

1. PROJECT TITLE <i>PEE 312</i> Health and Integrated Rural Development			2. PROJECT NUMBER 660-0093	3. MISSION/AID/W OFFICE Tushasa
4. KEY PROJECT IMPLEMENTATION DATES			5. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) <u>7786</u>	
A. First PRO-AS or Equipment FY <u>86</u>	B. Final Obligation Expected FY <u>86</u>	C. Final Input Delivery FY <u>86</u>	6. REGULAR EVALUATION <input checked="" type="checkbox"/> SPECIAL EVALUATION <input type="checkbox"/>	
7. PERIOD COVERED BY EVALUATION			8. ESTIMATED PROJECT FUNDING	
A. From (month/yr.) <u>September 1981</u>			A. Total <u>1142</u>	
B. To (month/yr.) <u>April 1986</u>			B. U.S. <u>389</u>	
9. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR			Date of Evaluator Review	

A. List decisions and/or unresolved issues; also those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., program, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
<p>There are no recommendations. The Salvation Army has successfully implemented all objectives listed in the OPG agreement. The project will terminate as planned in June 1986.</p>		

BEST AVAILABLE DOCUMENT

<p>9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS</p> <table> <tr> <td><input type="checkbox"/> Project Paper</td> <td><input type="checkbox"/> Implementation Plan e.g., CPI Network</td> <td><input type="checkbox"/> Other (Specify) _____</td> </tr> <tr> <td><input type="checkbox"/> Financial Plan</td> <td><input type="checkbox"/> PIO/T</td> <td><input type="checkbox"/> Other (Specify) _____</td> </tr> <tr> <td><input type="checkbox"/> Logical Framework</td> <td><input type="checkbox"/> PIO/C</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Project Agreement</td> <td><input type="checkbox"/> PIO/P</td> <td></td> </tr> </table>	<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T	<input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C		<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P		<p>10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT</p> <p>A. <input type="checkbox"/> Continue Project Without Change</p> <p>B. <input type="checkbox"/> Change Project Design and/or <input type="checkbox"/> Change Implementation Plan</p> <p>C. <input checked="" type="checkbox"/> Discontinue Project as planned.</p>
<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify) _____											
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> PIO/T	<input type="checkbox"/> Other (Specify) _____											
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> PIO/C												
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> PIO/P												
<p>11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Name and Title)</p> <p>Janice Mitchell, RN, MPH Evaluator Carol Felkel, Project Manager, USAID/TEC Julie Born, Project Manager, USAID/DEI Mulamba Wa Kabasele, USAID/DEO</p>	<p>12. Mission/AID/W Office Director Approval</p> <p>Signature: <i>Arthur S. Lentz</i></p> <p>Typed Name: Arthur S. Lentz</p> <p>Date: 8/29/86</p>												

EVALUATION COST DATA

USAID/ Zaire . . . of Bureau/Office DEO

1. No. and Title of Project/Activity: 660-0093
(or Title of Evaluation Report) Health and Integrated Rural Development

2. Date of Evaluation Report: May 1986
Date of PES (if different): May 1986

3. Purpose of Evaluation: This evaluation is a final evaluation to determine if project objectives listed in the OPG agreement have been met. The evaluation will also record any significant lessons learned which might benefit future project design and implementation.

4. Mission Staff Person Days involved in this Evaluation (estimated):
- Professional Staff 9 Person Days
- Support Staff 2 Person Days

5. AID/W Direct-Hire or IPA TDY support funded by Mission (or office) for this evaluation:

<u>Name</u>	<u>Period of TDY (Person -Days)</u>	<u>Dollar Cost: (Travel, Per Diem, etc.)</u>	<u>Source of Funds*</u>
Ms. Julie Born	2 days	n.a.	
Ms. Carol Felkel	2 days	n.a.	
Ms. Debra Rectenwald	3 days	n.a.	
Citoyen Mulamba wa Kabasele	2 days	n.a.	

6. Contractor Support, if any, for this evaluation:**

<u>Name of Contractor</u>	<u>Contract #</u>	<u>Amount of Contract (US Dollars)</u>	<u>Source of Funds*</u>
Ms. Janice Mitchell	Purchase Order No. ZAI-86-0510-05	\$2250	PD&S

