PD-AAT-382

PROGRESS REPORT OF ACTIVITIES

USAID/ASIA 492-1726

A PROGRAM TO PROMOTE APPROPRIATE EDUCATION, SMALL BUSINESS DEVELOPMENT, RURAL DEVELOPMENT PEACE CORPS FISHERIES, AND WOMEN IN DEVELOPMENT ACTIVITIES IN PAPUA NEW GUINEA

Period: September 1, 1983 - June 30, 1984

by

Kathy Fry[illegible]t
Country Director
Papua New Guinea

FOREWARD

FSP's Operational Program Grant, USAID/ASIA 492-1726 was implemented during the period of time, September 1, 1980, and August 31, 1983. In May, 1983, a final evaluation on the three year program was published, and a final quarterly report was written for the period March 1, 1983 - August 31, 1983.

During the ten month period between September 1, 1983 and June 1, 1983, USAID extended the grant period without the injection of additional funds. This enabled several of the small projects to utilize unspent grant funds, however, all of the major programs (Hohola Youth Development Centre, St. Joseph's Training Centre, Hanuatek Small Scale Industries, YWCA Women's Program, and the Tambiok Integrated Rural Development Group) had spent their budgets by the August 31, 1983 deadline.

This report, therefore, deals mainly with continued activity of the FSP office in relation to small project grants, and to those major programs that are proposed to continue with support under the new grant program presently pending USAID approval (Hohola Youth Development Centre and Hanuatek Small Scale Industries/SPATF).

This report is prepared by the FSP Country Director in Papua New Guinea, Kathy Fry Nast.

FSP COUNTRY OFFICE

In November, 1983, there was a change in the FSP country directorship from Lana Sheppard to Kathy Fry Nast, who was the former FSP Country Director in Kiribati.

In March, 1984, the FSP office was moved from Port Moresby to Madang on the north coast of Papua New Guinea because of the rising cost of housing and office space, and the increase of crime in the capital area.

THE SOUTH PACIFIC APPROPRIATE TECHNOLOGY FOUNDATION (SPATF)

Under this grant FSP provided financial assistance mainly to one project under the SPATF organization, the Hanuatek Small Industries Centre. Appendix A and B include a report on Hanuatek and Hanuacast, which is the successful foundry operating at the Centre.

Due to managerial shifts in SPATF, Hanuatek has been operating with either no or interim managers for the past six months. The old manager, Gabriel Pisa was promoted to assistant director of SPATF. As a result there has been no consistent program to establish training for the small entrepreneurs that are working at the Centre. Only one new business, a fresh vegetable marketing concern, has been established. The printery has also been sold because of lack of management. The other businesses operating consist of an auto body repair, cane furniture, screen printing, and picture frame making, all of which operate at a status quo level. The only progressive business is Hanuacast, which has been increasing its production of salvage export metals, and is presently exporting manufactured lead fishing weights and diving weights. Hanuacast is under the management of a British volunteer, however operates quite efficiently in his absence under the trained local counterpart manager.

A new local manager is presently being recruited for Hanuatek and he will be assisted in setting up a training program for Hanuatek together with the SPATF Extension Business Development Officer and the FSP Country Director. Funds for these activities are proposed under the new FSP/USAID grant.

SPATF is currently under a program of great expansion. It is in a process of taking over the Hohola Small Scale Industries training centre from the Ministry of Industrial Development, and will create a similar set up to Hanuatek. Current industries operating there include a Shoe Factory, wood lathe operator manufacturing tool handles, metal fabrication, pottery, and black board making.

In addition, SPATF is assisting in the development of CAVI (Community and Village Industries) with the Morobe Provincial Government in Lae. Again, this will be a Hanuatek-type operation for the promotion of small industries in a partnership involvement with several other local institutions such as KUM-GIE(management services), Development Engineering Services (foundry, industrial product research), and the Community Based Builders (construction of appropriate technology housing and buildings). This project has been delayed because of land settlement problems with the land delegated to CAVI project by the Morobe Provincial Government, however, some of the proposed industries to be developed there include sawmilling (the "Walkabout Sawmill" developed and manufactured by Development Engineering Services), food processing industries, concrete products, bush knife manufacture, charcoal production (already in operation), and charcoal stove production (already in operation). A Vocational Training Centre is also envisioned at the site.

With a potential of three small industries development centres, it is critical for SPATF to improve its management services and training programs outlined in the Hanuatek bulletin. This so far has been its weakest and most critical link to reach its goals. The proposed new grant prioritizes this concern and provides for strengthing the effectiveness of the SPATF management training operations.

Appendix C outlines the entire organizational structure of the SPATF funded network. One of its newest programs is the Extension Services which is headquartered in Lae together with ATDI, another SPATF partnership program. Basically ATDI is the research arm of SPATF in appropriate technologies and they have established an excellent reputation for themselves throughout the Pacific region (See report, Appendix D). SPATF Extension, however, is the mechanism for transferring ideas from the drawing board to the village, and will be the main focus of the FSP/ SPATF partnership. It is anticipated that SPATF Extension staff will be funded half by SPATF and half under the proposed FSP/USAID grant. There will be a total of four positions: coordinator, business development officer, agriculturalist, nutritionist. The two SPATF positions have been hired since last year and have been operating popular training workshops in appropriate technologies and nutrition throughout Papua New Guinea. (See report Appendix E). Already the demand for workshops from villages has far exceeded the capabilities of this small team.

The SPATF Extension Business Development Officer has been working together with the FSP Country Director to increase his skills on small project assessments and proposal writing by visiting potential project sites. Five new small projects were submitted to FSP New York and USAID for approval during this period. It is anticipated that this SPATF staff position, together with a Peace Corps volunteer and the FSP counterpart director (when hired) will establish a sub-team of SPATF Extension to provide short term, on location managerial and administrative technical assistance to all the small projects funded under the FSP/USAID Small Project Grants scheme. In the future, all projects approved in Papua New Guinea will be assessed by this FSP/SPATF team, and agree to participate in the training offered. This is intended to eliminate the problems of small projects not succeeding because of a lack of managerial skills among the entrepreneurs.

HOHOLA YOUTH DEVELOPMENT CENTRE

FSP financial assistance to this program terminated on August 31, 1983. Since then the Country Director has made several visits to the project site. The program is continuing at the same level of activity with students and classes. The new program proposed under the next grant includes funding for a job placement program to enable the centre to assist the students in finding their first employment, a critical step for most of them.

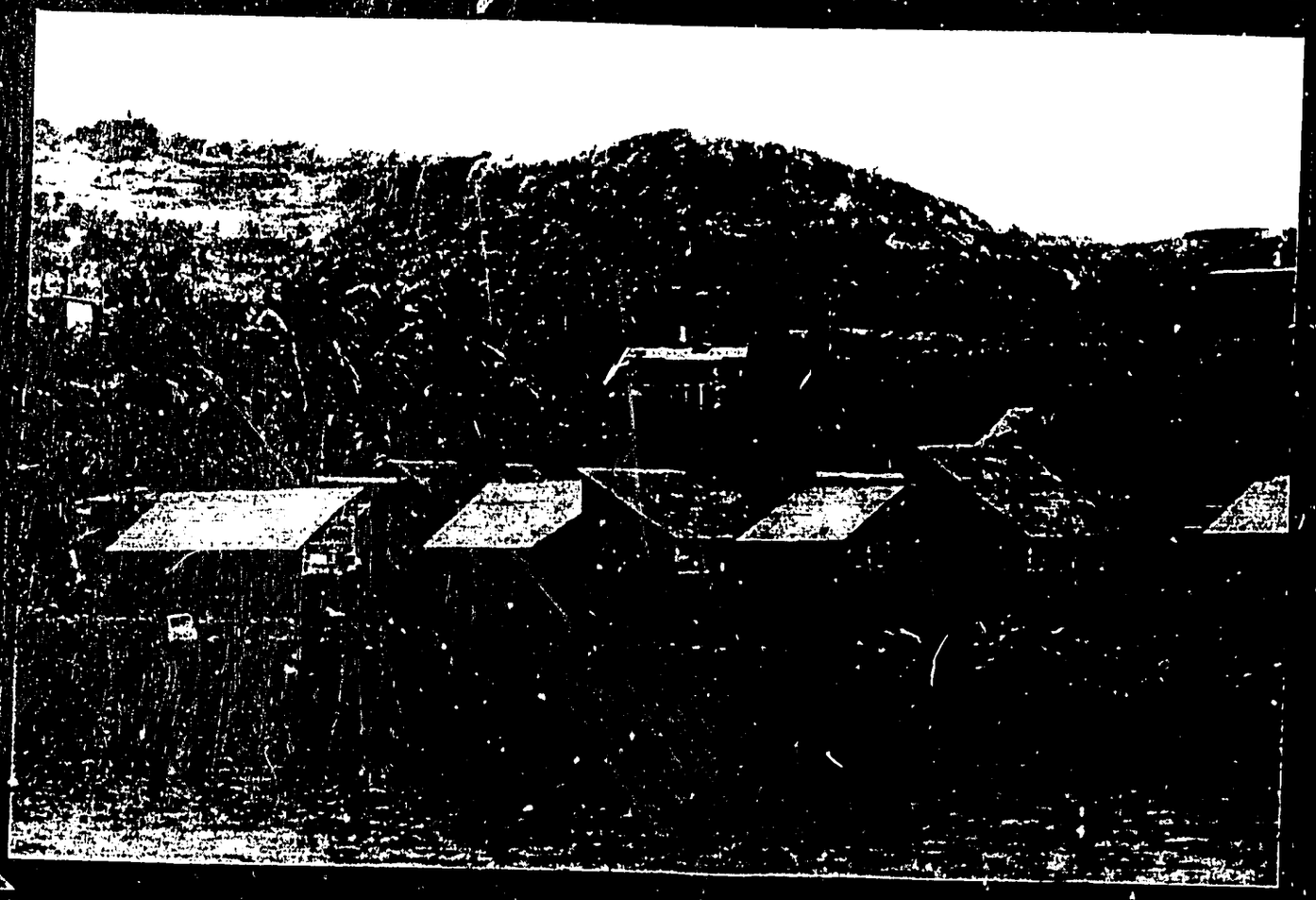
Hohola's main concern is continued institutional financial support. Ideas have been discussed with them about incorporating a profit making business to establish some self-support, for example, selling furniture and other items made by the wood working and cane furniture classes, or marketing products made by the sewing and cooking students. At present they are earning a small income from the sale of plants grown in their nursery (FSP/USAID funded), and from their garden produce.

SMALL PROJECTS

No new small projects were funded during this interim period. Only five proposals were submitted for funding.

Appendix F includes an update on the status of all the projects funded since the beginning of the grant, and any reports received from the projects during this reporting period.

Hanuatek '84



- Hanuatek as a model small industries centre
- Management
- The problem and how Hanuatek helps
- Hanuatek in pictures
- Hanuacast... money in rubbish
- Plans and programmes

Hanuatek ... 'A MODEL FOR SMALL SCALE INDUSTRIAL DEVELOPMENT IN AN URBAN ENVIRONMENT'

ORGANISATION : Hanuatek is a project of the South Pacific Appropriate Technology Foundation (SPATF) which is one of the major organisations in Papua New Guinea actively involved in the promotion and development of Papua New Guinean owned and managed enterprises at the small scale end of the industrial development spectrum, in both urban and rural areas of the country.

SPATF has close links with the National Government (though the Department of Industrial Development), Provincial Governments, PNG University of Technology and numerous international aid and technology development organisations active in PNG and elsewhere in the Pacific region. It is this network of links that assists in making the organisation and management of an enterprise such as Hanuatek a success.

DESCRIPTION: Hanuatek is an urban village community, in fact 'hanua' means village in the Motu languoge, widely spoken in and around Port Moresby. It is a small business development and promotion centre, providing premises, assistance and a congenial environment for national businessmen involved in small scale manufacturing and service industries.

Hanuatek consists of a complex of buildings divided up into individual workshops, each with a dwelling unit above it. These workshops are rented out to small scale national entrepreneurs, with preference being given to those involved in enterprises that utilise locally available raw materials, produce items for import replacement or employ 'appropriate' techology. At present there are 24 workshops available. These are presently rented out to persons or groups involved in cane furniture manufacture, cor body repair, T-Shirt printing, sewing machine repair, wooden furniture and industrial art.

