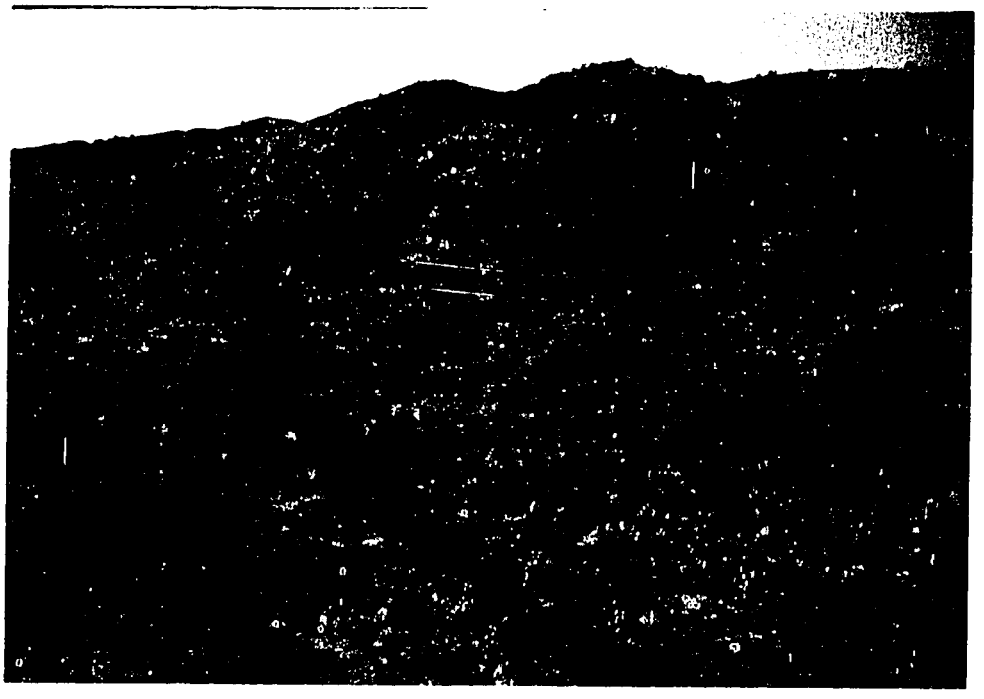
b3



RURAL ELECTRIFICATION

Most rural electrical lines that cross through forest and valleys were found to have minimal impacts, (e1 and e2).

e1



e2

RURAL ELECTRIFICATION

Many remote villages and rural houses are being included in the national grid with the rural electrification program (e3, e4,). These extensions are low voltage and appear to have minimal environmental impact on the local population.