BEST AVAILABLE DOCUMENT

*Indicate Project Budget, PDS, Mission O.E. or Central/Regional Bureau fund

**IQC, RSSA, PASA, PSC, Purchase Order, Institutional Contract, Cooperative Agreement, etc

Executive Summary

- I. **Project Title:** Center for Community Health and Integrated Rural Development
- II. **Project Number:** 660-0093
- III. **Project Description and Purpose:** The purpose of this project was to establish a Center of Community Health and Integrated Rural Development in Kasangulu Zone, Bas-Zaïre in order to expand and upgrade existing low-cost curative and preventive health care services for a target population of 30,000 rural poor. The expected outcome was decreased disease morbidity and infant mortality in the area served. The project design was to build a combination dispensary-maternity-training center in Kasangulu and to build and staff satellite health clinics in ten out-lying villages. The Operational Program Grant (OPG) for this project was proposed by and awarded to the Salvation Army. USAID approved the grant in January 1983 for the amount of \$489,000 (reduced to \$389,000 in October, 1984). Salvation Army contributions were to equal \$349,270 (increased to \$611,056 by PACD) and GOZ (Government of Zaïre) contributions as counterpart funds \$408,554 (increased to \$596,000 in 1984 and totalling \$1,511,000 by the PACD). The Project Assistance Completion Date (PACD) is June 30, 1986.
- IV. **Purpose of the Evaluation:** This is a final evaluation to determine if project objectives listed in the OPG agreement have been met. As such it is a Lessons Learned Evaluation.
- V. **Evaluation Methodology:** The evaluation team was composed of a health specialist and an engineer. The health specialist interviewed USAID and project personnel, local GOZ health officials, and a SANRU (Basic Rural Health Project) staff member. She reviewed project documentation and visited the main center at Kasangulu plus six of the nine satellite clinics. The engineer visited the Kasangulu Center and two satellite clinics to inspect the building construction.
- VI. **Findings:** In general, the project was implemented and is functioning as designed. Construction delays necessitated an 18-month extension of the P.A.D. Local availability of construction materials rather than off-shore procurement allowed the project to de-obligate \$100,000 of the allotted USAID funds. Differences of opinion between GOZ health officials and project staff arose over site placement of the satellite clinics, delaying decisions on the last sites until May, 1984. Three satellite clinics were placed outside Kasangulu Zone. A total of nine satellite clinics plus the center at Kasangulu were built with project funds. It is uncertain whether the population served by the project totals 30,000. The center and its satellite clinics have a combined target population of approximately 20,000 but also serve many people from outside their assigned areas. Village Health Worker training began at the center in March 1985, and 21 people have been trained to date.

The maternity center does not serve 4,000 women annually as projected in the proposal. There were 1324 pre-natal visits made to the maternity last year, 351 deliveries, and 209 visits for family planning services. There are insufficient data available to determine if a decrease in morbidity and infant mortality have occurred.

VII. Lessons Learned: The project has shown that: 1) villagers are willing to work together and to give their time and their resources for the common good; 2) rural health centers can be self-supporting - six of the 10 Salvation Army centers are financially self-supporting; 3) the problems of clinic placement reinforce the value of needs assessment in project planning stages and underline the difficulties that can arise with changes in personnel between the planning and implementation stages; and 4) maintenance problems with the U.S.-made GMC project truck and Chevrolet ambulance call into question the wisdom of buying vehicles for which there is limited local ability to provide repairs and parts.

VIII. Recommendations: Project be completed as planned.

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I. Introduction

This final evaluation of the Kasangulu Center for Community Health and Integrated Rural Development constitutes a Lessons Learned Evaluation. The evaluation team was composed of Janice Mitchell, FN, MPH; Nkulu Wa Kabila, USAID/DEO; and Mulamba W. Labasole, USAID/DEO. Mrs. Mitchell and Cit. Nkulu spent six days in the Kasangulu center and its satellite clinics at Ntendele, Shefu, Kinzambi, Loko Maza, Mbanza Nzundi, and Kaywaya. They interviewed USAID and Salvation Army project staff; Dr. Mwanzu, medical chief of Fometro Hospital and SANRO supervisor/consultant to the Kasangulu center and its satellite clinics; Dr. Manku, medical chief of the Semkata Health Zone; and Dr. Frank Baer, USAID advisor to the SANRO project. Project documentation on file was reviewed. The evaluation took place between April 10th and 25th, 1986.

The project evaluator would like to note that though the original proposal listed objectives of decreasing disease morbidity by 35% and infant mortality by 20% these will not be addressed in this evaluation. Minimal morbidity data were collected on nutritional status surveys performed in Nkalama and Kasangulu in 1981-82. The morbidity results were not reported. No final survey is planned. Locally available government disease statistics are inadequate and death statistics are not uniformly gathered. With the final clinics to open in May 1986, there also has not been adequate time for a measurable effect to be seen in all of the project area. Anecdotal information was received noting the disappearance of polio and measles in parts of the project area.

