PD-AAV-859

50209

AUDIT OF THE ENVIRONMENTAL SANITATION COMPONENT OF THE COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS IN GUATEMALA

PROJECT NO. 520-0251

Audit Report No. 1-520-87-28-N
May 22, 1987

a

AGENCY FOR INTERNATIONAL DEVELOPMENT

U S MAILING ADDRESS
RIG/T
APO MIAMI 34022

OFFICE OF THE REGIONAL INSPECTOR GENERAL
AMERICAN EMBASSY
TEGUCIGALPA - HONDURAS

TELEPHONES:
32-9987
also 32-3120 EXT. 2701-2703

May 22, 1987

MEMORANDUM

TO : D/USAID/Guatemala, Anthony J. Cauterucci

FROM : RIG/A/T, Coinage N. Gothard, Jr.

SUBJECT: Audit Report No. 1-520-87-28-N, "Audit of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems in Guatemala, Project No. 520-0251"

This report presents the results of a non-Federal financial and compliance audit requested by your Mission of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems managed by the Environment Sanitation Division (DSM) of the Guatemalan Government. The certified public accounting firm of Touche Ross & Co. prepared the report, which is dated May 18, 1987.

The purpose of this financial and compliance audit was to determine if the financial information of eight selected subprojects of potable water systems and latrines installations fairly presented their financial situation as of June 30, 1986; to determine if the construction estimates of the eight subprojects fairly presented the materials and supplies used as of June 30, 1986; to determine if the financial information of the latrine factory fairly presented the cost of materials from January 1, 1985 to June 30, 1986; to study and evaluate DSM's system of internal controls; and to determine if DSM and the Ministry of Public Health and Social Assistance complied with applicable laws, regulations and agreements.

Touche Ross disclaimed an opinion on the financial information of the eight subprojects as of September 30, 1986 due to an inadequate accounting system to generate financial information. They disclaimed an opinion on the construction estimates of the eight subprojects as of June 30, 1986 due to a limited scope caused by inadequate records and files. They disclaimed an opinion on the financial information of the latrine factory as of June 30, 1986 due to inadequate accounting records and controls. Their study and evaluation of internal controls disclosed inadequate controls of materials and supplies, errors in financial statements and other conditions which result in more than a relatively low risk that errors or irregularities in amounts that might be significant to the program may occur and not be detected within a timely

b

period. They also determined that DSM had not complied with certain agreement terms. For items not tested, nothing came to their attention that caused them to believe that untested items were not in compliance.

The Touche Ross report contains 6 recommendations concerning construction estimates, 3 recommendations concerning the latrine factory, 11 recommendations to improve DSM's internal controls and 2 recommendations to achieve compliance with applicable agreements. We believe that these recommendations will significantly improve the administrative and compliance weaknesses. As a result, the following recommendation will be included in the Office of the Inspector General's audit recommendation follow-up system.

Recommendation No. 1

We recommend that USAID/Guatemala obtain evidence from the Environment Sanitation Division (DSM) of the Guatemalan Government to demonstrate that it has implemented the 6 recommendations concerning construction estimates, the 3 recommendations concerning the latrine factory, the 11 recommendations to improve internal controls, and the 2 recommendations to achieve compliance with applicable agreements contained in the Touche Ross report dated May 18, 1987.

Please advise this office within 30 days of the actions planned or taken to implement this recommendation.

Lara & González, CPA
Member Firm
Touche Ross International

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS
ENVIRONMENTAL SANITATION COMPONENT
USAID/GUATEMALA PROJECT No. 520-0251

APARTADO POSTAL 317-I · GUATEMALA, C.A. · TELEPHONE: 66595/315466

d

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

AUDIT REPORT

CONTENTS

	Page
TRANSMITTAL LETTER AND SUMMARY	
Background	i
Audit objectives and scope	ii
Results of the audit	iv
Management comments	vii
FINANCIAL INFORMATION OF EIGHT SELECTED SUBPROJECTS	
Auditor's opinion	1
Financial information	3
Notes to the financial information	5
CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS	
Auditor's opinion	8
Construction estimates	10
Findings	11
LATRINE FACTORY	
Auditor's opinion	18
Statement of latrines manufacturer	20
Findings	22
INTERNAL ACCOUNTING CONTROL	
Auditor's opinion	25
Findings	27
COMPLIANCE WITH LAWS, REGULATIONS AND AGREEMENT TERMS	
Auditor's opinion	39
Findings	41
ENGINEERS' REPORT	
Engineers' opinion	43
Memorandum	45

l

Lara & González, CPA
Member Firm
Touche Ross International

May 18, 1987

Mr. Coinage N. Gothard
Regional Inspector General for Audit
U. S. Agency for International Development
Tegucigalpa, Honduras, C. A.

Dear Mr. Gothard:

This report presents the results of our audit of eight selected subprojects of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems, USAID/Guatemala Project No. 520-0251, as of June 30, 1986.

BACKGROUND

The Government of Guatemala (GOG), through the Ministry of Public Finances, the General Secretariat of the National Economic Planning Council and the Ministry of Public Health and Social Assistance, signed the following agreements with the U. S. Agency for International Development in Guatemala (USAID/Guatemala) in September 1980, and amended them as of June 30, 1986. Loan Agreement No. 520-U-033 for US$9,500,000 and Grant Agreement No. 520-0251 for US$1,274,000 were to implement an integrated environmental sanitation and primary health care program in small communities in the departments of Sololá, San Marcos, Totonicapán, El Quiché, Quetzaltenango and Huehuetenango, Guatemala. The program's goal will be achieved through the provision of potable water, excreta disposal facilities and health education to rural communities in these six departments.

The project was divided in two components; the environmental sanitation and primary care and support system. The environmental sanitation component included the construction of approximately 250 potable water systems, 16,000 new household connections and 17,000 latrines installed in all households in the communities where water systems are to be built. In addition, in each of the beneficiary community, a basic health education program will be implemented, a local committee for the operation and maintenance of the water system will be organized and at

APARTADO POSTAL 417 I. GUATEMALA, C.A. - TELEPHONE 66595/315466

least two inhabitants in each community will be trained in operation and maintenance procedures for the rural water systems. The primary care and support system included the construction, renovation and equipping of health posts and centers in the target area. The implementation period of the project will be the five (5) years ending on December 31, 1988.

USAID/Guatemala provided $10,774,000 in local and foreign currencies to finance the acquisition of the goods and services necessary to develop the project. The GOG counterpart provided Q.11,440,000 (approximately $3,950,000) in general and administrative expenses and other direct and indirect costs related to the project.

The loan of $9,500,000 earns an annual interest rate of 2% during the first ten years and 3% thereafter. Is payable in U. S. dollars during a period of 25 years from the date of the first disbursement in 31 equal semiannual installments of principal and interest, starting 9 1/2 years after the date on which the first interest payment is due.

The funds will be provided through partial disbursements approved after satisfying specific evaluation requirements on project advance implementation and detailed plans on the use of funds and the specific objectives to be attained with each disbursement (which should be converted into Quetzales when received at the highest legal exchange rate available in the market). Funds should be used to obtain goods and services originating in the countries included in code 941 of the AID Geographic Code Book.

To manage the project the GOG assigned the Environment Sanitation Division (División de Saneamiento del Medio, DSM) as the planning and implementing unit. This was under the supervision of the General Directorate of Health Services, which provided administrative and financial support to the personnel assigned to the program. DSM was integrated by an officer in charge, Department of Water Supply, Department of Control and Residual Disposal, Department of Environmental Control and Department of Record and Control of Installations and Constructions.

AUDIT OBJECTIVES AND SCOPE

The general objective was to perform a financial and compliance review of part of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems managed by DSM. For this purpose, USAID/Guatemala selected eight (8) subprojects of potable water and latrine installation to be reviewed. This included the latrines factory, warehouse procedures and an independent engineer's estimation of the materials used in the eight subprojects.

Our review was made in accordance with generally accepted auditing standards and the U. S. General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" (1981 Revision), and therefore included such tests of the accounting records and other auditing and technical procedures as we considered necessary in the circumstances. Our examination was made to determine whether:

1. The financial information of the eight selected subprojects of potable water systems and latrines installations fairly present their financial situation as of June 30, 1986.

2. The support on construction estimates of the eight selected subprojects fairly present the materials and supplies used in their construction as of June 30, 1986.

3. The financial information of the latrine factory, including a comparison with an independent civil engineer's estimation for the period from January 1, 1985 to June 30, 1986, fairly presents the cost of the materials utilized.

4. The system of internal accounting and warehouse controls of DSM during the period from January 1, 1985 to June 30, 1986, adequately contributed to control the transactions related with the project's execution.

5. The DSM and the Ministry of Public Health and Social Assistance have complied with applicable laws, regulations and agreement terms. Our opinion includes a positive assurance on tested items and a negative assurance on untested items.

6. An independent civil engineer's report about the adequacy of the eight selected subprojects, including their current functioning and the quantity and the quality of the materials and supplies used.

The scope of our work consisted of:

A. Comparing the designs of the eight selected subprojects of potable water and latrine systems with the built systems and materials actually used.

   a) Obtaining the project design for the eight selected subprojects.

   b) Comparing the materials recorded as delivered from the warehouse against those actually utilized in the eight subprojects and against the project design quantification of materials and budget.

c) Analyzing materials utilized in the construction of latrines during the period from January 1, 1985 to June 30, 1986 in the regional latrine factory.