e3

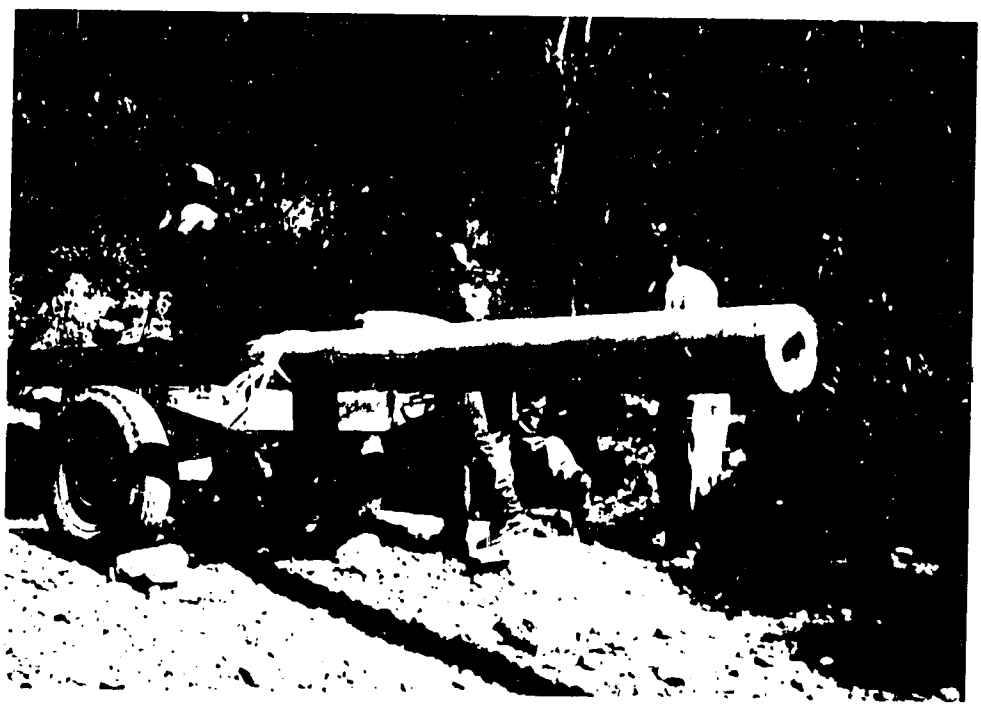
e4

RURAL ELECTRIFICATION

The siting and installation of concrete polls is generally adequate (see e5, e6) with exceptions related to lack of drainage considerations (e7).