Also within Hanuatek there are a number of core activities. These are carried out and managed by Hanuatek staff on a commercial basis so that they earn a small income for the organisation and at the same time have spin-off benefits to SPATF, other businesses at Hanuatek and the community at large, such as training, R & D etc. At present the two core activities are SPATF Press and Hanuacast (see later).

Mai owns and manages his cane business in the centre.

Management

The Hanuatek Management provides the following services to the tenant businesses.

(a) initial vetting and feasibility analysis prior to entering Hanuatek to ensure that the business has the necessary manpower, technical capability, resources, finance, market etc. for it to be successful.

(b) if the above exercise demonstrates that there is a need for an initial subsidy, training input, specialised technical assistance, R & D or similar from SPATF/ATDI or any other organisation the manager would make an appropriate submission to the SPATF Management Committee to decide whether or not to provide, fund, or organise this support.

(c) provide any necessary business development/accountancy/book-keeping assistance necessary.

(d) organise the usage of the Hanuatek transport and secretarial services which are charged out very reasonable rates.

(e) provide assistance in marketing and promotion of products/services where possible.

(f) oversee Hanuatek general services such as rent collection, building maintenance, nightwatchman, public relations etc.

(g) organise regular meetings of the Hanuatek community so that where possible any social problems are solved by majority consensus.

As the SPATF representative the Manager will ensure that overhead costs of running Hanuatek are recovered but at the same time that rents charged are reasonable and within the capability of the businesses to pay.

CONCLUSION : Hanuatek aims to be flexible enough to react to the ever-changing urban and small scale business environment in Port Moresby and its needs in order to provide the necessary support and encouragement to ensure that Papua New Guinean entrepreneurs can establish themselves and become successful.

It is hoped that the lessons learnt at Hanuatek over the years it has developed will be used and taken into account by National and Provincial Government administrators when considering various alternatives for promoting small scale industrial development. SPATF is actively involved in developing and organising the implementation of such rural and urban programmes with a number of Provincial Governments already, it is hoped that this will continue.

the problem... HOW DOES HANUATEK HELP?

One of the major constraints to small scale businessmen in urban areas of Papua New Guinea is the lack of suitably sized and priced premises. Due to a number of factors including high wage rates, building and other infractructure costs as well as a predominance of larger often expatriate owned enterprises the workshop premises that are available are usually too large and rentals charged much too high for a businessman trying to establish himself.

Also land blocks in areas zoned industrial or light industrial are usually too large and have improvement covenants (e.g. K10,000 within 1-2 years) that are not appropriate for small scale entrepreneurs even if they are lucky enough to obtain leases. All too often an entrepreneur may have the necessary skills and some initial capital but insufficient assets to act as security to allow the PNG Development Bank or the commercial banks to provide loan finance. To be eligible for the National Governments' Guarantee Scheme a minimum of assets are necessary.

On the job training schemes by government organisations and private sector companies produce a stream of trained artisans skilled in particular technical areas. Some of these persons have the desire to 'be their own boss' and go it alone but do not do so because they do not know what is involved. 'Business' is often looked upon as being able to be done only by well educated people for example. Thus within PNG there is a pool of potential entreprenuers.

Of course there are a number of other constraints to the establishment of small scale enterprises in PNG and these have been well documented by a number of eminent international consultants who have suggested a variety of fiscal, legislative and administrative incentives to alleviate them. SPATF accepts these but is more concerned with actually doing something tangible to help entrepreneurs and potential entrepreneurs now, and see Hanuatek as an appropriate vehicle for doing this.

In recent years 'squatter settlements' have grown up around PNG's major urban centres such as Port Moresby and Lae. City authorities have attempted to provide basic amenities such as communal water supply, but the quality of life is probably even lower than in a rural village situation. It is these people, outside traditional laws, often unemployed, who if not involved in some form of income earning activities will pose a serious threat to law and order.

By provision of small oppropriately sized workshop units at reasonable rentals Hanuatek is reducing the overhead costs of establishing a small enterprise. The provision of one basic dwelling unit above each workshop (most commercial private sector workshops do not provide this) alleviates the problem of the entrepreneur having to find accomodation for himself or one of his employees.

Access to communal transport and secretarial services at reasonable rates also reduces overhead costs for Hanuatek tenants. The Manager can take an interest in each individual business and assist where necessary in such areas as company/business name registration, installation of simple book-keeping systems, job costing, material sourcing, marketing etc.

A Hanuatek tenant business may be sucessful, flourish and become too big, in which case assistance will be provided in establishing it elswhere, thus freeing one workshop space at Hanuatek.

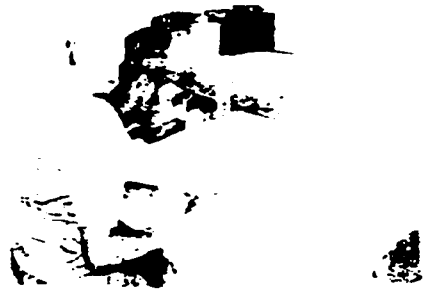
It may be argued that Hanuatek is providing an unrealistic environment for businesses to develop in. However the rents and charges for transport and secretarial services cover all the costs of providing these services and most other overheads of Hanuatek so the tenants are paying the real costs they incur. Obviously it is accepted that as in any country there will be a certain dropout rate of businesses which are not successful for a variety of reasons but it is hoped that with the detailed knowledge and advice of the management some of these may be overcome. People involved in SPATF and Hanuatek are well aware of the 'wantok' obligations and other constraints to business peculiar to PNG and aim to help people develop themselves to reach a workable balance.

While some tenant businesses at Hanuatek may not be amazingly profitable in accounting terms if they meet all their running costs and the owner is himself happy with the return on his labour, surely that is enough. Others with more entrepreneurial aptitude (in Western terms) will succeed and flourish. SPATF merely wishes Hanuatek to be one means to establish small scale businessmen, since it will be from a base of many small enterprises that larger industries in Papua New Guinea will ultimately grow.

● **John Brooksbank**
Senior Projects Officer,
Department of Industrial Development.

People living in squatter settlements don't have access to conventional market outlets so they sell their goods on the streets ... (until removed by council authorities)!

A LOOK AT



Workers in the screen-printing business prepare their own artwork for screens.

Panel-beating, spray painting, radiator repairs, muffler repairs and similar are carried out by Simeon Guitana who runs a panel shop.

HANUATEK

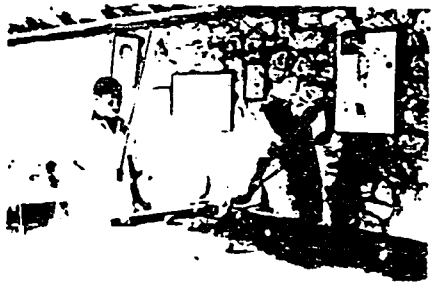
Concentration & skill helps Mai to produce very good quality cane furniture. He produces wide range of products made of cane.

The canteen serves the centre with a wide range of foods for breakfast, lunch & dinner.

Koiye, the printer at SPATF Press has urgent work to be done so he runs off the work at night. It's easy because he also lives in the centre.

On the job training has helped this apprentice set up his own picture - framing workshop.

Entertainments in the centre vary. A snooker table provides some diversion after a hard day's work.



HANUACAST

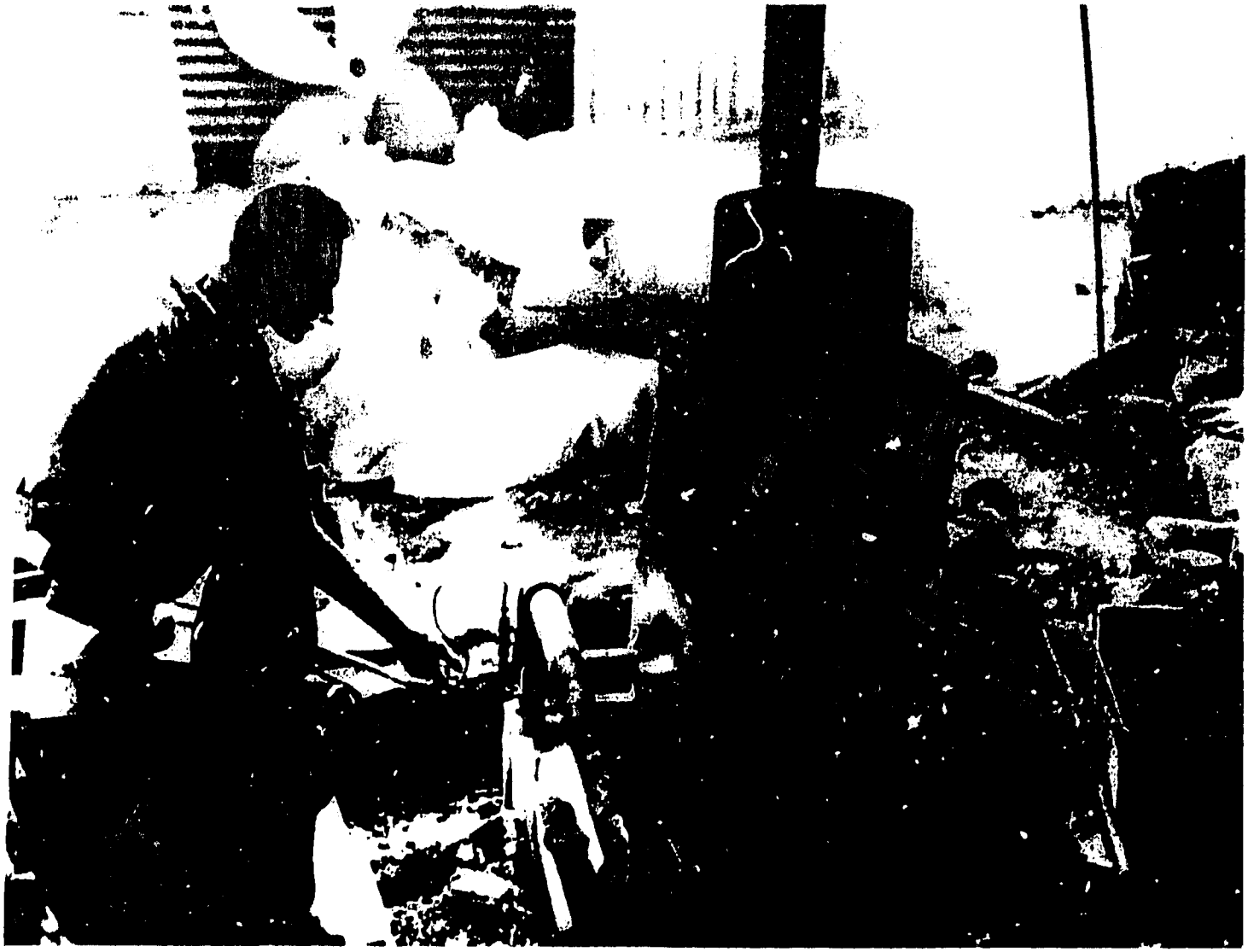
'Money in rubbish...'

This is one of the core activities at Hanuatek, it is basically a scrap metal processing operation. All types of non-ferrous metal scrap are purchased from people who live on or around rubbish dumps around the city of Port Moresby. Some scrap is sorted and exported overseas.

Aluminium scrap is melted down in a simple furnace built for only a few hundred kina and fired with waste engine and gearbox oil collected free from local garages. The aluminium is cast into ingots which because of their purity fetch a higher price than scrap.

This scrap processing operation provides a regular income for otherwise unemployed people living on rubbish dumps (payments for scrap average K7,000 per month) and is in itself profitable.