B. Evaluating the community in-kind contributions. Interviewing the local committees of the eight selected subprojects in order to determine the community in-kind contributions for each subproject to be evaluated.

C. Evaluating warehouse functions which included:

a) Reviewing on a sample basis the procurment procedures from January 1, 1985, to June 30, 1986, to determine compliance with the GOG regulations and with USAID/Guatemala requirements.

b) Analyzing and evaluating the control procedures in the main warehouse located in the Regional Center in Totonicapán and the eight warehouses in the examined subprojects.

D. Reviewing those other procedures that we considered necessary to evaluate the management of materials, warehouse controls and the procurement procedures.

E. An independent civil engineering firm quantified and reviewed the material utilized. Their report is included as part of this report.

RESULTS OF THE AUDIT

Financial Information of Eight Selected Subprojects

The DSM lacks an adequate accounting system to generate financial information on the project. The related costs were accrued in subsidiary records on a single entry basis without a control account and without reconciliation with the accounting records. Additionally, the project cost estimation worksheets prepared as of December 31, 1985, showed significant discrepancies with quarterly reports. Those weaknesses did not allow us to verify through other auditing procedures the reasonability of the reported financial information. As a result the scope of our work was not sufficient to allow us to express, and we do not express, an opinion on the financial information regarding the eight selected subprojects as of June 30, 1986.

Construction Estimates of the Eight Selected Subprojects

The examination on the estimates of materials installed in comparison with those materials remitted by the warehouse of the Regional Center in Totonicapán, was covered through the

technical evaluation and estimation performed by independent civil engineers of the potable water systems and the manufacturing and installation of latrines.

The independent civil engineers carried out the technical evaluation and estimation on quantities and qualities of the materials used in the construction of the dams, conducting lines, distribution tanks, domiciliary installations and manufacturing and installation of latrines, compared with the design plans. The materials used in the conduction of water and the installation of latrines, in general, comply with the technical specifications included in the plans and seemed to be adequate to guarantee the efficiency of the project. However, the engineers also identified some deficiencies in the project design and execution which could affect pipeline operations in the near future.

As a result of the quantification and pricing of the materials estimated by the engineers compared with those reported as consumed we detected discrepancies related to: a) Materials reported as remitted to but apparently never received by other subproject or warehouse, community in-kind contributions not reported as installed or in inventory, and remaining materials not returned to the warehouse.

The inadequate accounting records in DSM and the lack of confidence in the information prepared by the Regional Center, due to its inadequate files and records (mainly for those transactions prior to 1985), did not allow us to clarify the discrepancies mentioned or to apply alternative auditing procedures. This limited our scope of work, which was not sufficient to enable us to express, and we do not express, an opinion on the quantities of materials reported as used and the costs of the eight selected subprojects managed by the Environment Sanitation Division (DSM)as of June 30, 1986.

Latrine Factory

The use of inadequate accounting records in the latrine factory caused: a) discrepancies in the quantities of materials reported as used in the latrines manufacture compared with the estimations made by independent civil engineers; b) lack of control on materials and supplies; and c) inadequate controls on the manufactured products. The inadequate accounting records and files and the lack of an adequate cost accounting system did not allow us to apply alternative auditing procedures. Therefore our scope of work was not sufficient to enable us to express and we do not express, an opinion on the financial information on the latrines factory costs for the period from January 1, 1985 to June 30, 1986.

Internal Accounting Control

As part of our review we made a study and evaluation of the internal accounting control of the Environment Sanitation Division (DSM) during the period from January 1, 1985 to June 30, 1986, as agreed with USAID/Guatemala, with the extension that we considered necessary to determine the nature, extension and opportunity of our auditing procedures necessary to express an opinion on eight selected subprojects of the Environmental Sanitation Component as of June 30, 1986. Our study and evaluation was more limited than would be necessary to express an opinion on the internal accounting control system taken as a whole. However, our study and evaluation revealed some conditions that, in our opinion, result in more than a relatively low risk that errors or irregularities, in amounts that might be significant to the program, might occur and not be opportunely detected.

Our study and evaluation included the review of the major internal controls related with the communities' in-kind contributions and reception, and procurement, reception, storage and control of materials and supplies. In this regard, the principal weaknesses detected were: a) lack of records about the communities' in-kind contributions; b) inadequate procedures to control the movement of materials and supplies; c) discrepancies between materials reported as remitted and reported as received between warehouses and subprojects; d) materials received with specifications different from those required; and e) errors in monthly financial statements reporting materials delivered to the projects.

Due to the weaknesses observed in the system and since the project is still in progress, we considered it urgent to design an internal accounting control system that provides adequate control over the transactions and safeguards the project's assets.

Compliance with Applicable Laws, Regulations and Agreement Terms

As a result of our examination, we determined that the Environment Sanitation Division (División de Saneamiento del Medio, DSM) did not comply, in general terms, with the agreement terms related to the requirements and control of the communities' in-kind contributions. It was established that the communities should contribute only with unskilled labor; there were inadequate accounting controls as a consequence of not establishing independent accounting records according to generally accepted accounting principles; there was a lack of an adequate control on the materials and supplies procured with AID

funds; and the non-compliance with the approved budgets in some subprojects as agreed, because some of them were changed without the concurrence of all parts involved in the project.

Nothing came to our attention that caused us to believe that untested items were not in compliance with agreements terms.

MANAGEMENT COMMENTS

USAID/Guatemala reviewed this report and was in general terms in agreement with its content. The principal officers of the Environment Sanitation Division (División de Saneamiento del Medio, DSM) participated in a discussion held in the USAID/Guatemala offices on April 22, 1987 and in general terms were in agreement with this report. However, they explained that their participation in the DSM administration started in January 1985 and almost all the eight subprojects selected for this audit were completed before that date. Consequently a good part of the included recommendations were implemented in other subprojects, some which are still in progress. As a result, this report includes findings and recommendations which will be received by the actual administration in order to implement them and/or will explain how, when and in which subprojects they were implemented. The USAID/Guatemala, Project Officer concurred with these points of view. Some changes suggested in this meeting were included herein.

Touche Ross & Co.

TOUCHE ROSS & CO.
Certified Public Accountants

Lara & González, CPA
Member Firm
Touche Ross International

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON FINANCIAL INFORMATION OF EIGHT SELECTED SUBPROJECTS

AUDITOR'S OPINION

We have examined the financial information of eight subprojects of potable water and latrine installation of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems performed by Environment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance (Ministerio de Salud Pública y Asistencia Social, MSPAS), as part of Loan Agreement 520-U-033 for US$9,500,000 and Grant Agreement 520-0251 for US$1,274,000 signed with the U. S. Agency for International Development in Guatemala (USAID/Guatemala), for the period from October 1, 1982 to June 30, 1986. Except as mentioned in the following paragraph, our examination was made in accordance with generally accepted auditing standards and the U. S. General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" (1981 Revision) and consequently, included such tests of the accounting records and other auditing procedures as we considered necessary in the circumstances.

As explained in Note A, the Environment Sanitation Division did not have an appropriate accounting system to generate the project's financial information. The related costs are accrued in subsidiary records with no control accounts and without reconciliation to the accounting records. Additionally the project cost estimation worksheets prepared as of December 31, 1985, showed weaknesses in its preparation, including the lack of support documentation, and discrepancies with the quarterly reports.

Our study and evaluation of the system of internal accounting control revealed some weaknesses in the system which, in our opinion, taken as a whole, result in more than a relatively low risk that errors or irregularities might occur in amounts that

APARTADO POSTAL 317 I - GUATEMALA C.A. - TELEPHONE 66595/315466

may be material in relation to the subprojects that may not be detected on a timely manner.

Due to the bad condition of the accounting records we could not apply alternative auditing procedures and our work was not sufficient to enable us to express, and we do not express, an opinion on the financial information of the eight evaluated subprojects as of June 30, 1986.

This report is intended solely for the use of DSM, MSPAS and the U. S. Agency for International Development. This restriction is not intended to limit the distribution of this report which, upon acceptance by the AID Regional Inspector General, is a matter of public record.

Touche Ross & Co.