e5

e6

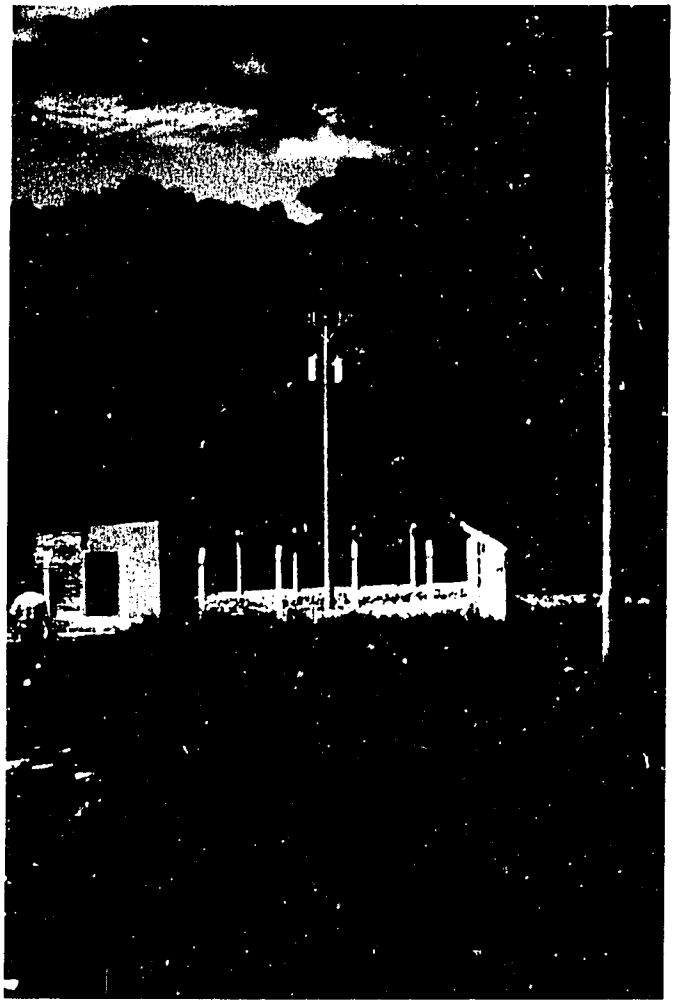


e7

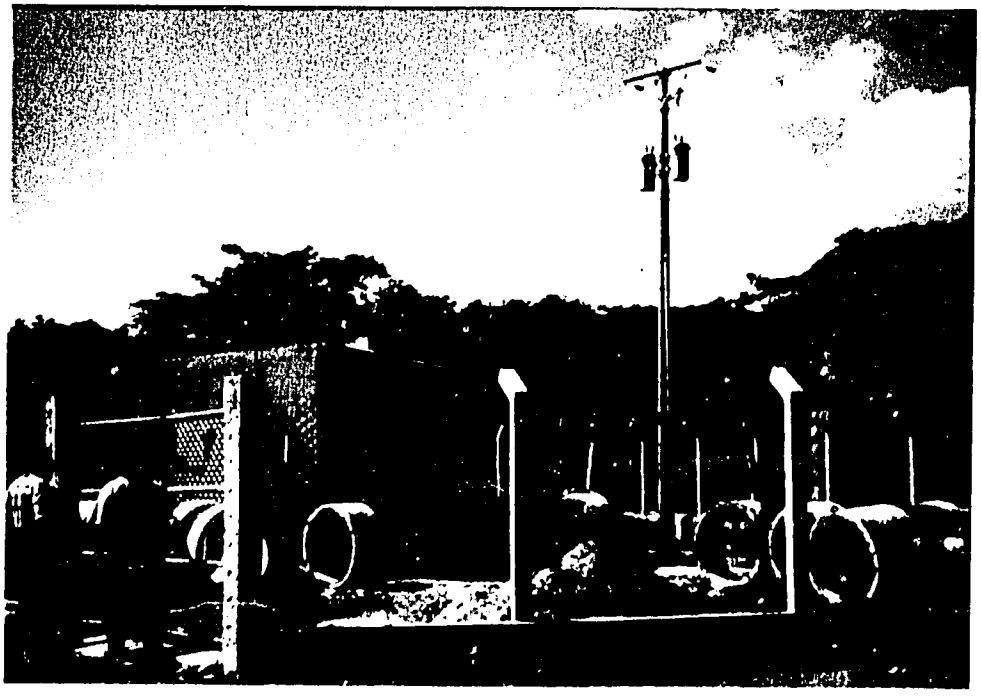
WATER SUPPLY

Photos w1 through w5 show adequate protection around well and pump stations. In a similar fashion, w6 shows a holding tank located near spring intake that is enclosed and protected from contamination.