Now this enterprise is operating profitably and successfully it may be expanded by building another kiln. Also it is being used as a base for developing the small scale production of simple cast products from aluminium and possibly other non-ferrous metals such as brass. The production of lead fishing weights and sinkers from scrap

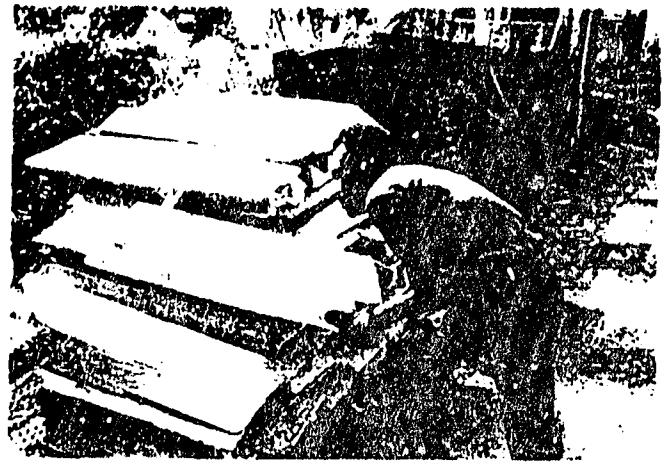


Pepe Pukari fires the burner to melt automotive batteries down for lead to be cast into fishing weights.

lead has also been shown to be feasible and is being developed further.

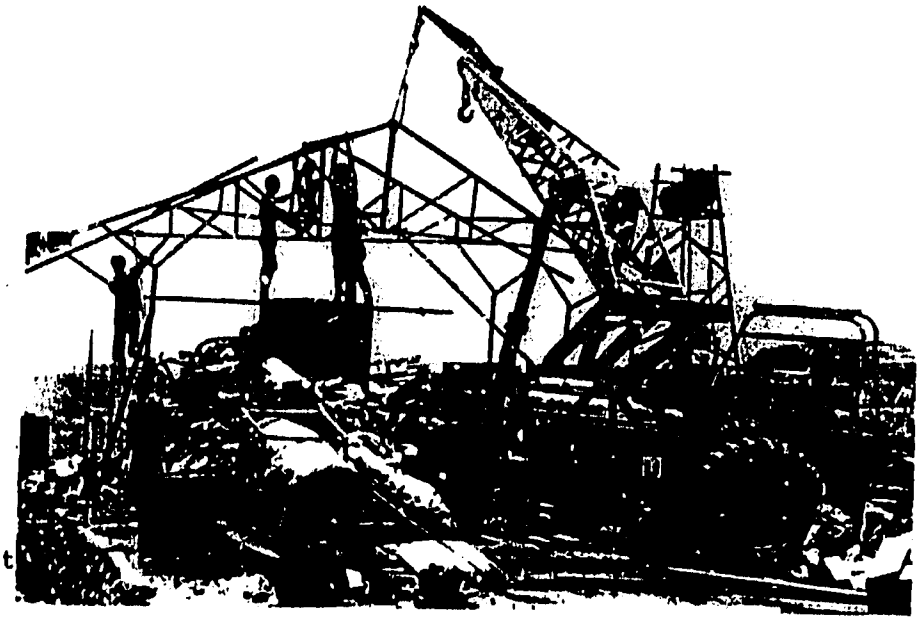
The above activities have been made with the invaluable technical assistance of our English volunteer who has developed these simple and appropriate technologies. By the time he returns to the UK there should be a competent national to run the aluminium and scrap processing operation. Also hopefully there will be commercial production of other cast products from lead, aluminium and brass carried out by Hanuacast itself or as separate individually owned business at Hanuatek or elsewhere.

Hanucast is a demonstration of commercially successful appropriate technology in action, processing waste into an exportable product. It serves as a model for similar enterprises to be set up elsewhere in PNG and a training ground for operators for these. It has carried out R & D and developed spin-off casting industries, all of these are being used to provide data to put together feasibility studies to enable such industries to be successfully developed elsewhere in PNG and the Pacific region.



Stacking the aluminium ingots ready for export overseas.

Making fishing weights by hand in small moulds.



Building materials gathered from local rubbish dumps are used to build a roof for Hanuacast as part of its expansion programme.

Plans and Programs

Since it is fairly obvious that Hanuatek in many ways has been a success the next logical step is to promote the concept in urbon centres elsewhere in the country and to improve on Hanuatek's present activities.

It is suggested that in any future developments elsewhere that the businessmen do not live at the centre since it has been found that often social and family problems hove a great affect on the running of the businesses as well as an unnecessary burden on the administration of the centre.

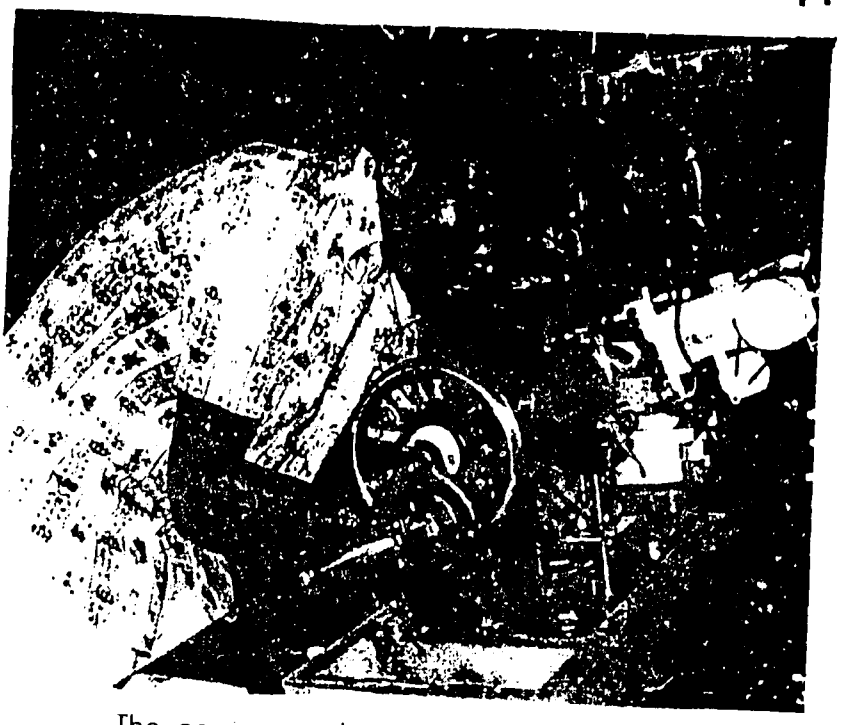
The running of Hanuacast as a scrap recycling and processing operation is gradually being handed over to a national employee. This activity will be used to train persons from other Provinces wishing to set up similar enterprises. It is also planned to carry out further investigations into the feasibility of starting simple small scale aluminium and other non-ferrous casting. To date only a limited number of regularly used castings have been identified but it has been shown that if scrap aluminium is used there is a much greater value added by converting it into finished cast products, rather than ingots for export.

The centre operates a small Appropriate Technology library that is open to anybody who wishes to use it.

A bird's eye view of Hanuatek's workshops. The workshops are available for rent to anyone with a skill who wishes to be engaged in some form of self-employment.

Hanuatek will continue to work closely with the Department of Industrial Development in the implementation, where possible, of initiatives made by them. A closer relationship between these two bodies should result in the development of a larger number of small scale enterprises.

Hanuatek will continue working closely with other service Divisions of SPATF, such as extension and publications. Where appropriate technical workers or even businessmen will be asked (or in certain cases paid) to participate in rural extension courses. For example a small businessman who fixes sewing machines could provide a valuable input into a workshop by giving demonstration and instruction in basic sewing machine preventive maintenance.



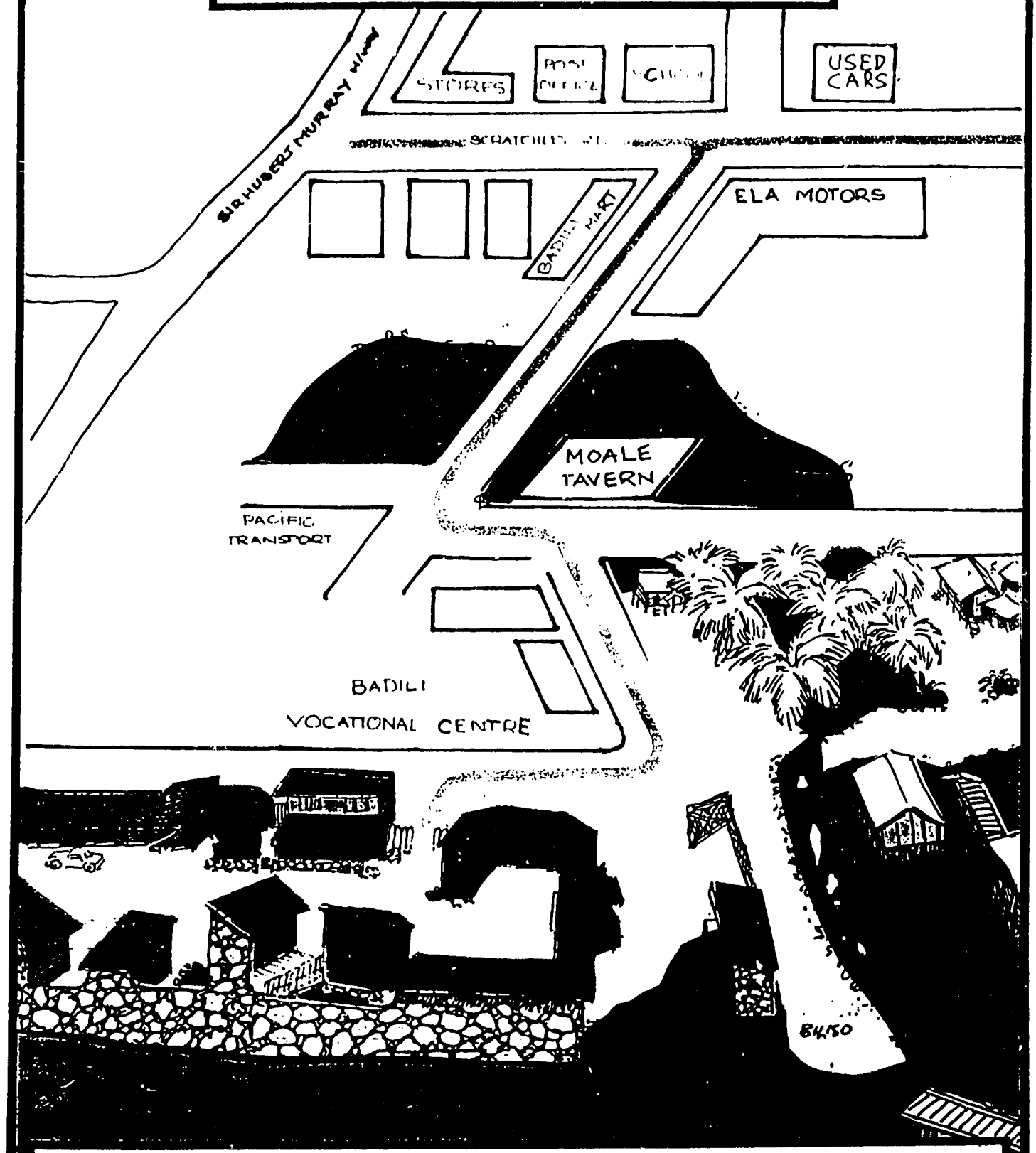
The sewing machine repair shop in Hanuatek carries out repairs on all types of machines. Businessman could be engaged in workshops and pass on their skills to others.

Booklets and technical pamphlets on projects at Hanuatek will be produced or updated. A project profile on small scale scrap recycling and processing is presently being prepared and should be available later in 1984. All such publications are produced and printed at SPATF Press, which is accommodated within Hanuatek. This service printery also functions as a self supporting commercial printing operation, competing successfully against other private sector commercial enterprises in Port Moresby.

Also at Hanuatek is a small technical library which has information available on a large variety of topics. This information is usually photocopied for a small charge so that essential publications are retained for everyone to use.

Cabinet making is one of the activities done in the carpentry shop.

Hanuatek—how to get there...



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HANUACAST

YEARLY REPORT FOR 1983

JANUARY

This month saw the acquisition of a new truck for Hanuatek. It has improved our scrap collection and encouraged more people to collect srcap.

APRIL

We sold some lead fishing sinkers to Bali Merchants and and started making lead target bullets for George Page.