II. Project Background

The Salvation Army has been providing health care to the inhabitants of Kasangulu township, Bas-Zaïre since 1949. By 1979, the program had been expanded to include seven outlying villages. At this time Dr. Gert Koelofson, Sub-Regional Supervisor for Health Services, Kasangulu Zone, Bas-Zaïre, asked the Salvation Army to extend its low-cost preventive health care delivery system more widely throughout the zone - without GOZ financial support. To this end, the Salvation Army submitted its proposal to USAID in November 1979. The OPG was signed in January 1981. Prior to this, in 1979, a USAID self-help grant of 210,000 was given to the Salvation Army to build a health center at one of the proposed clinic sites, Nkalama - as a pilot project to the bigger OPG. This clinic is staffed, supplied, and supervised through the center at Kasangulu but was not built with Project 093 funds. The OPG specified that USAID would contribute \$489,000; the Salvation Army \$349,270 in cash and kind, and the GOZ \$408,554 through counterpart funds. Villages at clinic sites were to provide sand, bricks, and rocks; pay for the mason; and build a house for the nurse. The USAID contribution was decreased to \$389,000 in 1984 due to local availability of construction materials originally budgeted for offshore procurement. The Salvation Army contribution surpassed the original estimation by \$341,786, thus totaling \$691,000 by PACD. The GOZ counterpart fund contribution increased to \$596,000 in 1984 to finance these locally procured materials. Total counterpart fund contributions were \$631,000. The project encountered numerous construction delays - broken down trucks, washed-out bridges, local

unavailability of fuel and construction materials, impassable roads, and waiting for villagers to assemble the requisite supplies and manpower. There were also problems in receiving supplies ordered through the Salvation Army World Service Office (SAWSO) in Washington, D.C. Thus the PACI was extended 18 months from December 1984 to June 1986.

An additional problem area was the selection of the satellite clinics' sites. The successor to Dr. Robinson did not share his views on where clinics were needed. In addition, the Basic Rural Health Project (SANRU) had just begun. This project set up health zones throughout Zaire with a structure of a reference hospital and approximately 20 satellite clinics - each clinic serving a population of about 5,000 people. The objectives coincided with those of project 093 - to establish a sustainable system of community-supported (self-financing) preventive, promotive and curative primary health care services. However, the SANRU people had two objections to project 093: 1) Kasangulu zone did not need another 10 satellite clinics; and 2) the clinic sites chosen often had target populations closer to 1,000 than 5,000 and thus might not be able to be self-supporting. These differences were ironed out eventually and in May 1984 the last sites were agreed upon. The end result was that six satellite clinics were built in Kasangulu Zone (See Bata Health Zone), two in the adjacent zone of Madimba, and one in Mbaraka Ngungu Zone (see map). USAID and Salvation Army officials agreed that the dispensary at Kasangulu would be considered the 10th clinic within the project.

The type of training given to Village Health Workers (VHW) was also altered. Originally the plan was for three-month training sessions, with the village providing the support for the trainees. When this was tried, it was discovered that the villagers were unwilling to provide this support or to pay the VHW's anything for the work they did once back in the village. The system was thus changed to a series of 3 one-week workshops spaced over a year or more. The curriculum was expanded from primarily maternal-child health, nutrition and sanitation to include a greater agricultural component with sessions on cash crops, fish ponds, small animal raising, and the like. The current training program coincides with that of SANRU, except SANRU has less variety in its agricultural training.

III. Evaluation Issues

A. Center of Community Health

A spacious combination dispensary-maternity-training center was built at Kasangulu on land owned by the Salvation Army. The dispensary consists of: a) the clinic waiting room, laboratory, under-five examination room, adult exam room and a reception desk; b) the maternity: a pre-natal room, small pharmacy, 2-bed labor room, 2-bed delivery room and a three-room, 12-bed post-partum section; c) the training center: 1 classroom, a kitchen, and 2 student rooms containing 6 beds each; and d) the nutrition rehabilitation unit: open area for well-baby clinics and cooking demonstrations, storeroom, and three 2-bed rooms for malnourished children and their mothers who stay at the center for extended periods. The center has a system for trapping and conserving rain water, four fish ponds, and a demonstration garden - the

produce of which is used in the nutrition rehabilitation unit or sold. Several hundred fruit trees have been planted on the hillside. The entire complex appears to be clean and well-maintained.

Approximately 1,300 pre-natal visits and 200 family planning visits were made to the maternity in 1985 and there were 351 deliveries. This is less than the 4,000 women projected to be served in the proposal, but is sufficient to keep the maternity in almost continuous use. Given that there are only 12 beds and that women stay five to seven days post-partum, it is difficult to see how the center could handle many more than 850 deliveries/year. Assuming twice that number in pre-natal clinics, the capacity of the facilities would appear to be about 2,500 women.