February 20, 1987
Guatemala

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

FINANCIAL INFORMATION OF EIGHT SELECTED SUBPROYECTS

OF POTABLE WATER

SEPTEMBER 30, 1986

(Quetzales - Note D)

	Chiyax	Piedra Cuache	Chuachinup	Chuicotom	Santa Ana Centro Chenimajuyup	Chuiquel-Los Tablones	Santa Teresa-La Ciénaga	Las Vásquez-Pacomché	Total
Estimated costs as per contribution source:									
A. I. D.	Q.13,906	Q.13,517	Q.12,240	Q.16,037	Q. 84,736	Q. 38,054	Q. 69,427	Q. 10,904	Q.258,821
Government of Guatemala	9,017	8,468	9,551	5,146	43,127	14,245	22,440	5,157	117,150
Community	14,521	6,318	6,006	7,587	31,044	19,396	21,432	7,457	113,761
	37,444	28,303	27,797	28,770	158,906	71,695	113,299	23,518	489,732
Incurred costs as per contribution source:									
A. I. D.	14,172	16,998	12,615	21,381	112,865	27,936	65,018	22,490	293,475
Government of Guatemala	9,566	11,598	7,016	14,432	120,561	10,699	16,214	14,816	204,902
Community	11,524	6,318	6,006	7,587	-	19,396	21,432	7,457	79,720
	35,262	34,914	25,637	43,400	233,426	58,031	102,664	44,763	578,097
Excess incurred (less)	Q.(2,182)	Q. 6,611	Q.(2,160)	Q.14,630	Q. 74,520	Q.(13,664)	Q.(10,635)	Q.21,245	Q. 88,365

Enclosed notes are an integral part of this financial report.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

FINANCIAL INFORMATION OF EIGHT SELECTED SUBPROJECTS

OF LATRINIZATION

SEPTEMBER 30, 1986

(Quetzales - Note D)

	Chiyax	Piedra Cuache	Chuachinup	Chuicotom	Santa Ana Centro Chenimajuyup	Chuiquel-Los Tablones	Santa Teresa-La Ciénaga	Las Vásquez-Pacomché	Total
Estimated costs as per contribution source:									
A. I. D.	Q. 6,074	Q. 1,668	Q. 5,943	Q. 6,834	Q. 12,502	Q. 17,309	Q. 3,873	Q. 4,411	Q. 58,714
Government of Guatemala	1,438	899	6,801	1,228	3,470	5,451	1,047	829	21,163
Community	1,027	1,486	5,413	1,047	5,532	3,735	1,463	544	20,247
	8,539	4,053	18,157	9,109	21,504	26,495	6,483	5,784	100,124
Incurred costs as per con-contribution source:									
A. I. D.	1,653	1,871	2,235	958	4,918	2,723	1,949	1,094	17,401
Government of Guatemala	2,917	773	1,824	1,713	5,711	4,868	4,525	2,471	24,802
	4,570	2,644	4,059	2,671	10,629	7,591	6,474	3,565	42,203
Excess incurred (less)	Q.(3,969)	Q.(1,409)	Q.(14,098)	Q.(6,438)	Q.(10,875)	Q.(18,904)	Q. (9)	Q.(2,219)	Q.(57,921)

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

NOTES TO THE FINANCIAL INFORMATION OF EIGHT SELECTED SUBPROJECTS

FROM OCTOBER 1, 1982 TO JUNE 30, 1986

A. Basis of Presentation

The financial information was prepared on the basis of the accumulation of incurred costs when materials were consummed. The project's transactions were recorded in subsidiary records on a single entry basis with no control account and without reconciliation with accounting records. The financial information herein included, is for projects completed on/or before June 30, 1986, except for the project of "Santa Ana Centro Chinimajuyup" which was in progress on June 30, 1986 and which figures included in the financial information were as of September 30, 1986.

B. Agreement Terms

The Government of Guatemala (GOG) through the Ministry of Public Finances, the General Secretariat of the National Economic Planning Council and the Ministry of Public Health and Social Assistance; signed in September 1980, the agreements with the U. S. Agency for International Development in Guatemala (USAID/Guatemala) which amended as of June 30, 1986, were as follows: Loan Agreement No. 520-U-033 for US$9,500,000 and Grant Agreement No. 520-0251 for US$1,274,000, to implement an integrated environmental sanitation and primary health care program in small communities in the departments of Sololá, San Marcos, Totonicapán, El Quiché, Quetzaltenango and Huehuetenango. The program's goal will be achieved through the provision of potable water, excreta disposal facilities and health education to rural communities in these six departments. The implementing unit of the program is the Enviroment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance.

The project was divided in two components: the environmental sanitation and the primary health care and support system. The environmental sanitation component included the construction of approximately 250 potable water systems, 16,000 new household connections and 17,000 latrine installation in all households in the communities where water systems are to be built. In addition, in each beneficiary community, a basic health education program will be implemented, a local committee for the operation and maintenance of the water system will be organized and at least two inhabitants in each community will be trained in basic operation and maintenance procedures for the rural water systems.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

NOTES TO THE FINANCIAL INFORMATION OF EIGHT SELECTED SUBPROJECTS

FROM OCTOBER 1, 1982 TO JUNE 30, 1986

The primary care and support system included the construction, renovation and equipping of health posts and centers in the target area. The implementation period of the project will be the five (5) years ending on December 31, 1988.

USAID/Guatemala provided $10,774,000 in local and foreign currencies to finance the acquisition of the goods and services necessary to develop the project. The GOG counterpart provided Q.11,440,000 (approximately $3,950,000) in general and administrative expenses and other direct and indirect costs related to the project.

Loan Agreement, Interest and Repayment

The loan of $9,500,000 earns an annual interest rate of 2% during the first ten years and 3% thereafter. It is payable in U. S. Dollars during a period of 25 years from the date of the first disbursement, in 31 equal semiannual installments of principal and interest starting 9 1/2 years after the date on which the first interest payment is due.

Terms of the Agreements

The funds will be provided through partial disbursements approved after satisfying specific evaluation requirements on project advance implementation and detailed plans on the use of funds and the specific objectives to be attained with each disbursement (which should be converted into Quetzales when received at the highest legal exchange rate available in the market). Funds should be used to obtain goods and services originating from the countries included in code 941 of the AID Geographic Code Book.

C. Implementing Institution

To manage the project, the Government of Guatemala (GOG) assigned the Environment Sanitation Division (División de Saneamiento del Medio, DSM) a division of the General Directorate of Health Services of the Ministry of Public Health and Social Assistance. This unit has the responsibility for planning, supervising and implementing the project, providing administrative and financial support to the personnel assigned to the program, and was integrated by an officer in charge, Department of Water Supply,

Department of Control and Residual Disposal, Department of Environmental Control and Department of Record and Control of Installations and Constructions.

D. Monetary Unit

The project's financial information is reported in Quetzales (Q.), the monetary unit of the Republic of Guatemala, which have an official exchange rate of Q.1:US$1. Starting in April 1980, foreign exchange controls were implemented by the GOG. In November 1984, the Foreign Exchange Regime Law was issued, establishing three legal markets as follows: a) the essential market that maintains the parity of the Quetzal with the United States Dollar b) the auction market, where the exchange rate fluctuates based on the offer and demand, and c) the free market, where the exchange rate is established by the Bank of Guatemala (the Central Bank).

In June 1986 a new Foreign Exchange Regime Law was issued, establishing three new legal markets and voiding prior dispositions. As of June 30, 1986 the exchange rates were as follows:

a) Official Market, for the payment of external public debt and private liabilities registered and declared before June 6, 1986. Q.1.00:US$1.00.

b) Regulated market, for the payment of some importations classified as necessary by the Monetary Board, and importations and payments of the external public debt. Q.2.50:US$1.00

c) Banking market, to attend those transactions not included in the above mentioned markets. The exchange rate was determined by the Monetary Board according to offer and demand. As of June 30, 1986 the exchange rate was Q.2.95:US$1.

Lara & González, CPA
Member Firm
Touche Ross International

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS

AUDITOR'S OPINION

We have examined the financial information of eight subprojects of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems implemented by the Environment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance (Ministerio de Salud Pública y Asistencia Social, MSPAS) as part of Loan Agreement No. 520-U-033 and Grant Agreement No. 520-0251 with the U. S. Agency for International Development in Guatemala (USAID/Guatemala). As part of our examination we made a study and evaluation of the materials reported as used compared with the materials used in the eight selected subprojects in accordance with an estimation made by independent civil engineers for the period from October 1, 1982 to June 30, 1986 to determine if the financial information of the eight selected subprojects fairly presents the materials actually necessary and utilized. Except for the limitation in our scope as mentioned in the following paragraph, our study and evaluation was made according to generally accepted auditing standars and the U. S. General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" (1981 Revision) and consequently included such tests of the accounting records and other auditing procedures as we considered necessary in the circumstances, including the quantification of estimated materials prepared by independent civil engineers.

As commented in findings Nos. 1 to 6 in the following pages, there were discrepancies in materials dispatched, received and used in the eight selected subprojects but, the accounting records used by DSM to control the project's operations were inadequate and we could not apply alternative auditing procedures to satisfy ourselves about the causes of the discrepancies in construction estimates, mainly related to differences which occured before 1985.

APARTADO POSTAL 317 | GUATEMALA C A · TELEPHONE 66595/315466

Due to the limitation in our work as mentioned in the precedent paragraph, the scope of our work was not sufficient to enable us to express, and we do not express, an opinion on the estimated construction costs for the eight selected subprojects during the period from October 1, 1982 to June 30, 1986, as presented herein compared with estimations made by independent civil engineers.

This report is intended solely for the use of DSM, MSPAS and the U. S. Agency for International Development. This restriction is not intended to limit the distribution of this report which, upon acceptance by the AID Regional Inspector General, is a matter of public record.

Touche Ross & Co.