May

A tender for old copper and lead from P&T was won by the foundry. It stretchedour finances but the bank and NONFERRAL helped us.

June

Wilson Amos started doung more woek on managing the foundry. He had proved to be very keen and bright and it was felt that the sooner someone could be trained to take over from Peter Thomas the better.

July

Peter Thomas went to Australia with the Department of Foreign Affairs and Trade. His report has been circulated to all managers.

August.

The Foundry increased its staff by four(4) people bringing the total up to 12.

September

A new furnace was tried out for melting lead scrap down. The furnace uses timber and has proved to be a big success. The lead scrap is melted in this furnace, then turned into ingots. These are stored andthen remelted to make fishing weights and sinkers using a smaller furnace. Melting the lead twice improves its purity and produces shiny weights and sinkers.

October

After having obtained an old factory shell the construction of the new foundry building was started. Everyone in the foundry took part.

November

There was so much scrap collected over October that we decided to work shift work. This was a big success with productivity increasing as one shift group tried to beat the other.

December

Wilson Amos has spent a lot of time trying to put to gether some facts and figures on the foundries performance in 1983. while some specialist castings for the cane furniture trade have been produced by the foundry worker.

There is every reason to suppose that the level of scrap collected in 1983 will be maintained. The foundry is becoming better known and we are beginning to deal with industry, collecting their scrap and clearing their yards.

The exporting of fishing sinkers should continue and improve with new products being introduced e.g. net wieghts.

When Peter Thomas is back full time in the Foundry, it is hoped to introduce more castings which is still a weak area compared with scrap recycling and lead production

Some investigations into refractory bricks and furnace liners will be undertaken.

MANUACAST EXPENSES SHEET 1983

WAGES	19,556.36
TRANSPORT	2,333.51
FREIGHT	800.00
PETTY CASH	2,964.95
SCRAP	6,6708.21
STATIONARY	198.24
ADVERTISING	140.52
TELEPHONE	127.49
RENT	800.00
EQUIPMENT	2,399.99
MATERIALS (Woodwork Project,etc)	9,607.42
	105636.69

M.L.LACASA INCOME SHEET 1983

RECYCLED SCRAP	100722.97
CASTING (ELCOM.)	640.00
NET WEIGHTS	1486.17
FISHING SINKERS	783.10
DIVING WEIGHTS	501.00
EXPORTED SINKERS	703.07
	K104,836.31
RECYCLED SCRAP RECEIVED 17/1/84	4660.00
	K109496.31

Recycling Aluminium for Export in Papua New Guinea

Gerald Giffould describes a successful aluminium recycling project organized by the Hanuatek village technology group in Papua New Guinea, which has created employment for dozens of people.*

Papua New Guinea is a developing country which exports the foods it grows and the minerals it mines. It does not produce aluminium, nor does it have manufacturing industries which could make use of aluminium ingots. Yet Papua New Guinea exports several tonnes of pure aluminium each month. This is done in the capital, Port Moresby, by Hanuatek, the village technology section of the South Pacific Appropriate Technology Foundation. The project was initiated by the Intermediate Technology Development Group in 1980 and 1981. It now earns around Kina 4,000 (£3,200) per annum, and gives employment to the many people who collect and sort the aluminium from rubbish dumps.

The scrap aluminium comes from a variety of sources: old car engines; World War II aeroplanes and aluminium extrusions. It is gathered by people living near rubbish dumps who earn KO.11t (8p) per kilogram of scrap aluminium collected. This is melted down to cast ingots which are exported to Australia. Over twice this price is paid for scrap copper and brass, which are packed into old oil drums to be exported.

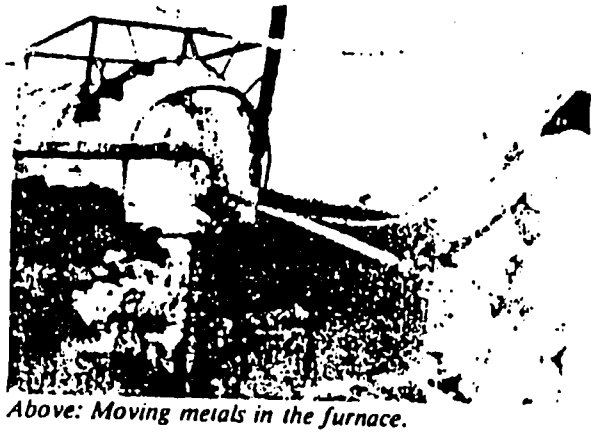
Making aluminium ingots

The scrap aluminium is broken into small pieces, and any fixtures of other metals which are easily removable are taken off. The aluminium is then loaded into a small furnace made from fire-bricks, with a refractory lining composed of clay, sand and anthill materials. The furnace is fired with waste motor oil, obtained free from garages, with two burners funnelling blown air past the oil nozzles.

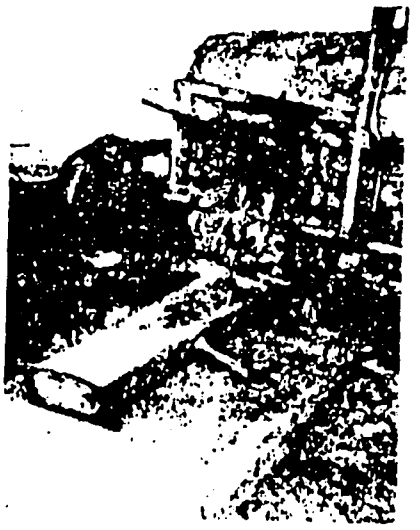
The aluminium pieces are thrown dow[n] steel channel and molten aluminium is tapped from a well in the furnace. Impurities and other metals float in the molten aluminium and are scooped off or left in the furnace. Some steel tools have had to be made for use by the furnacemen: a prodding tool for stirring the metal in the furnace; a ladle; an ash-collecting ladle with holes and some large tongs for lifting the 50 kg ingots. The aluminium ingots are cast in moulds made from two lengths of angle iron, welded to make a trough.

Further developments

The aluminium ingots are sold at K460 (£370) per tonne, after they have been cleaned up with a file or hacksaw. An extra benefit is the ash from the furnace which has been found to be most beneficial on people's food gardens. Recently, an aluminium castings' project has been started, with the Papua New Guinea Electricity Commission paying K2 (£1.60) for a 250 g casting, or K8,000 (£6,400) per tonne.



Above: Moving metals in the furnace.



Right: Casting the aluminium ingots.

Large tongs to lift the ingots.

This is potentially a more profitable project as long as the castings are designed to minimize the labour in their manufacture. The moulds for the castings use a mixture of river sand, clay and ground charcoal blended in a concrete mixer. This is packed around a wooden mould located with wooden pegs in a wooden box.

Brass castings are also being tried out, as the furnace temperature of 1,000°C is adequate for this. However, the people who collect the metals are reluctant to bring much copper or brass to Hanuatek, as the aluminium is easier to sort out. Plans are in hand to construct a new, larger furnace to handle an increased output of aluminium.

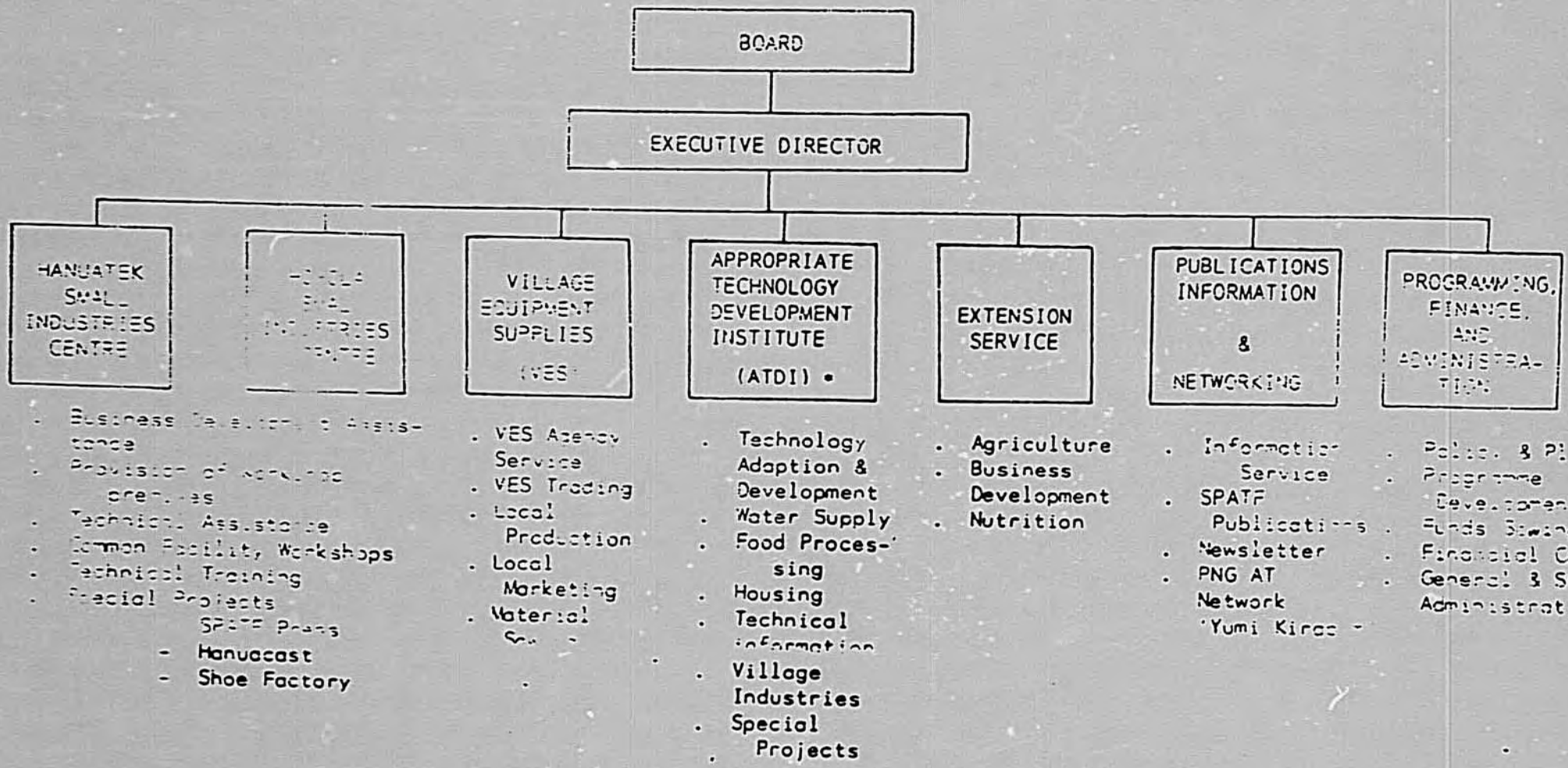
Hanuatek employs six people on this productive recycling project: two workers, two trainees, a foreman and the manager/adviser, Peter Thomas. Many people — perhaps hundreds — collect the scrap metal which is sold to Hanuatek. Peter Thomas welcomes readers' ideas, views or questions about this project. He can be contacted at the address below left. ●

**Gerald Giffould is the Head of Science at [illegible] New Guinea's College of External Studies. He is an educ[illegible]who has been involved with appropriate technology and tec[illegible] education in several countries. Write to* Hanuatek, PO B[illegible]6937, Boroko, Papua New Guinea *for more information about the project.*

Further reading

J.A. Vogler, *Work from Waste*, Intermediate Technology Publications 1982.

ORGANISATIONAL AREAS OF SPATF



• A joint venture with the [illegible] Tech.

APPROPRIATE TECHNOLOGY DEVELOPMENT INSTITUTE

ANNUAL REPORT
1983

March 22, 1984

Lae, Papua New Guinea

THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

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APPROPRIATE TECHNOLOGY DEVELOPMENT INSTITUTE

ANNUAL REPORT

1983

Submitted to the ATDI Board of Management

March 22, 1984.

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A.T.D.I.

BOARD OF MANAGEMENT 1983

Ex Officio Members

- Professor L.J. Lewis (Vice Chancellor, U.O.T.)
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- Mr. Lukis Romaso, Assistant Director, A.T.D.I.