w1

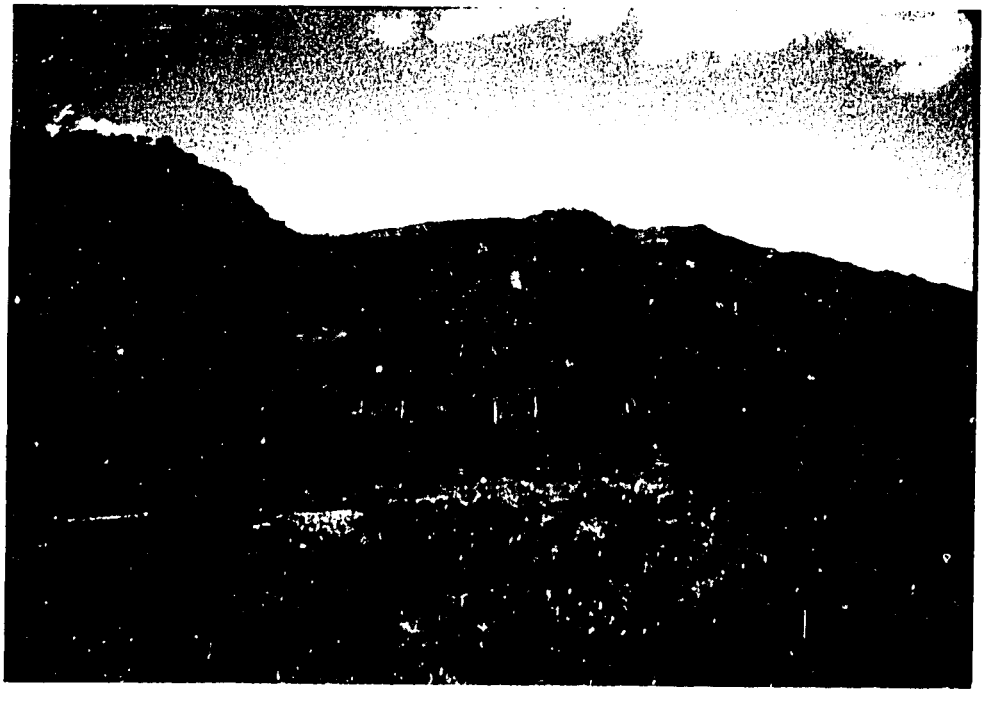


w2

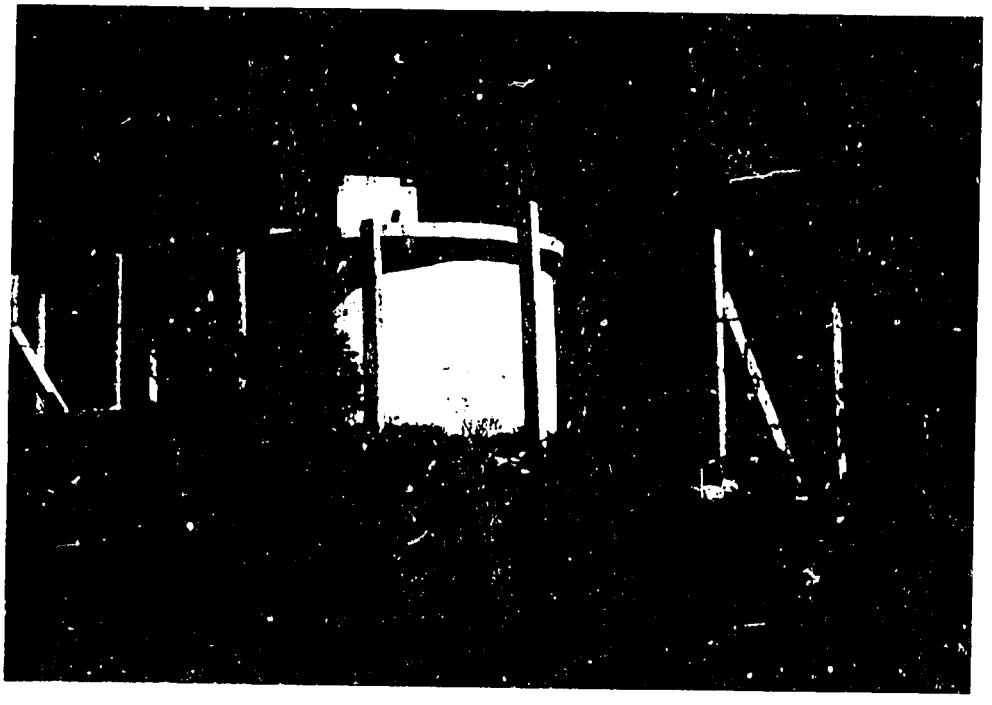


w3

w4



w5



w6

WATER SUPPLY

The water stands are generally well constructed but lack adequate drainage, and most have heavy use which results in accumulation of stagnant pools of water at the edge of the water stand concrete base (w7 and w8). Using a bed of gravel several inches thick surrcunding the water stand base would minimize this problem.