February 20, 1987
Guatemala, C. A.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS

SEPTEMBER 30, 1986

(Quetzales)

	Chiyax	Piedra Cuache	Chuachinup	Chuicotom	Santa Ana Centro-Chenimajuyup	Chuiquel-Los Tablones	Santa Teresa-La Ciénaga	Las Vásquez-Pacomché	Total
Potable water:									
Cost of materials as per accounting	Q.14,543	Q.13,701	Q.14,163	Q.18,378	Q.89,711	Q.27,936	Q.64,875	Q.22,490	Q.265,797
Pricing of quantified materials as per evaluation from independent engineers:									
Dispatched materials in excess to installed	(3,793)	(1,252)	(2,264)	(5,915)	(1,972)	(3,637)	(11,014)	(1,491)	(31,338)
Installed materials not dispatched	345	473	497	856	8,298	682	1,387	275	12,813
Dispatched materials not installed	(592)	-	(1,014)	(1,491)	(538)	(836)	(3,473)	(167)	(8,111)
Errors in Accrual of remittances and arithmetical operations	66	-	-	4,909	-	3,721	(459)	86	8,323
Cost of utilized materials as per engineers	Q.10,569	Q.12,922	Q.11,382	Q.16,737	Q.95,499	Q.27,866	Q.51,316	Q.21,193	Q.247,484
Latrinization:									
Cost of materials as per accounting	Q. 4,696	Q. 2,125	Q. 3,376	Q. 1.545	Q. 9,446	Q. 2,599	Q.14,574	Q. 1,429	Q. 39,790
Pricing of quantified materials as per evaluation from independent engineers:									
Dispatched materials in excess to installed	(224)	(32)	(103)	(178)	(1,729)	-	(799)	-	(3,065)
Installed materials not dispatched	312	-	-	-	-	-	127	42	481
Cost of utilized materials as per engineers	Q. 4,784	Q. 2,093	Q. 3,273	Q. 1,367	Q. 7,717	Q. 2,599	Q.13,902	Q. 1,471	Q. 37,206

10

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS

FINDINGS

1. Discrepancies in Installed Materials

Condition:

The independent civil engineers made estimations of the most important materials used in the eight selected subprojects and we valued and compared these estimations against the used materials reported by DSM in each selected subproject. However, the resulting discrepancies could not be cleared due to the lack of appropriate controls and records. The results of our comparison, excluding materials left in some communities for maintenance purposes, were as follows:

Name of the subproject	(Excess) Shortage	Effect in the cost of the subproject
Chiyax	Q.3,952	20.5%
Piedra Cuache	811	5.1%
Chuachinup	2,884	16.4%
Chuicotom	6,728	33.8%
Santa Ana Centro Chenimajuyup	(4,059)	4.1%
Chuiquel - Los Tablones	3,791	12.4%
Santa Teresa - La Ciénaga	13,772	17.3%
Las Vásquez - Pocomché	1,341	5.6
	Q. 29,220	

Criterion:

Materials dispatched should be used in the project, remain under the physical control of the community and/or should be returned to the warehouse of DSM.

Cause:

There was a lack of controls, supervision and specific training of the members of the community by the Regional Center of TotonicapÑan and lack of control over materials in the subprojects' warehouses.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS

FINDINGS

Effect:

Improper utilization of materials might occur without timely detection or without quantification to allow recovery actions.

Recommendation:

The Environment Sanitation Division (DSM) should implement adequate controls to handle the materials in the subprojects' warehouses, training the community members with elementary procedures to control and safeguard the materials under their reponsibility. Periodically, the DSM should supervise the level of compliance with such procedures.

2. Weaknesses in the Cost Controls

Condition:

The pricing of materials utilized in the subprojects prepared by the Accounting Department of the Regional Center of Totonicapán reported, in some cases, deficiencies in its preparation as follows:

a) modifications to amounts and values without explanation,

b) differences between dispatched amounts as per remittances and priced amounts,

c) lack of evidence of review and approval, and

d) materials not included in the cost estimations of latrines installation.

Criterion:

The financial information of the subprojects should be prepared based on reliable data obtained from support documentation and should be reviewed and approved to confirm its reliability and completeness.

Cause:

The deficiencies were caused by an inefficient internal

accounting control system, inadequate accounting records and lack of administrative supervision.

Effect:

There was a lack of confidence in cost information of the subprojects due to erros not detected and not corrected on a timely basis.

Recommendation:

The DSM, as the implementing unit, should create an appropriate accounting system that allows the preparation of reliable information on the cost of the projects as well as control procedures for reviewing and approving costs.

3. Incomplete Files and Subsidiary Records

Condition:

The files of requisitions and remittances, the subsidiary records to cost materials and the sheets used to control dispatched materials were inadequate. It was not feasible for us to clarify the discrepancies detected in the amounts charged to the eight evaluated subprojects because we could not obtain the documentation on transactions prior to 1985, or on the latrines dispatched during the examined period.

Criterion:

The support documentation on transactions regarding the project should be adequately filed and properly identified for each subproject.

Cause:

Before 1985, the support documentation related to project execution had not been adequately controlled. Current personnel did not know the location of the documentation corresponding to such dates.

Effect:

It was not feasible to realize an itemized review of the

information reported on costs of projects that had been completed or almost completed on/or before 1985.

Recommendation:

The DSM should review its file system and subsidiary records in order to complete the files of the completed and ongoing subprojects, as possible, including a complete reorganization and readjustment of the subsidiary accounting records. Take care to adequately preserve such documentation in the future.

4. Materials not received by the Communities.

Condition:

Materials amounting to Q.13,456 were reported as delivered to the communities. However, the communities reported that such materials were not received by them and they did not know who signed as recipient. These missing materials were part of the discrepancies resulting from the comparison of materials estimated as used in the subprojects with materials dispatched from the warehouse. The differences and their effect in percentages, were as follows:

	Valued discrepancies	Effect in the cost of the subproject
Chiyax	Q. 1,467	7.6%
Piedra Cuache	2,176	13.7%
Chuachinup	-	-
Chuicotom	1,323	6.6%
Santa ana Centro Chenimajuyup	3,332	3.4%
Chuiquel - Los Tablones	1,272	4.2%
Santa Teresa - La Ciénaga	3,050	3.8%
Las Vásquez - Pocomché	836	3.5%
	Q. 13,456	

Criterion:

Materials dispatched by the warehouse should appear as allocated

in the project, remain in the communities and/or be reported as transferred to another project or to the DSM warehouse.

Cause:

There was no effective procedure to verify that materials arrived at their final destination.

Effect:

There was a high possibility that such materials were utilized for purposes different from to the project.

Recommendation:

The DSM as implementing unit should establish detective controls as audit functions to allow a timely verification of the reception of the materials in each community, reviewing the remittances to verify their reception; and make periodical physical counts, comparing them with inventories recorded as in existence.

5. Communities' Contributions not Reported

Condition:

During our review we determined that some materials delivered as communities' contributions amounting to Q.6,409 and other materials whose value could not be quantified, were not reported. The effect on each subproject, was as follows:

	Unreported contributions	Effect in the cost of the subproject
Chiyax	Q. 405	2.1%
Piedra Cuache	567	1.6%
Chuachinup	705	4.0%
Chuicotom	-	-
Chuiquel - Los Tablones	360	1.2%
Santa Teresa - La Ciénaga	2,587	3.3%
Las Vásquez - Pocomché	1,785	7.5%
	Q. 6,409	

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS

FINDINGS

Materials amounting to Q.20,319 provided as a community contribution in Santa Ana Centro Chenimajuyup were not included, because a secondary distribution line was simultaneously constructed with no specific controls.

Criterion:

According to terms of the agreements with each community, their contributions were limited to unskilled direct labor. Any additional contribution should be deducted from the total cost and total allocated materials of the correspondent subproject.

Cause:

In order to complete the project some communities were forced to provide materials and other in-kind contributions requested by the chief of the project.

Effect:

The final destination of such provided materials was unknown. The materials might have been used to compensate deviations of materials assigned to each subproject.

Recommendation:

The DSM should instruct the communities about their responsibilities, including the communication to the Regional Center in Totonicapán if additional contributions were requested of them.

6. Materials Returned and not Received in the Regional Warehouse

Condition:

Materials amounting to Q.3,232 were reported as returned to the Regional Warehouse of Totonicapán, but there was no evidence of their reception. This occurred in four of the eight evaluated subprojects as follows:

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON CONSTRUCTION ESTIMATES OF EIGHT SELECTED SUBPROJECTS

FINDINGS

	Materials not received	Effect in the cost of the subproject
Chiyax	Q. 469	2.4%
Chuicotom	212	1.1
Chuiquel - Los Tablones	1,451	4.7%
Santa Teresa - La Ciénaga	1,100	4.7%
	Q. 3,232	

Criterion:

All materials received by the warehouse should be properly documented, including returns.

Cause:

The deficiencies in the system did not allow control of all the physical movements of the materials, or the materials could be diverted.

Effect:

Loss of materials and inadequate increase in the cost of the subprojects.

Recommendation:

DSM should clearly define a reliable procedure to control the materials returned to the warehouse. This could be made through specific form for this purpose.

Lara & González, CPA
Member Firm
Touche Ross International

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON LATRINE FACTORY

AUDITOR'S OPINION

We have examined the financial information of eight selected subprojects of potable water and latrine installation of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems managed by the Environment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance, (Ministerio de Salud Pública y Asistencia Social, MSPAS), as part of Loan Agreement No. 520-U-033 for US$9,500,000 and Grant Agreement No. 520-0251 for US$1,274,000 with the U. S. Agency for International Development in Guatemala (USAID/Guatemala) for the period from October 1, 1982 to June 30, 1986. As part of our examination we performed a review of the operations of the latrine factory installed in Totonicapán for the period from January 1, 1985 to June 30, 1986, to determine if the production of latrines and the use of materials were fairly controlled by the factory. Except as mentioned in following paragraph, our study and evaluation was made in accordance with generally accepted auditing standards and the U. S. General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" (1981 Revision) and, therefore included such tests of the factory's accounting records and other auditing procedures as we considered necessary in the circumstances. Our work included the valuation of materials used in the latrines construction in accordance with estimations made by independent civil engineers.