The staff in the center and the satellite clinics have all served an "internship" of from 6 to 12 months at the Kasangulu center (or in Salvation Army facilities in Kinshasa before the center was operational) before assuming their duties. During this time they are closely supervised by experienced staff. Once posted, staff receive refresher courses four times per year. The center is currently managed by a Swiss nurse/midwife who oversees all operations and keeps the books. She has already designated a Zairian staff nurse whom she will train to replace her.

Each day of clinic a health education session is given to all patients in the waiting area. This "animation" usually begins and ends with a song and consists of an explanation of the topic and a question and answer session. The topic is changed every month. The sessions follow a protocol worked out by a committee of GOZ, missionary, and other agencies' health personnel. The same messages are given in clinics throughout Zaire.

Training Center began at the Training of VHWs in March 1985. To date, 62 VHWs from eight satellite clinics plus Nkalama have been trained. The VHWs are divided into three sections - health, sanitation, and agriculture. Before the Training Center was opened, instruction on similar topics was given in the villages to members of the Health Committees. One hundred thirty-seven people received training in this way. The training given appears to be appropriate: in at least five villages, VHWs help with under-five clinics and home visiting; four villages have started demonstration gardens or fields; and four villages have capped springs to provide clean water. The effect of this training on villages is difficult to measure, one reason being that the formal courses only began one year ago and it takes time for changes to be made and effects to become evident. In general, the people express their gratitude at being given a chance to acquire useful knowledge. They also request further USAID assistance to expand their new clinics - i.e. build additional patient rooms, and more supplies and equipment to carry out what they learned in training, e.g. tools for the gardens, soy bean seeds for the fields.

The Training Center is used for the quarterly refresher courses given to all nurses. In addition, a UNICEF nutrition conference and a SANRU training session were held at the center.

B. Satellite Clinics

Eight village clinics have been constructed. The clinic is one large building containing a large waiting area, one or two examination rooms, a laboratory, a delivery room, and a room where sicker patients or post-partum mothers can spend the night. More space for "hospitalization" would be beneficial - the last clinic to be built has provided this, using the 2nd examination room for overnight patients. The first clinic opened in September 1983 and the final three will open in May 1986. The ninth clinic is actually an upgrading of the existing dispensary and maternity facilities at Kavwaya. A new dispensary is being built, one of the maternity buildings is being renovated, and a new generator is being purchased. Villagers' contributions to the clinics included: assembling rocks and stones for the foundation; making bricks; bringing in sand for the concrete; and feeding, housing, and paying the mason who worked on the building. They also constructed a house for the nurse and latrines for the clinic and the nurse. Now that the clinics are built, the health committees see that they are maintained, keeping the premises and the environs clean.

It is too early to tell what effect the clinics will ultimately have, but the villagers appreciate their increased access to health care - night and day. One indicator of the appeal of the health clinics is the large number of patients seen from outside the target area (see Table A, Annex I). It is difficult to determine exactly how many people are served by the clinics. Although the total population of the target area was 19,839 in 1985, patients from one village may choose to be treated at another clinic rather than at their own village, further complicating population statistics. In addition, two of the clinics provide health care for students of large schools near their sites during the school year. Thus it is not possible to say how many people the project reaches.

The satellite clinics are supervised monthly by a qualified nurse and a sanitation technician who travel to the clinics from the Kasangulu or Kavwaya centers to deliver supplies, check the accounts, and review the work of the auxiliary nurse. They also commonly meet with the Village Health Committee. Any time the auxiliary nurse runs into difficulties during treatment of patients, he has immediate access to the Kasangulu or Kavwaya centers via a solar-powered radio system and can receive guidance immediately. All treatment is given according to protocols worked out by GOZ health personnel and used throughout Zaire. The mobile team does not usually provide direct care. Mobile teams were used to provide health services in the project villages before the clinics were built. Once the clinics were opened, there was no longer a need for mobile clinics - only mobile supervisors.

C. Sustainability

According to the 1987 Annual Budget submission's (ABS) annual evaluation schedule, the focus of this evaluation was to be sustainability: financial, organizational, managerial, and supply procurement. In brief, this project should be sustainable after USAID funding ceases.

Financially, five of the nine clinics plus Nkalama and the Kasangulu center are already able to support themselves with patient receipts. Two of the four that are not yet self-supporting have just opened or will open this spring. Additionally, Salvation Army involvement will continue past the PAI, possibly providing some extra funds for a while. Thirdly, the Salvation Army sets the fees charged by the clinics and can raise them if necessary. They have a bit of leeway here as their fees are currently lower than SANRU. Realistically, it is possible that finances may be a problem, especially considering the small target populations of the clinics.