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- Mr. D. Faunt SPATF
- ---------- SPATF
- Mr. W. Ataembo MCC
- Mr. R. Burton, Liklik Buk
- Mr. J. Wasori, East Sepik Government

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BOARD OF MANAGEMENT 1984

Ex Officio Members

- Mr. M. Moramoro
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- Mr. W. Ataembo, MCC
- Dr. R. Burton, Liklik Buk
- Mr. J. Wasori, East Sepik Government

Secretary

Mrs. T. Chan, UOT

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Acknowledgement

ATDI is grateful for the technical, financial and organizational support received from the following organizations during 1982:

The PNG University of Technology (Unitech)

The University of Papua New Guinea

The South Pacific Appropriate Technology Foundation (SPATF)

The Morobe Provinsel Gavman

The Melanesian Council of Churches

The Department of Minerals and Energy

The Department of Industrial Development

UNESCO

The New Zealand High Commission

The Commonwealth Science Council

Volunteers in Technical Assistance (VITA)

Intermediate Technology Development Group (ITDG)

The East Sepik Provincial Government

The German Appropriate Technology Exchange (GATE)

Canadian Universities Service Overseas (CUSO)

The U.S. Peace Corps

The South Pacific Commission (SPC)

International Human Assistance Program (IHAP)

Foundation for the People of the South Pacific (FSP)

International Labour Office (ILO)

UNDP

The Village Council

Economic and Social Commission for Asia and the Pacific (ESCAP) and the Regional Centre for Technology Transfer (RCTT)

Country Women's Association (CWA)

International Development Research Centre (IDRC)

US Agency for International Development (USAID)

The World Bank

The PNG Biological Foundation

The Local Government Section of National Works

Bread for the World, Germany

Christian Aid, England

United Methodist Church, USA

Anglican Church of Canada

National Council of the Churches of Christ, U.S.A.

Bougainville Copper Ltd. (BCL)

The Asia Foundation

The Farallones Institute (U.S.A.)

The East Sepik Rural Development Project

The Canadian High Commission at Canberra

Voluntary Service Overseas

World YWCA

Opis Blong Ol Meri

Transnational Network for alternatives Technologies

Volunteers in Asia

Lae Health Foods

Lae Biscuit Company

Niugini Produce

Timber Industry Training College

A.T.D.I.

ANNUAL REPORT: 1983

Introduction

The year 1983 was again quite active for ATDI as a number of small projects expanded into full programmes. This growth reflected the continued development of ATDI staff in skills and experience. Several projects initiated in the past 2 - 3 years reached successful completion in 1983 e.g. the Morobe Integrated Workshop Series, the Situm Banana Chip Enterprise, the Fish Aggregation Device research, and the Sago Extraction Mill development. With others, such as the Community and Village Industries Programme, staff constraints and at times lack of experience required that original plans be modified. In most cases the progress and learning that accompanies it have been quite positive.

To measure the success of a diverse programme such as ATDI's is difficult and often depends on the perspective of the viewer. It's important to note, however, the response that has been forthcoming from communities, government agencies and national and international development groups. The extension programme's workshop schedule is filled a year in advance, local businesses are coming to ATDI to offer their assistance to community projects and increasingly government and international agencies are contracting ATDI for research and development work.

This response is positive and encouraging for our programme. We must be careful, however, to ensure that we indeed have the capabilities to efficiently and professionally carry out the work requested. There will always be staff limitations in numbers and qualifications. We can overcome this problem through the judicious use of overseas consultants. Last year, for example we were fortunate to have acquired the services of two consultants to assist in the Sago Mill development. Their technical ability combined with ATDI technical and organizational support proved quite productive. We will be looking more towards this type of arrangement for some of the new projects for 1984.

PROGRAM DEVELOPMENTS

- The shallow well hand pump testing program sponsored by the World Bank constructed, installed and is monitoring 27 hand pumps in Markham valley communities with the help of the Morobe Health Division, Local Government Section of Works and Supply and the Sociology Department of U.P.N.G.

- The sago development project conducted for the East Sepik Government was sucessfully carried out. A ½ ton per day capacity sago extraction mill was developed, tested and shipped to the East Sepik where it is now installed in a village. A variety of sago food products, including snack foods, flour, biscuits, and bread, were developed. And finally a book on tradional sago processing was prepared and will be printed in 1984.

- The SPATF/ATDI Applied Communication and Extension program conducted 17 workshops with over 800 participants, including the Morobe Integrated Workshop series supported by the German Appropriate Technology Exchange (GATE). Together with Liklik Buk Information Centre with support from UNESCO and the Village Council.
The AT Workshop "Save na Mekim" was held in Gavien East Sepik with representatives from 12 provinces of P.N.G. and 4 Pacific countries. In addition thousands of people viewed the demonstrations, displays, and talks given by various members of the SPATF/ATDI staff.

- The Situm Banana Chip Enterprise was able to almost double their production of chips for sale in Lae in spite of the floods which cut the vehicle traffic to the village. ATDI's direct role in the project has been completed.

- Fish Aggregation Devices were demonstrated to work successfully in attracting greater quantities of pelagic fish to a central fishing spot. The research conducted by ATDI and Fisheries and supported by the PNG Biological Foundation and the Unitech Research Committee was completed in 1983.

- The Community and Village Industries Program in Morobe Province has been firmly established and is self running. Businesses include a foundry, manufacture of coffee pulpers, sawmills, building materials and housing. A.T.D.I. still assists with charcoal business and as advisors on the industries board of directors.

- During the 1983 national flood disaster in Morobe Province, ATDI served as a regional coordinator for food and shelter relief. Together with Unitech departments, local churches and the army emergency food supplies were distributed to nearly 2,000 people for a two week period.

- The Liklik Buk Information Centre expanded its inventory of publications to include five books on nutritional gardening and a new book by the Hesperian Foundation. Several studies on Traditional Technology were prepared and will be printed in 1984.

NEW PROJECTS FOR 1984

- The United Nations Development Programme (UNDP) and the Department of Minerals and Energy have asked ATDI to participate in a nation wide programme to research, develop and diseminate institutional and domestic stoves.

- A.T.D.I. has been requested by the Southern Highlands Rural Development Project to manage the AT component of their programme. This would include hiring an AT specialist to serve as a liaison between the Southern Highlands and the services and products available through our organization.

- After 2 years of planning the A.T.D.I. Food Centre is being constructed to serve as a research and training facility to the development of food products and enterprises.

- Liklik Buk Information Centre is negociating with funding agencies to support the third english edition of the Liklik Buk. The 2 year project will include the quarterly publication of a network newsletter to begin in 1984.

- The food programme will be working with the Mechanical Engineering and Forestry Departments as well as the Lae Interim Authority to grow and dry mushrooms and cardomon for commercial purposes.

- The Department of Industrial Development has asked A.T.D.I. to design a waste oil fired ceramic kiln which will be applicable to small pottery businesses throughout the country.

- The Applied Communication and Extension Programme will be conducting a series of Regional AT workshops along with community and training workshops supported by the Foundation for the Peoples of the South Pacific.

STAFF

A.T.D.I. was able to fill all its established posts at one time during 1983 but due to various training programmes and transfers a few key positions must once again be recruited.

Assistant Director, Lukis Romaso, took up half time duties as Deputy Vice Chancellor for the University, a job which in reality required considerably more time than expected. It is expected that he will continue with his D.V.C. responsibilities for the near future.

All but one of the employees of the Community and Village Industries Programme have now been absorbed by the newly created Corporation, Kum Gie, which is self supporting.

Artisan Raphael Huria who worked on the Sago Mill development has transferred to the East Sepik Development Corporation to continue his work with the sago project.

The initial recruit for the food trainee position resigned and later in the year Ms. Marcella Parkua accepted the training position for 1984.

Workshop Foreman, Navy Felly, transferred to the Central Workshop and Wandi Gangoga was appointed to carry out the foreman duties in the A.T.D.I. workshop.

Mr. Borang Tiewete, civil engineer (Unitech 1980), accepted an appointment with A.T.D.I. and will carry out research in areas of village water supply.

A.T.D.I. recruited a graphic artist, Mr. Peter Nugu, to assist in the areas of publications, nonformal education and public outreach.

The SPATF/ATDI Extension team recruited two members, Food/Nutrition worker, Ms. Regina Graham and Business Development Officer, Mr. Tom Jumurii.

Mr. Charles Nakau who served as acting assistant director for 1983 was accepted to the University of Melbourne where he will be pursuing graduate studies in Appropriate Technology Engineering during 1984 - 1985.

Mr. Ed Arata and Mr. Ted Plum worked as consultants for A.T.D.I. developing the sago extraction mill for the East Sepik Government.

Ms. Elizabeth Cox served as training consultant and coordinator for the National AT workshop.

EXTERNAL APPOINTMENTS

Mr. Paul Warpeha served as the National Contact for the Appropriate Technology Working Group of UNESCO/FEISEAP, Coordinator of the Disaster Relief Committee for the Taraka - Hobu sector of Lae, International Advisory Committee member for the Farallones Institute International Programs, member of the International Task Force on Household Nutrition Appropriate Technology of the International Union of Nutritional Sciences, a member of the SPATF Executive Advisory Committee, and a member of the committee of the Subsistence Agriculture Project of the Wau Ecology Institute.

Mr. Lukis Romaso served on the Board of Directors of Development Engineering Services, the Board of Directors of Community Based Building Programme and the SPATF Executive Advisory Committee.

Mr. Charles Nakau was on the Board of Directors of Development Engineering Service, the Board of Directors of the Lae Branch of the YMCA, community representative for Unitech Community Development Committee, member of SPATF Executive Advisory Committee, and member of Disaster Relief Committee, Taraka - Hobu Sector.

UNIVERSITY COMMITTEES

Mr. Warpeha was a member of the Community Development Committee and along with Mrs. Clara Romaso, Mrs Delma Nateleo and Ms Margaret Ogomeni participated on the Liklik Buk Management Committee. Ms. Ogomeni also was a member of the Show Committee.

LECTURES AND VISITS

Mr. Romaso gave a guest lecture at the Bankers Training College in Port Moresby.

Mr. Warpeha visited the U.K. and made official visit to the British Council, B.B.C., the Intermediate Technology Development Group, Tropical Development Research Institute. The University of Reading and the National Centre for Alternative Technology (Wales).

Ms. Rashimah New made a study tour of the sago producing areas of Malaysia.

CONFERENCES

Ms. Ogomeni, Ms. New and Mr. Henry Lekisi presented papers at the National Food and Nutrition Conference in Goroka.

Ms. New accompanied by the village leader from the Situm group attended the Technology for the People Trade Fair and the Women in Business meeting in Manila.

Ms. Ogomeni presented a paper at the UNESCO Regional Seminar on Barriers to Implementation, Institutional Interface Problems.

RESEARCH

UNESCO, the Department of Minerals and Energy and the Unitech Research Committee supported Mr. Romaso's research into charcoal production and usage.

Mr. Henry Lekisi, Mr. Norman Quinn of the Fisheries Department and Mr. Warpeha investigated fish aggregation devices with support from the PNG Biological Foundation and the Unitech Research Committee.

The viability of village scale food enterprises was studied by Ms. Rashimah New funded by the International Human Assistance Programme and the Foundation for the Peoples of the South Pacific.

Coordinated by Mr. Warpeha, research was carried out on sago extraction by Mr. Ed Arata and Mr. Ted Plum. Ms. New developed sago food products and Ms. Elizabeth Cox studied traditional sago processing. This work was funded by the East Sepik Provincial Government.

Mr. Warpeha coordinated an interdepartmental effort to research traditional technologies with support of UNESCO and the Research Committee.

Ms. Ogomeni continued with her studies of communication techniques and non-formal education with financial support of the German Appropriate Technology Exchange.

Mr. Nakau and Mr. Borang Tiewete conducted shallow well handpump testing for the World Bank. They also carried out research on water storage using ferro and bamboo cement techniques.

COMMERCIAL ACTIVITES

ATDI consultancies in 1983 included training for the U.S. Peace Corps, Youth training for the National Youth Programme and YMCA, sago research for the East Sepik Provincial Government and Energy Research for the Minerals and Energy Department.