Our review was incomplete due to the inadequate accounting records used to control the latrines production which originated discrepancies in production reports, lack of control of manufactured latrines and lack of an adequate cost control. These findings, commented on in more detail in the following pages, did not allow us to use other alternative auditing procedures to review the financial information herein presented.

APARTADO POSTAL 317-I · GUATEMALA, C.A. · TELEPHONE 66595/315466

Due to the limitation in our work as commented in the precedent paragraph, the scope of our work was not sufficient to enable us to express, and we do not express, an opinion on the financial information of the latrines factory for the period from January 1, 1985 to June 30, 1986.

This report is intended solely for the use of DSM, MSPAS and the U. S. Agency for International Development. This restriction is not intended to limit the distribution of this report which, upon acceptance by the AID Regional Inspector General, is a matter of public record.

Touche Ross & Co.

February 20, 1987
Guatemala, C. A.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

STATEMENT ON LATRINES MANUFACTORY

JUNE 30, 1986

(Quetzales)

	Unit of Measure	Slabs Amount	Slabs Value	Cups Amount	Cups Value	Lids Amount	Lids Value	Total Amount	Total Value
Cost Production as reported by latrine factory's control									
Manufactured units		7,686		7,339		7,763		-	
Unit cost		=====	Q. 7.79	=====	Q. 4.32	=====	Q. 1.33	-	Q. 13.44
Consummed materials:			====		====		====		=====
Cement	Bags	3,203	Q. 9,596	1,245	Q.3,730	-		4,448	Q.13,326
Pumice sand	Mt^3	264	3,960	108	1,620	-		372	5,580
Selected material	Mt^3	204	2,142	84	882	-		288	3,024
Iron bars 1/4"	Platen	8,827	8,028	-	-	-		8,827	8,028
Flat iron 3/4" x 3/32"	Bars	-	-	335	1,253	-		335	1,253
Fastening wire	Pounds	700	231	-	-	-		700	231
Wood 1" x 12" x 8'	Units	-	-	-	-	1,164	Q.2,887	1,164	2,887
Wood 1" x 2" x 8'	Units	-	-	-	-	720	336	720	336
Nails 2"	Pounds	-	-	-	-	155	50	155	50
			23,957		7,485		3,273		34,715
Materials cost per produced unit			3.12		1.02		0.42		4.56
Cost quantification based on estimations of independent engineers									
Materials:									
Cement	Bags	3,307	9,905	1,365	4,089	-	-	4,671	13,994
Pumice sand	Mt^3	180	2,700	76	1,140	-	-	256	3,840
Selected material	Mt^3	135	1,418	57	598	-	-	192	2,016
Iron bars 1/4"	Bars	8,820	8,022	-	-	-	-	8,820	8,022
Flat iron 3/4" x 3/32"	Platen	-	-	108	404	-	-	108	404
Fastening wire	Pounds	1,000	330	-	-	-	-	1,000	330
Wood 1" x 12" x 8'	Units	-	-	-	-	1,213	3,008	1,213	3,008
Wood 1" x 2" x 8'	Units	-	-	-	-	992	463	992	463
Nail 2"	Pounds	-	-	-	-	233	75	233	75
			22,375		6,231		3,546		32,152
Estimated cost of materials per unit			Q. 2.91		Q. 0.85		Q. 0.46		Q. 4.22
			====		====		====		====
Differences in excess (less)			Q. 0.21		Q. 0.17		Q.(0.04)		Q. 0.34
			====		====		====		====

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

STATEMENT ON LATRINES MANUFACTURY

JUNE 30, 1986

(Quetzales)

Description	Unit of Measure	Estimated materials		Consummed materials		Variance (in excess) less	
		Amount	Value	Amount	Value	Amount	Value
Cement	Bags	4,671	Q.13,994	4,448	Q.13,326	223	Q. 668
Pumice sand	Mt^3	256	3,840	372	5,580	(116)	(1,740)
Selected material	Mt^3	192	2,016	288	3,024	(96)	(1,008)
Iron Bars 1/4"	Bars	8,820	8,022	8,827	8,028	(7)	(6)
Iron plat 3/4" x 3/32"	Platen	108	404	335	1,253	(227)	(849)
Fastening wire	Pounds	1,000	330	700	231	300	99
Wood 1" x 12" x 8'	Units	1,213	3,008	1,164	2,887	49	121
Wood 1" x 2" 8'	Units	992	463	720	336	272	127
Nails 2"	pounds	233	75	155	50	78	25
			Q.32,152		Q.34,715		Q.(2,563)

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON LATRINE FACTORY

FROM JANUARY 1, 1985 TO JUNE 30, 1986

1. Discrepancies in Materials used to Produce Latrines

Condition:

Based in the comparison of materials to be used to build the latrines as estimated by independent civil engineers against those quantities reported as consummed by the factory, as showed in the report on latrines, some discrepancies were detected and the deficiencies in the internal accounting control system did not allow us to determine the causes.

Criterion:

All assets should be protected against losses caused by non authorized use or disposition, and the transactions should be adequately recorded in order to provide reliable financial information on a timely basis.

Cause:

There was a lack of a well defined control system and administrative supervision.

Effect:

There was a risk of losses caused by non-authorized use or disposition of materials or non-controlled waste of materials which would increase the cost of production. Reliable information on production costs was lacking.

Recommendation:

The DSM should implement adequate procedures to control receipt and delivery of materials.

2. Lack of Control on Manufactured Goods

Condition:

Concrete boxes to control drainage connection were built by the latrine factory, and no procedures existed to control the materials consummed or the manufactured boxes. The production of

these boxes was reported through informal notes without review and/or approval, consequently, there was no reconciliation between production and consummed materials.

Criterion:

The production of these boxes should be formally documented to establish a control on the used materials and to allow an adequate handling of the boxes as well as to determine their manufacturing cost.

Cause:

The system was informal and lacked administrative supervision.

Effect:

Errors or irregularities might occur without being detected. There was no confidence in reported data.

Recommendation:

The DSM should design a formal system to report the production of these special concrete boxes, including procedures to review and approve their production and distribution. DSM should set up a count of boxes on hand and control them through an inventory subsidiary record or kardex.

3. Lack of a Cost Accounting System in Latrine Factory

Condition:

No cost accounting system existed to accumulate the value of direct and indirect costs of the built latrines, therefore, there was no specific procedures to establish the individual cost of each latrine. The latrines in inventory were valued at estimated costs with no specific control on materials used, direct labor and overhead. No reconciliations were made between production and consummed materials.

Criterion:

The production of latrines should be controlled through a well defined cost accounting system including controls to accumulate

the cost of materials, direct labor and overhead the determination of the unitary costs, and mechanisms to compare the consummed materials with production.

Cause:

There was a lack of adequate controls, procedures and administrative supervision.

Effect:

No information existed about the factory's efficiency. The appropiate use of materials and levels of waste materials were not always known and the distribution of indirect costs was irregular.

Recommendation:

The DSM should implement a cost accounting system to adequately control the consummed materials, direct labor and indirect costs and to establish the real costs of production.

Lara & González, CPA
Member Firm
Touche Ross International

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

AUDITOR'S OPINION

We have examined the financial information of eight subprojects of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems implemented by the Environment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance (Ministerio de Salud Pública y Asistencia Social, MSPAS), of the Government of Guatemala, as part of Loan Agreement No. 520-U-033 for US$9,500,000 and Grant Agreement No. 520-0251 for US$1,274,000 with the U. S. Agency for International Development in Guatemala (USAID/Guatemala), for the period from October 1, 1982, to June 30, 1986. We have issued our report dated February 20, 1987 with a disclaimer of opinion. As part of our examination we performed a study and evaluation of the DSM's system of internal accounting control for the period from January 1, 1985 to June 30, 1986 as agreed with USAID/Guatemala with the extension that we considered necessary to determine the nature, opportunity and extension of our auditing procedures. Our study and evaluation was made in accordance with generally accepted auditing standards and the U. S. General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" (1981 Revision) and included the review of significant internal controls in the areas of community in-kind contributions and procurement, reception, storage and control of materials.

The management of DSM is responsible for establishing and maintaining a system of internal accounting control. In fulfilling this responsibility, estimates and judgments by management are required to assess the expected benefits and related costs of control procedures. The objectives of an internal accounting control system are to provide management with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition,

APARTADO POSTAL 317 I GUATEMALA C A TELEPHONE 66595/315466

and that transactions are executed in accordance with management authorization and recorded properly to permit the preparation of financial statements in accordance with generally accepted accounting principles. Because of inherent limitations in any system of internal accounting control, errors or irregularities may occur and not be detected. Also projection of any evaluation of the system to future periods is subject to the risk that procedures may become inadequate because of changes in conditions, or that the degree of compliance with the procedures may deteriorate.

Our study and evaluation, made with the limited purposes as commented in the first paragraph, does not necessarily reveal all material weaknesses in the system, and accordingly we do not express an opinion on the system of internal accounting control of DSM taken as a whole. However, our study and evaluation disclosed the conditions described as findings Nos. 1 to 11 which, in our opinion, result in more than a relatively low risk that errors or irregularities in amounts that might be material in relation to the project, may occur and not be detected within a timely manner.