Organizationally, the project should remain strong - the Salvation Army has long been active in the project area and there is every reason to assume they will remain so. There are currently two expatriates working at Kasangulu, one running the Kasangulu facilities and one involved with the village training and supervision of the clinics. This second expatriate works with a Zairian nurse who already carries much of the load in supervising the auxiliary nurses and meeting with the Health Committees. The nurse running Kasangulu has chosen her Zairian successor and will begin training her next year. As in any organization, and especially an outreach project like this one, much of the success is dependent on the character and personality of key people. If dedicated people of the caliber of the current staff can be found to carry on there should be no problem.

Management quality should be maintained if the replacements for the expatriates are well-trained and the Salvation Army continues to provide guidance.

Supplies are currently obtained by the Salvation Army and presumably, its supply routes will remain open. USAID funds were used primarily to initially equip and stock the centers. Replacements are to be paid for out of center receipts. Counterpart funds were used to purchase building materials, fuel, and pay salaries. The building materials are no longer needed and receipts should cover salaries and fuel. One supply problem may be parts for the U.S.-made, USAID-financed ambulance - which has been out of commission for extended periods during the life of the project due to procurement delays in receiving offshore parts. The Salvation Army has requested and received permission from USAID to sell the GMC truck.

D. Collaboration

By all reports, the working relationship between USAID and the Salvation Army has been a good one. Reports were made as requested, problems were worked out together, and there remain good feelings on both sides. There was minimal involvement of AID in the day-to-day running of the project.

The Salvation Army's contribution to the project is detailed in Table 5. In general, this contribution was in the form of donated land for some buildings; salaries and benefits of Salvation Army staff; use of Salvation Army vehicles before project vehicles arrived; houses for the driver and gardener; and the fruit trees planted at Kasangulu as well as the fish ponds there. A dental clinic has also been built on the grounds with funds raised by a Salvation Army women's group in Holland.

GC involvement in the project has been in the person of Dr. Minuku, Medical Chief of Sona Bata Health Zone, who was involved in deciding where clinics would be placed. He or his designated alternate, Dr. Mpanzu of Kasangulu, have made supervisory visits to the clinics every two to six months. Dr. Mpanzu provides weekly consultation services to the Kasangulu center. The project receives vaccines free of charge from PHV (a nation-wide vaccination program) as well as containers for keeping them cold during transport.

The project clinics offer the same services as SANRU clinics: vaccinations, pre-natal clinic, under-five clinic, maternity services, family planning, basic curative care including laboratory, health and nutrition education, and water/sanitation education. Both programs follow the same protocols for treatment and referral of patients and use the same health education materials. Both provide regular supervision and in-service education of nursing staff. Both offer training for Village Health Workers (VHW) - SANRU in the villages and project 093 at the training center. Both projects coordinate village activities through village health/development committees. Both file the same reports to the health zone. Both are fee-for-service arrangements - with the Salvation Army charging slightly less than SANRU and using a slightly different structure (episode versus item). Both Dr. Mpanzu and Dr. Minuku are quite satisfied with the work of the Project and feel there is good collaboration between them. Dr. Minuku feels that there may be problems with the Salvation Army clinics remaining or becoming self-supporting in the future, especially if there is any significant emigration from the target areas. He also feels that it is perhaps too much to expect Salvation Army nurses to run their clinics single-handedly. SANRU clinics are normally staffed with a nurse and one or two assistants who can carry on clinic functions when the nurse is out. He fears that the lack of help may hamper the outreach activities of the project nurses. On the other hand, project nurses do often have the assistance of trained health VHW's at their sites; smaller target areas would presumably require less personnel; and fewer staff to make self-financing easier. Perhaps in two or three years it will become obvious who was right.

The Kasangulu center functions as a reference health center for the Sona Bata Health Zone. Kavwaya, Mbanza Nsundi, and Kimayala are in health zones that are in the process of re-organizing. Project staff appear to have more time to devote to the villages and the satellite clinics than is usually the case. This is probably due to the fact that the Project provides adequate transport for supervisory visits and the fact that project staff making these visits and running the VHW training program have this as their primary responsibility.

Initially there were differences of opinion on clinic placement between the two projects. A compromise was reached and it was agreed that there was not a need for ten new health centers in the Sona Bata Health Zone of Kasangulu. Six village clinics were placed in Sona Bata Health Zone; two centers were placed in the adjacent zone of Macimba and one in Mbanza Ngungu Zone. The center at Kavwaya provides supervision of the Kimayala and Mbanza Nzundi clinics plus two additional clinics in the area not supported by project funds (but supplied with solar-powered radios by the project). Kavwaya's clinics utilize the Kasangulu center for VHW training and nurse refresher courses. Kavwaya collates the monthly reports, keeps the books, and obtains supplies for the other clinics. The new clinics at Kavwaya and Mbanza Nzundi are replacements for existing, outmoded facilities rather than new clinics in previously unserved villages.