The Liklik Buk Information Centre expanded its list of publication which it distributes. Profits are devoted to reprints and operational expenses.

PUBLICATIONS, REPORTS, PAPERS

Arata, Ed	Prototype Sago Processing Plant ATDI Report, July '83.
Lekisi, Henry	Fish Aggregation Devices in the Huon Gulf. ATDI/Fisheries Report, May 1983.
New, Rashimah	Community Based Food Processing Industries for Papua New Guinea. The Experience with the Situm Banana Chip Enterprise. ATDI Report (to be published in Proceedings of National Food and Nutrition Conference 1983.)
Ogomeni, Margaret	Dissemination of Information to Rural Areas in Papua New Guinea. Paper presented at the Regional Seminar on Barriers to Implementation. Institutional Interface, Manila, 1983.
	SPATF/ATDI Approach to Food and Nutrition Education, Paper presented to the National Food and Nutrition Conference, Goroka, 1983.
Warpeha, Paul and Margaret Ogomeni.	Integrated Community Development Workshops, Morobe Province. ATDI Report, July 1983.

ATDI STAFF

March 22, 1984

ITION	APPOINTEE	GRADE	LEVEL	SPONSOR	AREA
ector	P. Warpeha	Assoc.Prof.	21 expat	Unitech	Administration
t. Director	L. Romaso	Lecturer/DVC	61	Unitech	Energy
earch Officer	C. Nakau	Engineer 2	47	Unitech	Overseas Training
gram Manager	M. Ogomeni	CC 6	37	SPATF	Extension
earch Officer	R. New	T.O. 2	36	SPATF	Food Technology
earch Officer	M. Parkua	Trainee	35	Unitech	Food Technology
earch Officer	B. Tiewete	Engineer 1	38	Unitech	Water Supply
ject Officer	C. Romaso	CC 4	23	LLB	Information
ject Officer	T. Jumurii	CC 4	23	SPATF	Extension/Business
ject Officer	R. Graham	CC 6	35	SPATF	Extension/Nutrition
ject Officer	P. Pokei	T.O. 1	34	Morobe Govt.	CAVI
nop Foreman	W. Gangoga	For.Art.1	32	Unitech	Carpentry
kshop	P. Apinga	Artisan 2	21	Unitech	Carpentry
kshop	A. Ikofi	Tech.Asst 1	18	Unitech	Extension
retary	G. Rapa	K.O. 4	23	Unitech	Office Management
ormation Off.	D. Nateleo	CC 2	16	LLB	Information Services
phic Artist	P. Nugu	T.O.Asst. 2	24	Unitech	Publications
et	M. Nateleo	Trainee	10	Unitech	Architecture
earch Officer	vacant			Unitech	
kshop	vacant	Tech.Asst.		Unitech	

2 Industrial Development Programme

Staff: Lukis Romaso

2.1 Development Engineering Services (DES).

This is probably one of the few national worker owned manufacturing companies in Papua New Guinea. Shares in the company are issued on the basis of work input with each worker awarded one share per month worked. The conventional approach would be to issue shares on the basis of capital contribution. the company recognises that the workers don't have immediate cash to buy shares.

DES was established with technical and financial support from the Appropriate Technology Development Institute (ATDI) and the Morobe Provincial Government. A loan of K55,000.00. repayable after two years was obtained from the PNG Banking Corporation. This enabled the company to purchase the induction furnace and assist with cash flow problems.

The first half of 1983 was very difficult for the company due to a seasonal downturn and below average sales. Despite the problems, it was able to meet its financial commitments and make the repayments on time.

Sales improved in the second half of the year with more than enough orders to keep the foundry busy. The demand for coffee pulpers further contributed to the increase in sales.

So far all the profits are being absorbed in repaying the bank loan. The company should then be in a position to accumulate profits and pay dividends to the shareholders after it has fully repayed the loan in November 1984.

The workers have been able to carry out routine maintenance. However, the main potential technical problem is the electrical induction furnace, which is very expensive to run and needs highly skilled personnel to fix it. Therefore it has been necessary to call in outside consultants to sort out the problems. The most serious problem facing the company is the possibility of a major failure of the induction furnance. Such failure could result in long shutdown of production, bringing in overseas technicians and large repair bills. The contingency plan is to build a 1/2 tonne capacity oil fired furnace. This would be cheaper to run and maintain with local skills.

Scrap recycling continued to be part of the foundry

although it was originally intended to be operated independently. Maintaining this arrangement enabled the foundry to employ people who would have been retrenched due to the downturn in sales. Profits made from the sale of scrap metal to Australia assisted the foundry in its cash flow problems. The original proposal to make this a separate operation from the foundry still holds.

2.1.1 Coffee Pulpers.

Production commenced halfway through the third quarter of this year after modifications were made to the original design produced by the former TRU-CAST Foundry. The decision to modify parts of the old design (before production could start) was based on advise from the Summer Institute of Linguistics (SIL), which is extensively involved in village development programs. Apparently there were a number of parts (in the old design) that were affecting the efficiency and performance of the coffee pulper and modifying these parts should improve the product.

The present rate of production is 10 per week - and should increase to 15 per week in the near future. Markets for the product are quite healthy. Village Equipment Suppliers (VES) will guarantee the market in the first instance and stock spare parts. Besides VES, there are big companies like Burns Philp and Steamships that have indicated their interest in marketing the product. The principle of a worker owned industry and shareholdings for this industry would be based on the system adopted by the foundry.

2.1.2 Village Sawmills.

The approach in the past was to try and maintain existing village sawmills. The major problem here was that agencies selling sawmilling equipment carried little or no spare parts. This resulted in the closing down of village sawmills. In a lot of cases, social and political issues at the village level were factors that contributed to the failure of village sawmills.

A prototype village sawmill was fabricated based on the principles of a mobile dimension saw. Although this was tested, no further developments took place to improve the faults detected during the trial runs.

The most recent development has been the fabrication of village sawmills based on the Puzey sawmill manufactured

in the USA. The options available were:

(a) import the complete assembled equipment.

(b) import all the parts and assemble them in P.N.G.

(c) import what cannot be built in the workshop and assemble the equipment in P.N.G.

"C" was selected and DES proceeded to purchase engines and gearboxes from the USA and pulleys and blades from Australia. The tracks will be fabricated from the DES workshop. The initial units have been completed and are undergoing trials.

Village Equipment Suppliers will be marketing the products to existing established rural and semi urban organisations involved in timber industry. Fifteen (15) firm orders have been placed and 6 have been pre-paid. The market price will be about K4,000.00 compared to K8,000.00 if the equipment is purchased from the USA.

Arrangements are being drawn up for consultants to be involved in the setting up of these sawmills in the villages in the future.

2.1.3 The Kum-Gie Corporation

The Morobe Provincial Government earlier in the year honored its commitment to the development of small scale industries in the province by commiting K225,000.00 for the outright purchase of the former TRU-CAST Foundry property. This includes land and the buildings. The Kum-Gie Corporation has been formed and assigned the task of financing and managing viable small scale industries within and outside the foundry estate. The present Board of Directors consists of 2 shareholders from the Provincial Government. Plans are underway to expand membership to include ATDI and VES in 1984. All the industries that come under the Kum-Gie Corporation will pay a management fee and rent on properties owned by the Corporation. The money would then be used to cover salaries of the general manager, accountant, secretary and for establishing other new industries in the province.

2.2 Local Building Materials.

2.2.1 Sago Blinds

The development of this product resulted from a need to provide alternative lining materials for the interior and exterior walls of houses. So far, the building industries in this country have been heavily dependent on imported products for several reasons:

(a) more readily available in the stores.

(b) reasonably cheap.

(c) more durable.

(d) of good quality.

All these factors were taken into account during the research and production periods in an attempt to be competitive with imported products.

The project involved two groups of people: (a) the suppliers of the raw materials who live near the swamp where the sago trees grow; (b) the weavers who used the sago looms to produce the products.

It took about 18 months to refine the product and regularize the supply of raw material to match the rate of production. A lot of raw material is required to make a woven blind. Reaching this balance resulted in an increased rate of production from 5 to 12 blinds a day. The retail price per blind was K6.00. To maintain durability, the final product was chemically treated and stained. The blinds were finely woven by looms manufactured locally. A total of about 800 blinds were produced by 8 people employed in the production system. The major achievement here is that we were able to establish a process for producing the blinds.

While the product may be highly acceptable to us, its market is very limited. A need exists for the product to be promoted to the National Housing Commission and to private companies presently marketing imported building products. Production has temporarily stopped until further markets can be found. It should also be noted here that while it has been shown that the sago blinds can be manufactured easily and of quite good quality, there are areas that must be refined. For example, there is doubt whether the retail price of the product is realistic. If there was a high demand, would the

supply of the raw material and production keep up and for how long? Further research is required to address these areas.

2.2.2 Round Poles

The Community Based Building Program (CBBP) has convincingly demonstrated that wooden poles of about 20 cm in diameter are ideal for housing construction. A variety of designs constructed in Wewak and Lae using poles clearly proved this. Another 12-14 houses are planned to be pole constructed by CBBP in 1984. The availability of poles varies from the thinnings of pine plantations in Wau and Bulolo to village planters who own teak and kamarere plantations around Lae. The average cost per 7 meter pole was about K3.00. Although it was easy to identify the sources of supply, transportation of poles from the bush to the drying sheds became the major problem. Since the villagers didn't have trucks to haul 7 meter poles we decided to make alternative transport arrangements. The difficulty of getting poles from Wau and Bulolo was even more acute because of the long distances involved. This resulted in abandoning the idea of getting poles there.

Despite the problems, 250 poles were pressure treated in preparation for the 1984 housing program. The current costings show that it is still cheaper to use pressure treated poles than steel posts (K5.50/meter and K14.00/meter respectively). These costs include handling, labor and transportation. I would advise however, that this is an estimation.

2.2.3 Production of Shakes.

Shakes production started in the latter half of this year at Gabadik under Mr. Ken Costigan's direction. His experience in the East Sepik in the production of an alternative roofing material proved highly valuable.

Three teams using froes were organised to hand split shakes from round logs about 50 cm long. Earlier in the year arrangements with village people were made to pay for the milky pine trees needed for the production of shakes.

Production in Gobadik stopped when the Busu river destroyed the Busu bridge which was the only access to the production site. New arrangements were made to obtain trees from Igam Barracks so that production could

continue.

By the end of November the 3 teams had produced enough material to cover 12 houses. This is rated as an excellent rate of production by Ken and he plansto slightly reduce that rate unless more houses are planned to be constructed. At this rate it is anticipated that we would have more shakes than we need for the housing program. The other alternative would be to stock the product but CBBP has cash flow problems. The shakes were pressure treated for durability purposes at the Timber Industries Training College.

In terms of costs, it compares slightly more expensive than ordinary galvanised roofing iron but still a lot cheaper than any shingles in town. Ken plans to maintain production in 1984.

2.3 Charcoal Production and Related Industries.

2.3.1 Charcoal Production.

Active promotion in the use of charcoal as an alternative cooking fuel has resulted in a significant increase this year. Most of the charcoal was sold to cater for household needs and to those holding BBQ functions. The Busu High School this year supplemented 2 firewood stoves with an equal number of charcoal stoves. The school ended up being one of the regular customers. Mr. Davis Binjari continued to purchase charcoal at the wholesale price and marketed them at retail outlets. The other factors which may have contributed to the increase in sales are the recent steep rise in electricity bills and the price of imported cooking fuels such as gas and kerosene.

The first village production in Buhalu Collapsed earlier in 1982 partly due to the village mismanagement of the project. This included non payment for charcoal, irregularity in payments made to individuals, non collection of charcoal purchased and failure to account for cash earmarked for purchasing charcoal. The ability to manage and initiate methods of reducing overheads and other running expenses were-clearly lacking. The approach we took by initially providing free transport, equipment, running expenses etc. was a major contribution to the project's failure. It was very difficult for them to accept these costs later. The adoption of the Tongan kilns for charcoal production was highly successful. This was demonstrated when 25 tonnes

of charcoal were produced using this technology. The West Indian kilns introduced to them earlier barely produced 4 tonnes of charcoal before they were abondoned. In the end there were about 40 people involved in charcoal production.