This report is intended solely for the use of DSM, MSPAS and the U. S. Agency for International Development. This restriction is not intended to limit the distribution of this report which, upon acceptance by the AID Regional Inspector General, is a matter of public record.

Touche Ross & Co.

February 20, 1987
Guatemala

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

1. Deficiencies in the Control of Community in-kind Contributions

Condition:

The materials, supplies and direct labor provided by the communities could not be properly identified for the eight evaluated subprojects.

Criterion:

Contributions from beneficiary communities should be clearly identified and properly recorded through a formal document signed by the members of the Community Committee to facilitate any comparison and further review.

Cause:

There was a lack of knowledge about the importance of controlling the in-kind contributions.

Effect:

There was a risk of inadequate use of materials and supplies in the development of the project.

For example, we observed that:

- The Piedra - Cuache y Chauchinup communities reported expenses for the transportation of materials. The Regional Center owns vehicles to deliver the materials to the communities and it was supposed that transportation expenses should not be charged to the subprojects.

- In Piedra - Cuache, the president of the Community Committee sold cement to the community.

- In several cases materials were transferred to other subprojects without proper authorization and without evidence of reception and use of the materials by the other subproject.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

Recommendation:

DSM should inform the Community Committees about each movement of materials and supplies to another community and should ensure that the process is completed and documented. The materials, supplies and services provided by DSM and the communities contributions should be controlled at all times by DSM, and any request for contribution beyond the agreement with the community should be previosly authorized in writing by a DSM officer.

2. Materials Delivered to the Projects Without Requisition

Condition:

During December 1985 we observed some cases of materials delivered to the subprojects without requisition. We also observed several requisitions without evidence of approval or review from the chief officer of the Regional Office of DSM.

Criterion:

Any delivery of materials should be supported with a requisition signed by the chief officer and the petitioner.

Cause:

Requisition forms had run out.

Effect:

This situation did not permit detection of possible errors or misuse of materials, and responsibilities could not be deducted.

Recommendation:

DSM should ensure that all deliveries of materials are supported with a requisition signed by the administative chief of the Regional Office of DSM and by the person who requested the materials.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

3. Lack of Documentation of Materials Received in the Regional Warehouse

Condition:

Some materials transferred from the central warehouse and from the communities to the regional warehouse were not documented through receipts as required by DSM. Additionally, in some cases such materials were not recorded in the regional warehouse inventory subsidiary records.

Criterion:

All the materials and supplies received in the warehouse, including returns from the communities, should be reported through a numbered receipt as established by DSM and recorded in subsidiary records.

Cause:

Personnel of the warehouse were unaware of control procedures on the handling of materials. Additionally there were not sufficient personnel to control and record these materials.

Effect:

There was a risk that the materials could be used for purposes different than the project and not be detected.

Recommendation:

The DSM should prepare a numbered receipt for each entry to the warehouse, referencing it to the project in case of returns from the community. Inmediatly record such entries in the subsidiary records of inventories.

4. Lack of Revision of Materials and Supplies Received by the Regional Warehouse

Condition:

Materials and supplies received by the regional warehouse were not always reviewed by a responsible officer in order to

ensure the proper quality of the supplies received compared with those ordered.

Criterion:

All receipts must be signed by a responsible officer as evidence that quantities and qualities of received materials were reviewed and in accordance with purchase orders.

Cause:

Administrative procedures and supervision was lacking.

Effect:

Received materials might not meet quality requirements or specifications and shortages might not be detected opportunely.

Recommendation

DSM should assign a responsible officer to verify the reception of materials at the warehouse and provide evidence of his review by signing the receipt.

5. Errors in Monthly Reports of Materials Used

Condition:

The monthly reports of materials used prepared for the use of the subproject's chiefs showed some errors related to the reception of materials, deliveries and costing which undermined confidence in such reports.

Criterion:

These reports should be prepared appropriately and should be reviewed by responsible employees other than the preparer in order to provide adequate information about the materials used in each subproject.

Cause:

Preparation of such reports was careless and unsupervised.

FINDINGS

Effect:

The management could make wrong decisions if they are based on those reports. Additionally, abuses and missuses could occur without detection.

Recommendation

The management of DSM should assign responsible personnel to review all reports prepared, especially for those which could cause wrong decisions and/or lack of control.

6. Deficiencies in Preparation of Regional Warehouse Remittances.

Condition:

Remittances and its surrounding controls showed the following weaknesses.

- Blank spaces were left before writing "last line" in the remittances.
- There was no responsible person in each community to sign the remittances, and respond for them if necessary. In general any member of the community can sign the remittances.
- Some remittances made by the control warehouse were not signed as received by the community members.
- There were no cross references to the numbers of requisitions and/or the order document which authorized the remittance of materials.
- There was no evidence of approvals.
- Informal notes written on the remittances were confusing instead of explanatory. (e. g. "it was not sent" without a clear explanation about what was or was not sent).
- Handwritten alterations on the original data were without explanations.
- There were no sequential numerical files or controls.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

- The forms were not prepared as soon as the materials were dispatched. In some cases we observed that the remittances were filled out several days after the delivery of the materials.

- The communities explained that in some cases they signed the remittance notes in blank to accelerate the process, however, they never received the materials.

- In most cases the copies of remittance notes were lost or destroyed.

- In Chiyax, the community reported that a shipment of 15 valves and 23 elbow joints never arrived.

- In Piedra Cuache, a shipment worth approximately Q.2,000 was never received, however the remittance was signed by the community.

- In Chuicotom, according with the community, remaining material were delivered to Mr. Ciraiz, Engineer in charge of the PACANAC subproject, to be used in PACANAC, however the materials were not received in that place. Additionally, the community of Chuicotom mentioned a remittance of materials signed in advance worth about Q.1,300 which never was received by them.

- In Santa Ana and Chiquel - Los Tablones, for several deliveries of materials worth approximately Q.4,800 and Q.1,300 respectively, the community members did not recognize the signature of the person receiving the merchandise nor did they received the materials.

- In a similar situation, materials were reported missing, for approximately Q.2,900 and Q.900 in Santa Teresa - La Cienaga, and Las Vásquez Pocomche, respectively. The communities and the auditing procedures applied confirmed that these material never were received.

Criterion:

DSM should implement adequate control on remittances and should take care to prepare the remittance forms with all necessary requirements.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

Cause:

Employees were not aware of adequate control procedures.

Effect:

Possible losses or misuse due to lack of control on the delivery of materials. Difficult to impute responsibilities in case of unauthorized use of materials.

Recommendation:

DSM should adopt the following procedures regarding to materials delivery.

- Identify with the words "Last line" the line that follows the last item and void the rest of the blank spaces.

- Assign approval of remittances to at least two different clerks in each project.

- The copy kept in the warehouse should be signed by the person who received the materials, as evidence that the materials, quality and quantity, were received as satisfactory. Any discrepance should be clearly stated.

- Reference from the requisition order that approved the delivery of materials. The delivery of material should be signed as evidence of approval.

- Ask the communities to keep copies of the deliveries, to document use of materials, and facilitate an eventual review.

- Safeguard blank forms and copies of the issued deliveries to prevent their fraudulent use.

- Do not change, erase or cross out anything on delivery forms. If it is not possible to make a clear observation, the document should be voided and a new one should be prepared.

- All the deliveries forms should be filled in a sequential number.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

7. Lack of Control of the Leftover Materials

Condition:

In several cases the community leaders reported that some leftover materials were returned to the warehouse of DSM without supporting documentation as evidence that the leftover materials were returned and recorded into the warehouse. According to our examination, materials worth to Q.2,551 were returned without documentation.

Criterion:

Leftover material should be controlled and their return and reception should be documented.

Cause:

There were no formal procedures to handle the leftover materials.

Effect:

The materials could be stolen without being detected in a timely manner. For example:

- The Chiyax project reported 300 PVC pipes returned to the warehouse which were not received.

- In Piedra Cuache some pipes and other small accessories were not returned to the warehouse.

- In Chuiquel Los Tablones, Santa Teresa-La Ciénaga and Las Vásquez Pocomché, the communities reported materials, whose quantity and value could not be determined, removed with no specific destination by the persons in charge of the subproject.

- In Santa Teresa - La Ciénaga, several ball valves worth Q.1,100 were reported as removed by a bricklayer, apparently to another project in Tejutla, San Marcos, but their destination was not clarified. There was no support documentation.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

Recommendation:

DSM should:

a) Instruct the communities not to transfer leftover materials without written authotization.

b) Issue numbered forms in the warehouse to control receiving the leftover materials. A signed copy should be delivered to the leaders of the community.

8. Control on the use of Materials in the Communities

Condition:

In the examined projects, there were no adequate controls over the entries and deliveries of materials. In most of the cases informal documentation was used to deliver materials but it was not kept. There was no kardex system

Criterion:

The materials received by the communities should be controlled through kardex system and the entries and deliveries should be supported by a numbered form.

Cause:

The community members do not know how a kardex system works nor how and why it is necessary to control the use of materials. Also they did not receive any assistance to control the materials.

Effect:

The materials could be stolen or removed without justification and without being detected opportunely.

Recommendation:

DSM should provide the communities with the minimal procedures measures to control the use of the materials:

. Use of the kardex.

- Report deliveries of materials by numbered and unauthorized forms.

- Set up a dispatch warehouse and assign one person to be responsible for it.