In summary, Project 093 centers are providing health care quite consistent with SANRU. The project staff are doing an excellent job and are to be commended. See Table 4 for a summary of Project 093 activities.

E. Lessons Learned

1. Villagers are willing to work together - contributing time and materials to build something for the common good. If continued, this cooperation can further the development of the village with such additions as gardens, fish ponds, and provision of clean water. The success seen in this project was also due to the motivation provided to the villagers by project staff.
2. It is possible for rural health clinics to be self-supporting. There are, as well, those clinics that are not doing well. In sorting out what the problems are in these clinics, the Salvation Army will know better what the elements for success are. Time will tell whether smaller populations are able to support a health clinic for an extended period of time.
3. Another lesson learned in this project is the value of an adequate needs assessment before a project begins, difficult as it may be to assemble the necessary data. Had a more thorough assessment been done at the start of this project, the problem of clinic placement might not have arisen.
4. Provision of U.S.-made vehicles to a country where there is only one facility accustomed to repairing them, no local source of spare parts, and many roads more suitable for walking than driving almost inevitably leads to vehicle breakdown and long delays in waiting for parts to arrive or for the vehicle to be repaired. The project did order spare parts, but one cannot always anticipate what will be needed.
5. Any replication of a project such as this would need to be developed in very close collaboration with SANRU - perhaps in one of the larger health zones where a reference health center is needed in addition to the reference hospital.

TABLE A
ANNEX I
SUMMARY OF PROJECT 093 ACTIVITIES

Health Center	Date Open	1985 Pop.	# Vill	Nurse Staff	# VHW	a Clinic Visits	b % Out Side	Hosp Refer	Nutri Rehab	c Cash
Kasangulu	11/83	4,300	3	17	0	34,591	61	64	1,666	+
Kingantoko	9/83	2,979	13	1	16	4,373	3	45	30	-
Aituma	4/84	474	6	1	10	3,648	11	19	1	-
Kinzambi	5/84	746	5	1	11	3,326	22	0	9	+
Boko Mbuba	3/85	645	8	1	6	3,876	19	10	0	+
Ntendele	5/86	944	7	0	2) covered by Kasangulu mobile clinic in 1985) and included in Kasangulu statistics above.				
Shifu	3/86	1,018	11	1	1					
Nkalama	10/81	(886)	(9)	1	11		(4,688)	10	(12)	(16)
Sona Bata Zone Totals		e 11,106	53	23	57	49,814		138	1,760	
Kimayala	7/84	3,329	15	1	4	5,171	27	23	77	+
Mbanza Nsundi	(5/86)	1,604	9	1	1	6,585	42	14	258	+
Kavwaya	(5/86)	3,800	27	10	0	17,778	36	267	12	+
Madimba/Mbanza Ngungu Zones	Total	8,733	51	12	5	29,534		304	347	
Total Project 093		19,839	104	35	862	79,348		442	2,053	

- a. Clinic use data is for 1985. Numbers represent total number of visits made to the clinic; any one individual may make numerous visits in the year.
- b. % Clinic visits made by patients from outside the clinic's target area.
- c. Indicates positive or negative cash balance Feb. 1986
- d. Clinic also serves "5 quartiers" of Kasangulu town, a boarding school & 5 business organizations.
- e. Totals don't include Nkalama except for staff and # VHWs. Nkalama was not built under project 093.
- f. These are project activities which up-gradeng the facilities of long-standing clinics.
- g. Total number village health workers (VHW) trained by project, 3/85 - 3/86

3.