Around June this year, a village group from Erap fronted up to sell their charcoal. This group, through its own initiative started producing charcoal and made their own transport arrangements to take the product to town for marketing. We had no involvement at all except to guarantee the market. So far, this group has sold about 2 tonnes of charcoal to the program and were further encouraged to continue producing.

Charcoal production at Unitech continued partly under the University's research grant and on a self support basis. When the research grant which covered salaries ended in September this year, the two operators were granted permission to run the TPI kiln and the Tongan kilns as a business. This fitted in well with the long term aim of eventully converting the research to a small business operation. As from October, they have assumed the responsibilities of covering operational costs. Because they will still need assistance in the areas of bookkeeping and management advise for some time, ATDI should continue to provide the kilns as well as business assistance.

In view of the change, the present pricing structure of 22t/kilogram and 13t/kilogram for retail and wholesale respectively must be reviewed. This is necessary to ensure that the business is actually making money and able to meet its expenses.

A new place has been located at the CAVI site where production will continue in the future. Starting next year, storage facilities will be provided at the existing building.

Like any other industry, charcoal production relies a lot on the availability of raw material on site. There were lots of times this year when there was no production because of the absence of raw material. Earlier this year we made an agreement which required Kum-Gie to deliver the firewood to the producers at a price. This worked for a few months until their truck broke down. Fortunately it was possible to use the University transport to deliver firewood. Now that the truck is back on the road, it is possible to hire it for firewood delivery. In terms of access to raw material, the operators have opened credit accounts with TITC and Lae City Council.

Our experience this year calls for contigency plans to cater for the rainy season when production normally comes to a stop. For example, the customers were without charcoal throughout the rainy season because there was none in stock and there was no way any could be produced. It was the time when the fuel was needed most because nothing outside was dry anyway. To solve this problem, the rate of production during the dry season should be increased and what cannot be sold should be carried as stock for the wet season. Such planning would benefit both the producers and the customers. If it is not possible to do it through existing groups, then other people should be approached to produce charcoal.

2.3.2 Charcoal Stoves.

Besides the large institutional charcoal stoves produced this year, the charcoal program continued to produce limited numbers of 10 litre size stoves. In both cases all the products made were sold. Although the demand for smaller stoves was high, we continued to experience a lot of difficulty in delivering the goods.

This particular area of the program lacked direction, financial accountability and management control. The other factor which directly affected production was that the producers constantly ran out of refractory material which is used in lining the stoves. Better planning could have eliminated this problem.

While it was difficult to gauge the market situation in terms of specific figures, phone calls and personal contacts made seemed to indicate that there was a demand. For example, Igam Barracks placed an initial order of 50 stoves with a possible 200 if the first lot were delivered. Employees of the University regularly call in to place orders only to be advised that there are none in stock.

I suggest at this stage that Village Equipment Suppliers (VES) be asked to look into the possibility of importing charcoal stoves. In the mean time the charcoal stove program should be reviewed so that the present problems can be addressed.

It is very important that the charcoal stoves production gets off the ground soon because the future success of the charcoal industry is very much linked to it. More attention should be directed towards this program in 1984.

2.5 Sago Extraction Mill.

ATDI was contracted by the East Sepik Provincial Government to coordinate the research and development of a mechanized extraction process for sago. Based on preliminary work done by A.P.Power, two overseas consultants were brought in to work with the ATDI staff in the machines development. The unit that was constructed was tested out for one month on the Unitech campus and proved to be an effective method of extracting quality starch from prepared sago battens. The process is carried out in the liquid available from the raw sago with as little outside process water as possible. The plant's production capability is 400 kg of wet sago per day.

After the testing programme the machine was shipped to Wewak by sea and later to the village of Mamber by road. ATDI's Raphael Huria went to the Sepik to assist in the commisioning of the plant and has stayed on to work with the East Sepik Development Corporation which is overseeing the project. It is planned to initially produce sago for food to be distributed to the institutions in the Sepik area. Later based on the sago food product development also being carried out by ATDI (see Food Programme) it is hoped that a number of sago products will become available to the general public.

2.6 New Projects for 1984.

2.6.1 Southern Highlands Appropriate Technology Project.

ATDI is in the process of negociating with the Southern Highlands Rural Development Project to coordinate initially an 18 month project in that province. Essentially the project will be set up to promote appropriate technology solutions to development problems in the Southern Highlands. Funds would be provided to employ an appropriate technology specialist who would serve as AT resource person in that area, living in Mendi. This person would through his/her general technical skills and through the combined resources of the SPATF/ATDI organization assist development groups and communities in selecting and utilizing technology to address their particular needs. This could be in the area of industrial development, eg assisting a village to set up one of the DES sawmills, business development perhaps by tying a small business into the VES agency scheme, or general community development in water supply

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or energy.

Based on negociations, funds will be available for the recruitment of an overseas specialist, a national counterpart, and operating expenses. Housing and vehicle will be provided by SHRDP. It is hoped that this programme can get off the ground before mid-year.

2.6.2 Waste oil Ceramic Kiln.

The Department of Industrial Development has made a request to ATDI to investigate designs for a Ceramic Kiln fired by a waste oil burner. This would be an important innovation for several of the pottery businesses in PNG which at present are using expensive energy resources such as electricity or fossil fuels. The initial information collection is now taking place and it is hoped that technical assistance can be acquired from overseas to help us to design such a kiln. We are also hoping to assign the research engineer who is still to be recruited to work on this project.

3 Energy

Staff: Lukis Romaso and Various others.

The work that ATDI has carried out in the energy field has often overlapped into the other program areas. In the case of charcoal production, for example there are also small industry applications which have been pursued in the CAVI program. Consequently, just the areas of energy research that haven't been covered elsewhere will be discussed in this section.

3.1 Charcoal Production Methods

With support from UNESCO and the Unitech Research Committee research has been carried out over the past 2 years comparing various methods of small scale charcoal production.

Basically two types of production methods are being analyzed. The first is the TPI vertical cross flow kiln which has an approximate production capacity of 250-500 kg charcoal per run. The other is the Tongan Kiln which is a 200 liter steel drum with an rectangular hole cut lengthwise along its side. Its capacity is about 20 kg of charcoal per operation. Production trials on these two methods over the past year in conjunction with the normal operations of the charcoal business. Weights of raw

material, moisture content and total weight produced have been recorded. With this information it is hoped that recommendations on the applicability of each method can be made. This work will be completed in 1984.

3.2 Stove Development.

The development of various types of charcoal and firewood stoves and ovens has been ongoing over the past few years at ATDI and SPATF. Hundreds of stoves have been built and distributed throughout the country. Although the production that has taken place up to now has helped to alleviate the need, there is still a great demand for more and better stoves of all kinds. It is with this in mind that the Department of Minerals and Energy with support from the United Nations Development Programme has asked ATDI to assist with a national stove development programme with the following objectives:

- To implement a market survey to ascertain domestic energy consumption, the demand/need for alternative fuels/improved stoves, and the availability of wood and residues to meet the demand.

- To determine the most feasible/economic methods of supplying biomass fuels to urban areas of PNG.

- To improve the design and production methods of the existing charcoal stoves to lower cost and increase fuel efficiency.

- To develop improved wood and charcoal burning stoves for institutions.

- To establish a stable commercial production system for charcoal and charcoal stoves.

- To produce and sell 4000 charcoal stoves and 100 institutional stoves.

- To develop and field test two portable wood burning stoves.

Negociations are currently underway to establish this programme which it is hoped will begin by mid-year 1984. ATDI's role initially would be to work with a UN consultant in the research and development of the various stoves. We have approached the Department of Mechanical Engineering to also assist in this effort. The prototype units would be built at the Unitech campus and later others would be placed in nearby institutions and homes for monitoring. As

the programme develops saleable products the SPATF commercial and extension arms will be asked to assist in the dissemination of the stoves. The programme has been proposed to last 3 years at a cost of K145,000.

3.3 Morobe Micro Hydro Study.

Several micro hydro installations have been made in the past few years in PNG, several of which are located in Morobe Province. There has been considerable concern about the social and economic viability of these projects. To evaluate the impact of the various projects it has been proposed to conduct a study of the micro hydro development in the province. Professor John Woodward of the University of Auckland was formerly a member of the Unitech staff and was closely involved with several the projects. He has been invited back to Unitech for the second semestre of this year to assist in the Department of Electrical Engineering and it has been proposed that the micro hydro study be conducted as a joint exercise between that department and ATDI with Professor Woodward as principle researcher. It is hoped that the information and recommendations to come from the study will assist in the assessment of future micro hydro in the country.

4 Water Supply and Sanitation Programme.

Staff: Borang Tiewete and Charles Nakau.

4.1 INTRODUCTION:

The activities of the Water Supply and Sanitation Program in 1983 were generally geared towards assisting and providing adequate supplies of water for rural communities. The program extended to include close cooperation from individuals, government agencies and other organizations involved in community water supplies.

The World Bank funded handpump testing project in the Markham Valley has started and will continue to the middle of 1985.

The Tami ferrocement tank project is complete and a site survey of the Masa village water supply has been carried out. Community water supply surveys are mainly requested in order to provide information in support of their submissions for the required funds. A number of feasibility studies were carried out this year based on

this type of assistance.

Although very little was done on the development of locally made hydraulic ram pumps, the activity is scheduled for 1984 which will include the Highlands study of the existing ram pump installations.

Increased cooperation with other relevant organizations will always be encouraged so that more and more communities will be able to benefit from the results ofthe research and development work carried out in this program.

4.2 HAND PUMP TESTING.

4.2.1 Site Survey.

In January and early part of February this year a survey of the existing handpump sites in the Markham Valley was carried out by the representatives of the Local Government Engineering section of the National Works Department (LGS) and the Morobe Public Health Department (MPHD). Out of 50 sites indicated by the MPHD 47 sites were actually visited due to the remote isolation of the other 3 sites. 43 of the sites are located along the Highlands Highway startingat 23 km. from Lae, while the remaining 4 sites are located along the Wau Bulolo road starting at 34km. from Lae. Site locations and distances are shown on the attached map Annex A and a complete survey report prepared by the Local Government Engineer is available in the A.T.D.I. office. The information gathered was to assist with the selection of suitable sites for the new test pumps. The site selection was based on the communities' need for handpumps, their accessibility and the diversity of usage patterns.

4.2.2 Handpump Manufacture.

The A.T.D.I. version of the Blair Pump utilizes mainly standard p.v.c. galvanized iron and brass pipe fittings with very little machining and thread cutting operations, which can be performed in any ordinary workshop. All the parts required are available from the local supplier in Lae (Mainland Plumbing) making the manufacture of the pumps a viable small scale business venture.

In June this year the production was taken over by

Development Engineering Services (D.E.S.) based at the Lae Foundry. Complete pump parts like the valves and the pump heads are fabricated at D.E.S. according to standard designs and specifications and supplied to the Health Department for complete assembly and installation.

4.2.3 Handpump Assembly and Installation.

Early this year, the assembly and installation of the new handpump were fully demonstrated to the Health Department installation teams as it is their responsibility to carry out all the 25 test pump installations. The activity involves casting the pump heads in new concrete well covers and installing the rest of the pump parts after the covers are permanently placed on the wells.

According to the proposed plans, the 25 test pumps were to have been installed by the end of June but due to the retrenchment of the installation teams the progress has been very slow. The Local Government Section of the National Works Department provided 2 technical assistants and together with the two A.T.D.I. engineers, continued doing some of the handpump installation. Finally, the health department once again assigned the teams to the task and 27 pumps for the testing programme were installed by the end of November.
dn Monitoring Handpump Performance.

The monthly monitoring of the performances of the handpumps is being carried out by an engineer from the Local Government Section of the National Works Department. Despite the slow progress in installation, monitoring started in April and has been done consistently in the first week of each month. Two completed quarterly reports have been submitted to A.T.D.I. and distributed to the UNDP office in Port Moresby and the World Bank Regional Project Officer in Bangkok. This aspect of the project will continue in 1984 and in the first half of 1985.