9. Inadequate use of Warehouse and Inventory Entry Forms

Condition:

The warehouse and inventory entry form, usually documents the entries of materials to the warehouse. However it was used to document the payment of materials or to request reimbursement from USAID/Guatemala, and the materials were received later, in some cases with several months of difference.

Criterion:

The warehouse and inventory entry forms should be issued to document the reception of materials.

Cause:

The form had been used to comply with legal requirements of the General Comptroller of Guatemala and USAID/Guatemala to document the purchases payment but not as an inventory control.

Effect:

There was an inadequate system to report the entries of materials into the Totonicapán regional warehouse since this form, which could be controlled in sequencial number, did not report updated and actual quantities received. Also, due to the lack of adequate documentation there was not a complete assurance that all the materials received had been recorded, especially partial shipments.

Recommendation:

DSM should use the warehouse and inventory entry form to control the materials actually received in the warehouse.

FINDINGS

10. Lack of Signatures on Requisitions and Deliveries.

Condition:

The requisitions and deliveries forms did not show the required signatures.

Criterion:

Authorized signatures and stamps assure that the transaction was carried out in compliance with the established requirements and met project purposes.

Cause:

The warehouse clerks were not careful.

Effect:

Unauthorized shipments of materials could be carried out with incorrect destinations and/or wrong quantities.

Recommendation:

DSM should comply with all the control requirements for each transaction just as the printed forms establish.

11. Lack of Sequential Control on Requisitions and Remittances.

Condition:

The requisitions and remittances were used in three separate warehouses and for transfering materials from Guatemala to the Regional Center in Totonicapán. Some forms were missing and it was difficult to determine if they were issued or not.

Criterion:

The use of prenumbered forms should be controlled in strict sequential number as an effective control measure. Unused form should be safeguarded.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

REPORT ON INTERNAL ACCOUNTING CONTROL

FINDINGS

Cause:

There was no independent forms for each warehouse nor for the deliveries to the Regional Center and there was no control to identify the forms used by each warehouse.

Effect:

Due to the lack of a sequential control, deliveries of materials could not be recorded and/or missing documents could have been used for unauthorized delivery of materials.

Recommendation:

DSM should establish a numerical control of these forms creating a file and properly storing blank forms not in use. Additionally, the forms most be identified by warehouse to avoid confusions among the different warehouses.

Lara & González, CPA
Member Firm
Touche Ross International

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

COMPLIANCE WITH LAWS, REGULATIONS AND AGREEMENT TERMS

AUDITOR'S OPINION

We have examined the financial information of eight subprojects of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems managed by the Environment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance (Ministerio de Salud Pública y Asistencia Social, MSPAS) for the period from October 1, 1982 to June 30, 1986, and we issued a disclaimer of opinion thereon dated on February 20, 1987. As part of our examination, we have made a study and evaluation to determine if DSM and MSPAS have complied with applicable laws, regulations and terms and amendments of the agreements. These were signed in September 1980, between the Government of Guatemala (GOG) and the U. S. Agency for International Development in Guatemala (USAID/Guatemala) as Loan Agreement No. 520-U-033 for US$9,500,000 and Grant Agreement No. 520-0251 for US$1,274,000 to finance the Community-Based Integrated Health and Nutrition Systems in six western Guatemalan Departments. Our study and evaluation was made in accordance with generally accepted auditing standards and the U. S. General Accounting Office "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions" (1981 Revision), and included the audit tests and such other audit procedures as we considered necessary in the circumstances.

In our opinion and according to the nature and extension of our study and evaluation as stated in the precedent paragraph, except for the lack of an adequate accounting system and the unrecorded additional in-kind constributions requested from the communities as mentioned in findings Nos. 1 and 2; and the lack of appropriate controls on materials during the period from October 1, 1982 to December 31, 1984, as mentioned in section related to the internal accounting controls, the DSM and MSPAS had complied with applicable laws, regulations and agreements terms and

APARTADO POSTAL 317 I - GUATEMALA, C.A. - TELEPHONE 66595/315466

amendments during the period from October 1, 1982, to June 30, 1986. Additionally, nothing came to our attention that caused us to believe that untested items were not in compliance with applicable laws, regulations and agreements terms and amendments.

This report is intended solely for the use of DSM, MSPAS and the U. S. Agency for International Development. This restriction is not intended to limit the distribution of this report which, upon acceptance by the AID Regional Inspector General, is a matter of public record.

Touche Ross & Co.

February 20, 1987
Guatemala, C. A.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

COMPLIANCE WITH LAWS, REGULATIONS AND AGREEMENT TERMS

FINDINGS

Unrecorded Community in-kind Contributions

Condition:

The communitites provided materials and direct labor to develop the projects of potable water and latrines systems but which were not recorded by DSM.

Criterion:

According to agreement terms the communities should only provide unskilled direct labor for each subproject.

Cause:

The interest from the communities to conclude the project led to their providing additional resources according to their possibilities.

Effect:

The agreement terms were not fulfilled because additional resources from those stated in the agreements were requested.

Recommendation:

The Ministry of Public Health and Social Service through the Environment Sanitation Division should supervise the field work to verify the subprojects are in compliance with agreement terms and project objectives.

2. Lack of an Adequate Accounting System

Condition

The accounting system was inadequate, the transactions of each subproject were recorded through single entries in subsidiary records not integrated into the accounting system and without controls accounts in the budget records or reconciliation with the financial information reported by the Regional Center of Totonicapán.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

COMPLIANCE WITH LAWS, REGULATIONS AND AGREEMENT TERMS

FINDINGS

Criterion:

The loan agreement required establishment of independent adequate accounting records for project transactions in accordance with generally accepted accounting principles and practices consistently applied.

Cause:

The Government institutions utilize only a budgeraty execution control for recording their incomes and disbursements. DSM was not forced to keep independent accounting records because it does not handle the funds directly.

Effect:

Proper financial information was unavailable to provide an adequate control on the resources of the project.

Recommendation:

The Ministry of Public Health and Social Service through the Environment Sanitation Division should implement a double entry accounting system for recording those transactions of the project including information on cost for each subproject and the latrines factory. Also adequate controls should be maintained on the inventories of materials, fixed assets, cash and liabilities, if any. Establish subsidiary records in the communities to control the use of materials.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

ENGINEERS' REPORT

We have made a technical evaluation of eight selected subprojects of potable water and latrine installation of the Environmental Sanitation Component of the Community-Based Integrated Health and Nutrition Systems managed by the Environment Sanitation Division (División de Saneamiento del Medio, DSM) of the Ministry of Public Health and Social Assistance (Ministerio de Salud Pública y Asistencia Social, MSPAS) of the Government of Guatemala as part of Loan Agreement No. 520-U-033 for US$9,500,000 and Grant Agreement No. 520-0251 for US$1,274,000 with the U. S. Agency for International Development in Guatemala (USAID/Guatemala), for the period from October 1, 1982 to June 30, 1986. Our technical evaluation included the estimation of the quantities and the evaluation of the qualities of the materials used in the construction of the subprojects of Santa Ana Centro Chenimajuyup, Chuiquel Los Tablones, Santa Teresa-La Ciénaga, Piedra Cuache, Chuicotom, Chiyax, Las Vásquez-Pocomché and Chuachinup including the reception and distribution tanks, conducting lines, domiciliary installations, and manufacturing and installation of latrines compar d with the technical specifications and characteristics to determine if the evaluated subprojects were built in accordance with the original plans and if they were functioning efficiently.

In our opinion, the quantities of the materials used in the water conducting lines and in latrine manufacturing and installation in each subproject according with our estimations, fairly compare with the quantities originally planned, and the quality of the

1a. Calle 6-62, Zona 9 Teléfono 31-37-77

materials used comply with the technical specifications. Additionally, except for some deficiencies detected in the functioning of some subprojects, as mentioned in attached memorandum, the evaluated eight subprojects work efficiently.

CONSULTORES DE GUATEMALA, S. A.

Ing. Héctor David Torres C.
Collegiate No. 141

February 20, 1987

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

MEMORANDUM ON ENGINEERS' REPORT

The engineering firm "Consultores de Guatemala, S. A." (COGUSA), performed the technical evaluation of the eight selected subprojects which included the estimation of the materials used in their construction including pipeline, latrines and other installations, the results of this evaluation were as follows:

1. CHIYAX

A. Water Installation

This subproject was apparently functioning well. However, the following aspects should be corrected:

- No air or cleaning valves were installed to avoid obstructions due to accumulation of air and/or solids. We think that these valves are necessary in some critical points.

- The springs need to be fenced to avoid water contamination or possible damage to the installations. None of the collecting boxes were fenced.

The comparison of materials placed with those in the plans, showed no significant differences. However, some remaining materials which were apparently sent back to the central warehouse never arrived there.

B. Latrine Installation

The latrines were built according to the technical specifications and were working satisfactorily. A total of 156 complete latrines were installed in this subproject and no differences were detected between materials sent and installed.

2. PIEDRA CUACHE

A. Water Installation

The comparison of materials used with those in the plans did not show any significant discrepancies. In general terms the project was well-built, but the following matters need to be corrected to improve its functioning:

- The water supply is not sufficient during the summer because last year part of the pipelines were destroyed by a strong runoff isolating one of the collecting boxes. The damaged

pipelines, of approximately 10 meters, need to be repaired as soon as possible.

The collecting boxes and the distribution tanks were not fenced and the risk of contamination or damage exists.