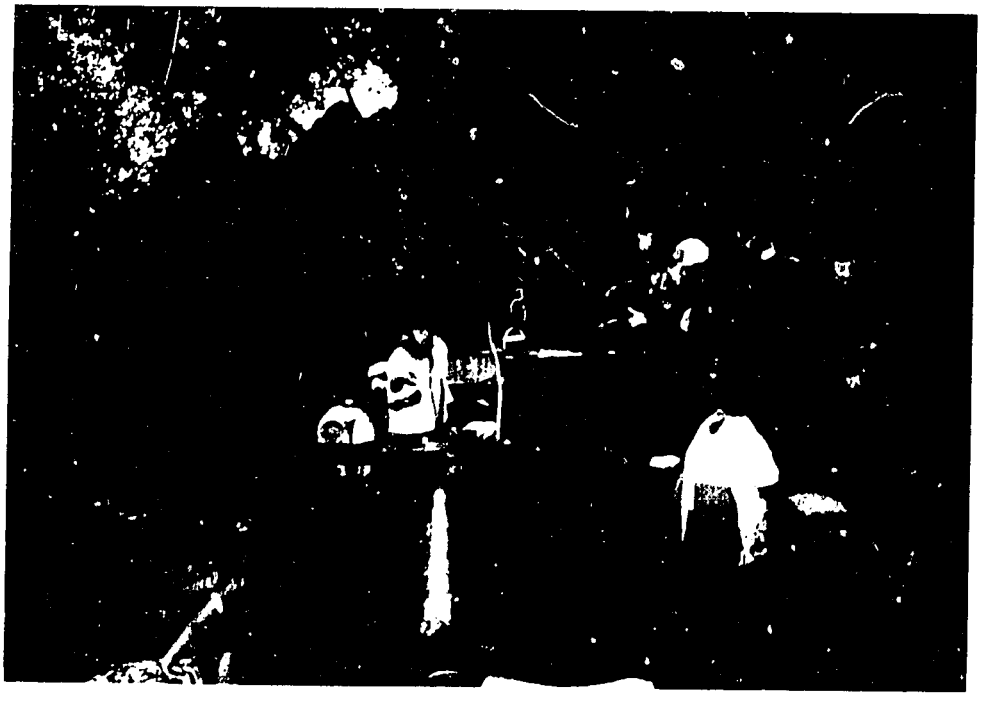
w7

w8

WATER SUPPLY

Discussions about adequate protection of the water intake area in the text are illustrated in w9. This water intake site has frequent use by another village for bathing, washing and laundry. The construction of a water intake must protect the water supply from human disturbance and contamination.