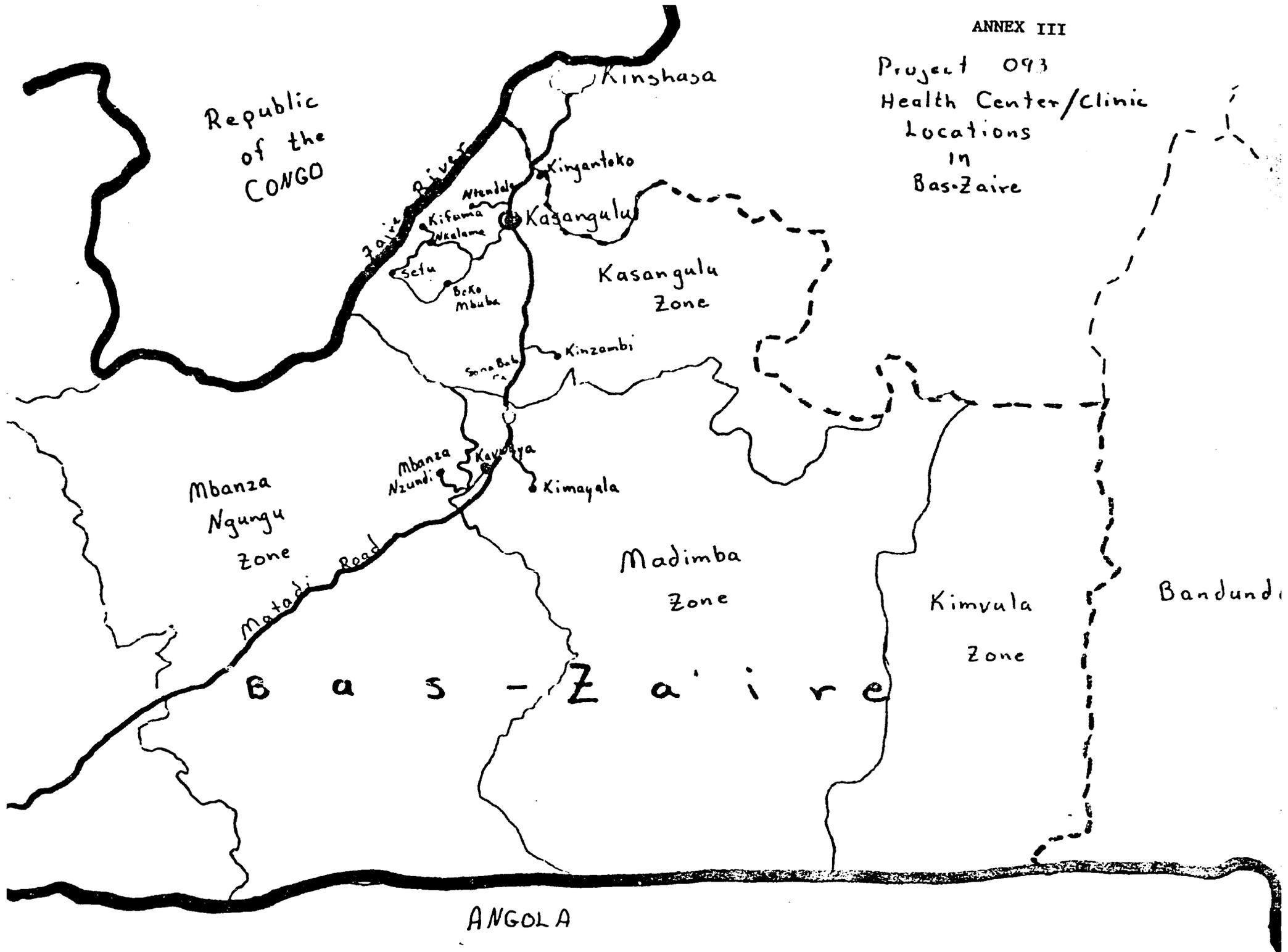
TABLE B. ANNEX II.

SALVATION ARMY PARTICIPATION: GRANT NO 660-0093.

	Total	1 Personl	2 Land	3 Constru	5 Equip	6 Vehicle	7 Consums	8 Veh Op.
Year to 31.3.85	165 495	94 750	4 800	31 850	9 852		14 353	9 890
Year to 31.3.86	161 603	94 750		35 780	7 240		16 539	7 294
2 Years 85/86	327 098	189 500	4 800	67 630	17 092		30 892	17 184
B/F to 3.84	363 958	125 815	100 272	93 885	15 406	10 158	10 798	7 624
Total 3.86 \$	691 056	315 315	105 072	161 515	32 498	10 158	41 690	24 808
Budget 4.83 \$	349 270	162 770	76 272	49 968	2 245	7 500	38 515	12 000
Surplus to Budget	341 786	152 545	28 800	111 547	30 253	2 658	3 175	12 808

9 *[Handwritten Signature]*

Project 093
Health Center/Clinic
Locations
in
Bas-Zaire



May 9, 1986

ANNEX IV

Mulamba wa Kabasele

Inspection of the USAID-financed buildings at the Salvation Army Health Center in Kasangulu and two satellite village centers at Ntendele and Kingantoko.

H.L. Braddock
Thru: Debra Rectenwald

PARTICIPANTS: Marc Metzner/USAID
Robert Serge/Salvation Army
Mulamba wa Kabasele/USAID

FINDINGS:

On April 24, 1986, we visited three Salvation Army sites: Kasangulu Health Center, Ntendele, and Kingantoko satellite villages. The important findings are found below.