The land near the springs presented problems of erosion because deforestation and rain causes strong runoff which passes down the gutter along the San Marcos highway, El Quetzal, and subsequently over the dams. If said erosion is not corrected the collecting boxes could be destroyed in a medium-term period. This damage could be avoided with the construction of a retention wall.

The original plans did not include air and/or cleaning valves. However, near the dam the pipeline has a vertical curve which requires both valves. Air escape is currently controlled through a hole covered with a piece of wood, which, although practical, is not efficient. The placing of said valves is necessary to avoid obstructions caused by accumulation of air and/or solids. If this deficiency is not corrected, a gradual decrease in the water flow could be produced in the near future.

Of the 55 home installations only 31 had check valves, which are necessary to cut the water supply to repair home internal installations, when needed.

B. Latrines Installation

70 latrines were built according to the technical specifications but not all the material for roofing them were provided to the community. Only 62 latrines were roofed and the 8 remaining latrines were covered with the materials obtained by the efforts of each family.

3. CHUACHINUP

A. Water Installation

The estimation of the materials used compares fairly with those stated as installed considering the topographical conditions of the land.

The subproject functions satisfactorily and it was well-built. However, in order to improve its functioning, the following aspects should be corrected.

- The pipeline does not have air escape nor cleaning valves. Although the air escape valves are not indispensable because there are no vertical curves, it is recommended that cleaning valves be installed to prevent an eventual obstruction caused by the accumulation of solids.

- The flood-gates were not well protected since the concrete boxes used to protect them are very small and did not have covers. We recommend that said boxes be changed and that concrete covers with locks and chains be placed.

B. Latrine Installation

The latrines were built according to the technical specifications. A total of 112 latrines were completely installed except for the wood, which was not provided in any of the cases.

4. CHUICOTOM

A. Water Installation

The committee members reported that 115 meters of pipelines were installed but approximately 65 meter of the pipelines necessary to drain off excess water was stolen. By our estimations, the quantity of materials installed in this subproject were substantially larger than that planned due to the topographical conditions of the land.

Our technical evaluation of this subproject showed that it functions efficiently except for the following comments:

- The pressure-breaker box was not installed in the station No. E-53, this fact could cause breakages in the pipelines between the dam and the distribution tank. The installed pipeline has a total length of 6,128 meters, which exceeds the original design by 452 meters. This was due to errors in the land survey used as a basis for the calculation of the pipe required.

B. Latrines installation

The latrines were built according to the technical specifications

and they were functioning satisfactorily; 84 latrines were completely installed, and all the materials sent were installed.

5. SANTA ANA CENTRO CHENIMAJUYUP

A. Water Installation

In general terms the project is well-built and works satisfactorily. The people of the village of Santa Ana have sufficient water and the initial objective of a complete home network was exceed given that originally 201 water connections were foreseen and 288 were finally installed.

The quantities of materials placed were significantly larger than planned. The in-kind community contributions were larger than agreed because they required a more complete system including a second principal distribution pipeline, more concrete collecting boxes and a bigger distribution tank. However, the cable used to support aerial pipelines were lesser than planned due to an overestimation.

The most important problems reported include:

- The pipeline does not include air escape nor cleaning valves.
- The collecting boxes and the distributing tank were not fenced, which could result in possible damages and/or water contamination.
- Eight of the 288 home connections did not have check valves.
- The padlocks on the collecting and the flow collecting boxes were stolen, increasing the risk of contamination.
- The project was initially planned to be completed in one year, but factors, such as changes in the capacity of the installed pipes, extended it to two years.

B. Latrines Installation

A total of 288 latrines were installed according to the technical specifications. However the roofing material provided to the community was not sufficient. As result 176 latrines were partially or completely uncovered.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

MEMORANDUM ON ENGINEERS' REPORT

6. CHUIQUEL LOS TABLONES

A. Water Installation

The comparison of the installed materials with those planned did not show significant discrepancies except more 2 1/2" and 1 1/4" PVC tubes were installed than planned. This could be as a result of a lack of exactness in the topographical survey used as the basis for the original design and/or lack of availability of the materials initially planned.

On the other hand, the amount of 3/4" PVC tubes was decreased and compensated for with an increase of 1" PVC tubes. In the engineer's opinion, this makes the project function more efficiently. This project needs some corrections to improve its efficiency as follows:

- The water flow had been reduced to 0.5 liters/second (33% less than expected), as per measurements carried out in September 1986. This reduction was caused by leaks in the principal collecting box. The corresponding spring was apparently displaced ten meters away; as result, a new collecting box is needed on the new source.

- The concrete covers used in the collecting boxes had several fissures, in addition each cover had four holes made to clean weeds from the water. Although there are no leaks, these facts increase the risk of contamination.

- Neither an air nor a cleaning valve were installed and both are necessary to avoid obstructions caused by air and/or solids accumulations. In the Pacay Village, which had 25 houses and 125 inhabitants, there was no water because of this.

- Only 52 check valves were installed in a total of 232 houses, these valves are necessary to temporarily cut the service for repairs or lack of payment without affecting the other homes.

B. Latrines Installation

A total of 232 latrines were installed which comply with the technical specifications as planned.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

MEMORANDUM ON ENGINEERS' REPORT

7. SANTA TERESA - LA CIENAGA

A. Water Installation

The comparison of materials placed with those planned showed the following: 6,540 meters more of 3", 2" and 1" PVC pipelines and 3,822 meters less of 3/4" and 3" HG pipelines were installed, as per the engineer's opinion; these changes: a) do not affect the project's adequate functioning; b) could be due to errors in the survey or a lack of availability of the planned materials; and c) it was justified to give service to 82 additional homes.

The technical evaluation revealed the following deficiencies:

- There was less water supply during the summer because the collecting boxes were built during the rainy season, and it was considered that they were sufficient for the two villages. To correct this deficiency it will be necessary to dam more water. The diameter of the pipes already installed was considered appropriate.

- No air or cleaning valves were installed and both are necessary to avoid obstructions caused by accumulation of air and/or solids. This deficiency needs to be corrected because the water flow is gradually dimishing.

- The spring called "El Ojo de Agua" was not fenced, which increases the risk of contamination or damages to the collecting boxes and their valves.

- A total of 286 house installations were made (82 more than planned) and none of them had a check valve to cut the water flow for home servicing when needed.

B. Latrine Installation

A total of 199 latrines were installed in accordance with technical specifications, the only deficiency reported was that the number of metal sheets delivered to cover the latrines was insufficient since a total of 398 eight-foot metal sheets were required (two sheets by latrine) and only 355 were delivered.

COMMUNITY-BASED INTEGRATED HEALTH AND NUTRITION SYSTEMS

ENVIRONMENTAL SANITATION COMPONENT

USAID/GUATEMALA PROJECT No. 520-0251

MEMORANDUM ON ENGINEERS' REPORT

8. LAS VASQUEZ POCOMCHE

A. Water Installation

The comparison of materials installed with those planned showed no significant differences in the quality and quantity of materials used, considering that some discrepancies were caused by the topographical conditions not taken into consideration in the plans.

In general terms, the project works adequately. However, it is necessary to correct the following aspects:

- 7 air escape valves were planned and only 4 manual valves were installed, said valves were protected with wood boxes instead of metal boxes as planned. It is necessary to install 7 automatic air escape valves to increase efficiency, replacing those installed and adding the other three planned. These valves should be protected with metal boxes and should be automatic instead manual in order to provide proper functioning. As a result of the lack of air scape valves in the E.3 section, there were 27 houses and approximately 135 inhabitants with no water.

- The 7 cleaning valves planned were not installed. this could cause problems in the water flow due to the accumulation of solids.

B. Latrine Installation

A total of 140 latrines were installed with their respective seats, but without providing the roof materials, as a result the community roofed them according to its possibilities, the majority with straw.

9. LATRINE FACTORY

The latrine factory had complied with the minimum requirements to supply the latrines demanded by the different projects. However, certain technical aspects should be taken into consideration to improve its efficiency and the quality of the manufactured latrines, as follows:

The factory had sufficient space and the necessary personnel to produce 40 latrines daily, however, the mechanical equipment available was not adequate to optimize the

production. For example, the concrete is prepared manually producing different mixtures which weakens the final product. This problem could be adequately resolved by using a small concrete mixer.

Most of the concrete mixing and the setting of the final products were done directly in the sun, which causes a rapid lost of water and fissures in the material. Although they look bad, this did not really affect the functioning of the slabs. However it is recommended that the concrete molding be done in the shade, moistening it during 8 days.

We observed that in some cases, the steel frame for the concrete slabs had been placed carelessly, leaving it without the necessary covering, this fact limits the slabs' durability. In other case we observed that steel bars of 1/4", which could be bought by rolls reducing the waste, were bought in bars and cliped with a small metal clipper instead of with a saw, which is inefficient.

APPENDIX 1

REPORT DISTRIBUTION

	No. of Copi
Director, USAID/Guatemala	5
AA/LAC	2
LAC/CAP/G	1
LAC/CONT	1
LAC/DP	1
LAC/DR	1
LAC/GC	1
RLA	1
AA/XA	2
XA/PR	1
LEG	1
GC	1
AA/M	2
M/FM/ASD	2
PPC/CDIE	3
IG	1
AIG/A	1
IG/PPO	2
IG/LC	1
IG/EMS/C&R	12
IG/II	1
RIG/II/T	1
Other RIG/As	1