w9

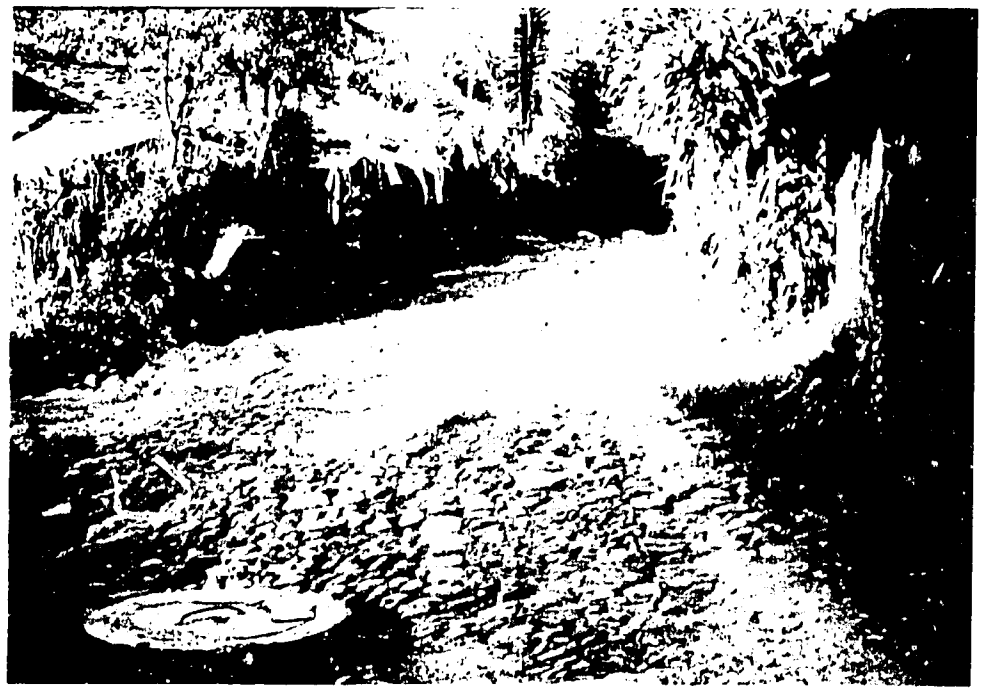


WASTEWATER COLLECTION

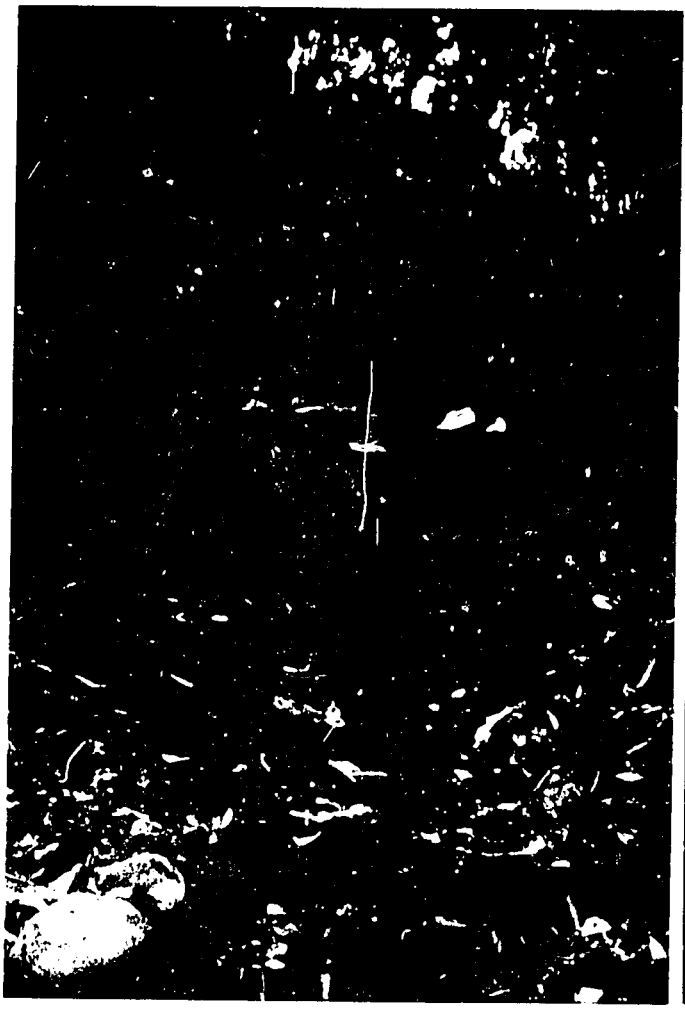
The waste water collection system build for Ciudad Barrios, San Miguel, is diverting a health problem from one location to another (11 through 15). The collection system collects human waste from numerous households in the city but discharges these waste without any treatment directly into the adjacent stream (13 and 14). As discussed in the section on mitigation measures and environmental criteria, this is a overall health problem that should have been considered in the original project design.