1. KASANGULU HEALTH CENTER - Kasangulu dispensary is a relatively large building complex made up of a long hallway and four wings. The hallway is composed of reinforced concrete columns and beams and covered by a galvanized sheet-metal roof. The wings are built on a rock masonry foundation with concrete block walls and a roofing system made up of wooden trusses covered by several galvanized sheet-metals. The plans for the building (drawing no. 1318/1 of 4/20/81) was made by Paul Dequecker, the Catholic diocesan architect in Kinshasa. It was constructed by a local private catholic contractor. Visual inspection reveals that the building is sound and shows no sign of any structural distress.
2. NTENDELE HEALTH ZONE - The satellite center is located at 14 km. away from Kasangulu and is connected to the Center by an abandoned dirt road. The dispensary is built of rock masonry foundation, concrete block walls and the roofing system made up of wooden trusses and rafters all covered by several galvanized sheet-metals. Unlike Kasangulu, it does not have any ceiling. It is a new construction which has not yet been opened. It was built by local labor according to Paul Dequecker's drawing no. 1026/2 of 5/26/77. Visual inspection reveals that this building is also sound and shows no sign of any structural distress.
3. KINGANTOKO HEALTH ZONE - The dispensary building is identical to that of Ntendele except that it has a ceiling and has been opened to services. The building is also sound and shows no sign of any structural distress.

RECOMMENDATION:

It is recommended from the above findings that these buildings be accepted and usefully used to fulfill the intended project purposes.

ANNEX V
SOLAR-POWERED REFRIGERATORS

Under Project 660-0093, the Salvation Army installed six solar powered refrigerator/freezer units for vaccine conservation at various satellite health centers surrounding the Kasangulu maternity/dispensary. The refrigerators are part of a larger photovoltaic power system. Seven solar modules were installed to give power to 12-volt lights, a two-way radio, and a refrigerator. The systems were bought from Solar Power Corporation (SPC), an American firm which went bankrupt shortly after the purchases were made.

The SPC refrigerator/freezer (SPC R/F) unit was designed to conform to rigid specifications established by WHO and CDC. The unit is a top-opening chest with insulated walls thicker than 12 centimeters. A thermostat is to shut off the refrigerator if the temperature becomes too cold and to sound an alarm if the temperature becomes too warm. The unit was designed to operate on six (105 amperes/hour) batteries and seven (35-watt) solar modules. A regulator is to prevent the batteries from becoming over-or under-charged. Although the SPC R/F appears to have been thoughtfully designed, the unit has not functioned properly in Zaire. (The radios and lights, which are not discussed here, have worked well.)

In 1983, an American technician from SPC came to install a SPC R/F at Kionzo Mission in Bas Zaire. A Salvation Army staff member accompanied the technician to Kionzo so that he could learn to install the equipment. Later that year the refrigerators purchased under the Salvation Army project arrived and were installed.

In August 1985, USAID learned that several of the SPC R/Fs were not functioning well (including the one at Kionzo) so USAID sent the Mission's engineer and a solar energy expert from the Interdiocesan Community to determine the problems. The technicians discovered that the refrigerators had broken down completely or did not maintain temperatures cool enough to preserve vaccines. The refrigerators had not been repaired because the Salvation Army staff did not know where to find technical assistance. Mechanical problems, such as these, had not been anticipated. The SPC technician who had come to Zaire in 1983 assured the staff several times that no maintenance would be required.

The USAID Engineer and the solar energy expert repaired two of the refrigerators for the Salvation Army. They repaired the first unit by disconnecting the fan which cools the compressor (apparently the fan was consuming too much energy), and repaired the second unit by replacing a fuse. (However, these minor problems were apparently not the only causes for the breakdowns as the refrigerators stopped again a few weeks later.) USAID then allowed the Salvation Army to use project funds to sign a service contract with the Interdiocesan Community (Brother Koggenan who works at the I.C. has successfully installed many solar powered refrigerators throughout Zaire).

During this evaluation, the USAID Engineer returned to the project site with a DEO intern to examine the status of the photovoltaic equipment. They reported that only two of the six SPC refrigerators have performed as promised. The

others are in need of constant repair. The Salvation Army has purchased new solar powered refrigerators from FNMA for other satellite health centers. (The refrigerators were installed with the help of an Interdiocesan Community technician.) The Salvation Army staff believe that these new refrigerators will work better than the American units; so far that has been true.

The lessons learned from this activity are: 1) that a maintenance component should be included in any project which installs equipment as sophisticated as this; and 2) local procurement of equipment (where spare parts and technical assistance are available and can be procured without USAID's assistance) is preferred to overseas procurement.