11

12



13

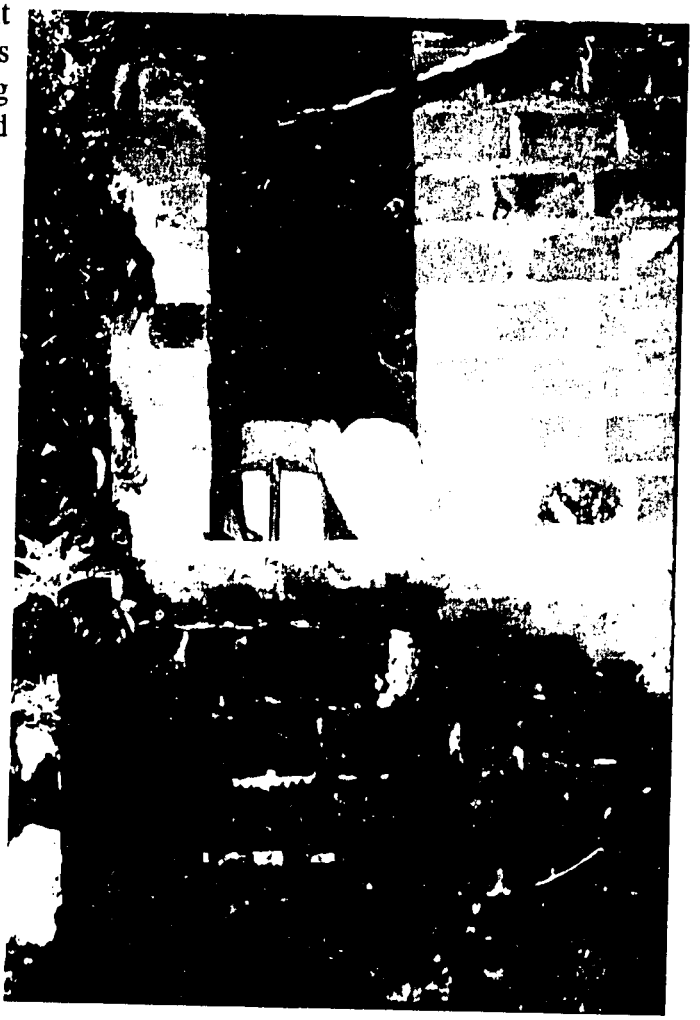


14

15

LATRINES

Compost latrines (16 and 17) are being built throughout the country and present several problems with regard to location of latrine near drinking water wells, shallow aquifers and improper use and maintenance.



16

17

RIVER PROTECTION

The following photos show the measures undertaken near El Transito, San Miguel to control the river from flooding over the river banks. Retaining walls were built at a location that has experienced flood levels (r1 and r2). This location is at a bend in the river and the retaining walls were built to prevent the sediment and waters from overflowing. These engineering measures are not expected to solve the problem, sincehe flooding and sediment loading are related to land use practices in the upper river watershed.

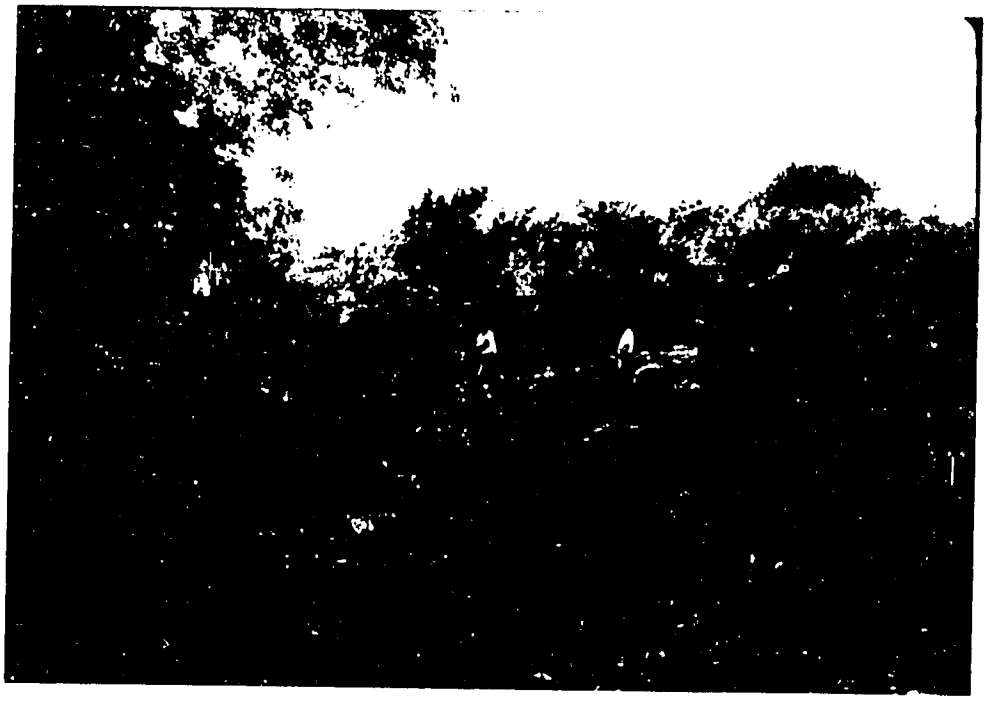
r1

r2

RIVER PROTECTION

Unfortunately, this project caused another problem by diverting the flow of the stream into the railroad bridge supports (r3 and r4). The bridge supports act as a natural barrier to stream flow and act to collect the sediment. Increased water flow and subsequent hydolic pressure are thought to be undermining and weakening the bridge support.

r3



r4

RIVER PROTECTION

Another problem in this project is that the Department of Roads extracts the aggregate which is a lava pumice from the streambed, and uses it for an aggregate composite in road repair and rehabilitation (r5 and r6). This extraction undertaken with heavy machinery causes the modification of natural river bed deposits and the loss of natural flood protection processes.

r5

r6

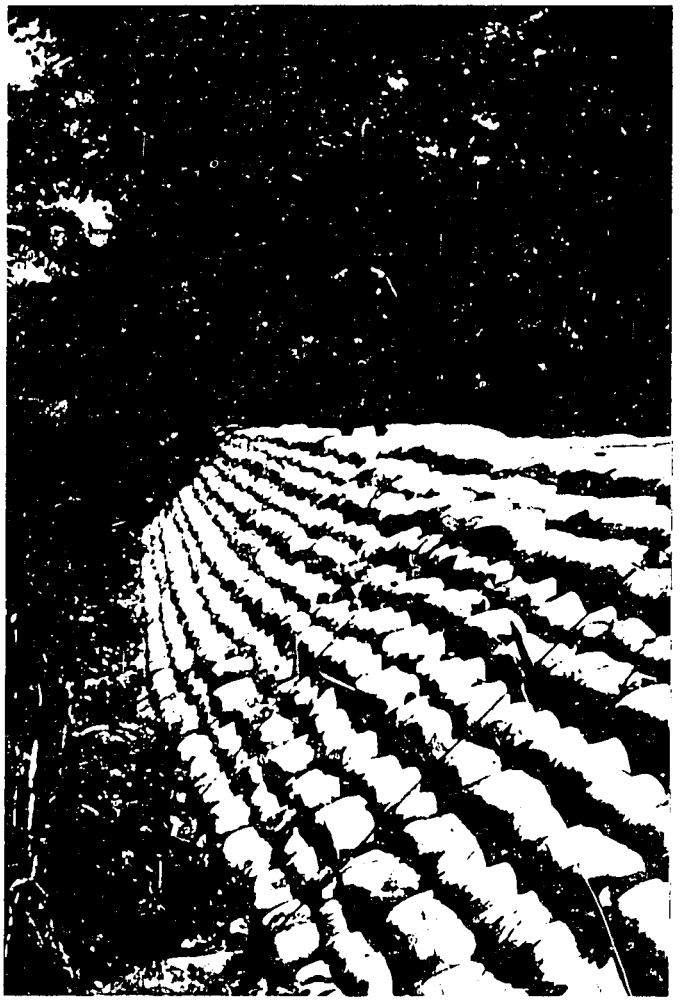
RIO LEMPA

The lower Rio Lempa (r7) is seen at the location where the flooding problems have occurred. Sand bags were placed to build a flood protection bank approximately 1.5 meters high. The sand bags are secured with iron rods in concrete footers (r8) and wire cables and chicken wire mesh (r9 and r10).

r7

r8

r9



r10