In early September this year the Sociology and Anthropology Department of the University of Papua New Guinea assisted by providing two students to carry out the social and cultural aspects of the monitoring. For a period of two weeks students spent most of the time living in the villages observing and interviewing the users of the new hand pumps. Completed reports on this part of monitoring have yet to be received from the students.

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The students will be available again to do the monitoring in February and September of 1984.

4.3 Community Water Supply Projects.

A number of surveys for community water supply projects were completed in 1983. Most of these were in the Morobe Province. The map indicates the locations of these project sites.

4.3.1 Masa Community School and Village Supply.

The much delayed survey of this project was eventually completed from 26-30th July, 1983. Earlier it was anticipated that installation would commence soon after the survey, but unfortunately it may be delayed again as money available from the previous balance is insufficient to complete the project.

A hydraulic ram pump (heavy duty - bought from Malaysia) will be the feature of the scheme, where water will be pumped to a storage tank at high point for distribution. Two copies of the survey report together with costs of the proposed scheme were sent to the villagers at Masa. The villagers will use this report as a guide to raise the necessary money themselves and/or seek assistance from outside sources to complete the project. A.T.D.I. has committed itself to this project and would like to see it completed.

4.3.2 Busama Community School and Village Water Supply.

This is a survey which the villagers requested A.T.D.I. to carry out with the aim of coming up with a better system as their own attempt failed. A.T.D.I. then referred the request to the University Community Development Committee (C.D.C.). C.D.C. then arranged for five students from the Mechanical Engineering Department to carry out a preliminary survey. Due to other committments only one student accompanied Borang Tiewete of A.T.D.I. and the survey was completed on the weekend of 2nd - 4th September, 1983. A copy of the report compiled after the survey was sent to the villagers at Busama.

A gravity feed system was proposed at a cost of K4,500.00. There is no water shortage problem. Some villagers only have to walk 50-100 meters to collect

their water. Also since the village is close to Lae, the villagers have facilities to transport their produce to sell in the local markets. So it is considered that if they really want this project to go ahead, they can easily find this money themselves. A.T.D.I. and C.D.C., however, will be available for technical advice.

4.3.3 Busion Village Water Supply.

This is a village project whose feasibility survey was initiated by B. Tiewete and was completed from 15-18th October, 1983. He actually comes from this village and saw a need for a water supply project. A small gravity feed system is proposed for the village. After the cost of the project is established, a copy of the report will be sent to the villagers. They will use this report to raise funds and also negotiate funding from appropriate organizations.

The only means of transport to the area is by light aircraft, therefore freighting of materials will be as expensive exercise. To cut down on costs, the storage tanks of the proposed scheme will be of bamboo reinforced concrete. Bamboo reinforcement in concrete is relatively a new idea, therefore B. Tiewete intends to be involved in the construction and teach his people this technique.

4.3.4 Ombo Community School Water Supply.

While Borang Tiewete visited Busion Village to do the survey, the teachers there asked if he could carry out a survey for the school water supply. The school is about an hour's walk from his village, so he spent an extra day in the area to complete this survey.

A copy of the survey report together with a proposed scheme will be sent to the teachers there. They will use the report to request assistance from appropriate organizations.

4.3.5 Asaro Village - E.H.P.

From the 5th - 6th of April, Charles Nakau accompanied students and staff from Civil and Mechanical Engineering Departments on this trip. The purpose was to determine the feasibility of a possible gravity feed system on a suggested stream and observe the existing council water

supply.

The survey showed the following: 1. That it was not feasible to tap water from the stream and 2. the settling pond for the council water supply was too small.

The villagers were supplied with instructions for digging open wells, and they agreed to dig one to see the possibility of installing a plastic hand pump. For the settling pond, the lecturer in civil engineering had discussions and came up with a design of a larger tank which the council will construct.

4.4 Water Storage Tanks:

4.4.1 Tami Ferrocement Tanks.

By the 30th of April this year work started on the construction of the first of the two ferrocement tanks on Tami Island. The construction of the 2000 gallon ferrocement tank was carried out mainly by the villagers themselves under the supervision of an A.T.D.I. engineer. An old galvanized steel tank was utilized as the main reinforcement material.

The project also involved the reconstruction of an old church roof to provide a rain-catchment area for the tank. A traditional water well was removed and a plastic handpump was installed to provide water during the dry seasons. A full report on this project is available in the A.T.D.I. office.

Following the construction of the first tank the villagers expressed interests in trying out the skills they learned in building the tank so a second tank was planned for the adjacent village also on Tami Island. The materials were ordered through and sent by the Village Equipment Suppliers to the island. Without any further supervision from A.T.D.I., the villagers have completed the construction of the second 2,000 gallon ferrocement tank.

4.4.2 Busu Mountain Village Ferrocement Tank.

This is a C.D.C. funded project which was co-ordinated through A.T.D.I. The proposed tank is intended as storage equipment for the hydraulic ram pump installed

in the village. The long standing request for the villagers to provide sand for the construction of the ferrocement tank has been ignored so the project is shelved for the moment.

The hydraulic ram pump was damaged during the recent flood and the villagers have been requested to clean out the sediments and debris before any positive action can be taken to get the pump working again.

4.4.3 Workshops and Demonstrations.

The method of constructing bamboo reinforced concrete and ferrocement tanks were mainly demonstrated during community workshops and various demonstration exercises.

A ferrocement tank was demonstrated at the C.A.V.I. site during the SPATF/ATDI staff training workshop and at the Mt. Hagen Show.

A bamboo cement tank construction was demonstrated at Aseki and Garaina workshops. During the National Youth Leaders workshop held at A.T.D.I. in September, a bamboo reinforced concrete tank of 3.5 cubic metre capacity was constructed near the A.T.D.I. house 3. This was a valuable training exercise for Tom Jumurii and Borang Tiewete who also participated with the Youth Leaders in the tank construction.

The assembly of the plastic hand pump was fully demonstrated during the Morobe Vocational School Teachers in-service training on the 12th April at the St. Joseph Technical College.

4.4.4 Test Programme - Bamboo Reinforcement in Concrete.

The subject of using bamboo as a reinforcing medium in concrete is relatively new. A.T.D.I. in its water supply programme has so far constructed a number of water tanks with bamboo as the main reinforcement. The strength and durability of these tanks are yet to be measured.

After some disruptions, Borang Tiewete is again negotiating with the Civil Engineering Department to use their facilities to carry out some tests. The main objective of these tests will be to establish some preliminary characteristics on the bonding capacity of bamboo to concrete. (It is suspected that the volume of bamboo is affected when subjected to wetting and drying.

When wetted, it absorbs water and swells, and shrinks when dried). Other related tests such as tensile tests on bamboo strips are also planned for the different types of bamboo used. Some staff from Civil Engineering and Forestry Departments have indicated their interest and support. The tests will be carried out soon after the test formats are prepared.

4.5 Water Sample Bacteriological Tests.

Tests on 4 samples of water were conducted in the National Analysis Laboratory to see the possibility of purchasing similar test equipment. There is no real need for such bulky and expensive equipment at present as there is access to the N.A.L.

A request from the National Works Department has been relayed to the Chemical Technology Department to carry out a study to solve the problem for mineral and silt deposits in rural water supply pipelines. The Chemical Technology Department has agreed to conduct the study as a student project for 1984 and the National Works Department will provide sections of mainly polyethene pipe for the student to work on.

4.6 Seminars and Conferences.

"A.T.D.I. involvement in Rural Water Supplies" was presented as a topic at the Mechanical Engineering Department Seminar.

"The Handpump Development and Testing in the Markham Valley" was also presented as a topic in a conference organized by the Civil Engineering Department.

6.0 Collaborating Groups.

- World Bank. - Local Government Section of National Works Department. - Morobe Public Health Department. - Development Engineering Services. - Sociology and Anthropology Department of University of Papua New Guinea. - Geological Survey Unit of Minerals and Energy Department. - Village Equipment Suppliers. - National Analysis Laboratory, Mechanical Engineering, Civil Engineering, Chemical Technology Departments and Community Development Committee of the University of Technology.

4.8 Training.

No formal training was sone in 1983.

In 1984 Charles Nakau will commence his post graduate studies at the University of Melbourne. Borang Tiewete will participate in the hand augering exercise with the Morobe Health Department.

4.9 Research.

Work will continue with development of simple water supply equipment and skills for applications in P.N.G. communities.

Bamboo and ferrocement tanks, hydraulic ram pumps and handpumps are current areas of research. Appropriate sanitation facilities for rural applications will also be looked at.

5 Housing.

ATDI's direct involvement in the housing area during 1984 was mainly centred in assisting with the development of the building materials industries of the CAVI programme (see 2.2). These materials were utilized in the one on-site building project conducted at ATDI during the year, the completion of the ATDI office extension. The building is built entirely from local materials, including round poles, woven sago wall cladding, and wooden shingles.

ATDI has built several structures over the past few years -- the office buildings, workshops and residential houses both on and off campus. As part of his final year studies in Architecture, Maran Nateleo, the ATDI Cadet will be evaluating the performance of those structures and the development of the housing programme in general.

Since most of the development in housing and the use of local materials at ATDI and in many parts of PNG has been based on the work of the Community Based Building Programme (CBBP), it is hoped that some of the information can be recorded this year in a publication which outlines not only design details but also the approach that CBBP has taken to effectively integrate social, economic and environmental factors in the development of appropriate housing for PNG. David Weeks and Ken Costigan have indicated their interest in preparing this document in 1984.

6 Food Programme

Staff: Rashimah New.

The food programme aims to promote community based food industries, encourage improvement in food quality and nutritional value through the use of locally available resources, and develop and disseminate simple food processing and preparation techniques.

6.1 Community Based Food Enterprise.

Situm Banana Chip Processing Enterprise

A.T.D.I. has been involved in the establishment of the Situm Banana Chip Processing Enterprise. The project has progressed steadily and is now developing as a commercial venture.

The product known as "MR BANANA SIP" utilizes surplus green bananas in a simple process involving peeling, slicing, drying, deep frying, salting and packaging. A model low cost processing kitchen has been established to suit village conditions and to meet health requirements. The people have developed their own style of business management to suit their social structure. The emphasis in this project has been to encourage a grass roots commercial organization to develop appropriate food processing technologies. It is hoped that Situm Facility can be used as an example for other community groups.

The project is being handed over to the villagers who have been enthusiastically managing the business since the beginning. However, A.T.D.I. will still continue with occasional backup support when needed.

6.2 Food Research & Development.

6.2.1 Sago Product Development.

A.T.D.I. has begun undertaking in conjunction with the East Sepik Provincial Government research in Sago product development. The research consists of 4 following phases:

6.2.1.1 Literature search.

A thorough search of the literature was done through the Computer Search Service of Unitech. Contracts have been made with people who have carried out work in the same areas and who are experts in the field.

6.2.1.2 Field Trips.

These were conducted to collect information of the existing sago processing and production technologies by observing and talking with people. Field trips have already been done around the East Sepik areas and to Sarawak, East Malaysia where sago industry is significant.

6.2.1.3 Product Development.

Based on the findings from my field trips, the following products have been developed.

- Sago - Taro Crackers
- Sago - Sweet Potatoes Crackers
- Sago - Yam Crackers
- Sago - Banana Crackers
- Sago - Prawn Crackers
- Sago - Fish Crackers

4 Parts Sago flour is mixed with one part of the root crop or meat. The process involves steaming, cooking, slicing and drying. This results in 2 forms of products as an uncooked product and as a cooked crispy cracker. (similar to cheese pops.)

Sago Biscuits

Based on a recipe obtained from Sarawak, a successful experiment was made on a sago sweet biscuit. The ingredients are wet sago starch, eggs, coconut and sugar. A processing technique makes the product look quite different from the original product.

Sago bread

Experimental test bread making using sago flour as a partial substitute for wheat flour was carried out. The result was satisfactory with 10-15 flour. The best result is about 10

Sago flour

Wet sago starch can be sun dried or oven dried. Sago flour, when dissolved with warm water serves the same purpose as fresh sago.

However, the processing techniques of the above products have yet to be thoroughly investigated to obtain the consistency in product quality.

6.3 Food Education.

6.3.1 The ATDI Food Centre.

The Construction of the centre at the A.T.D.I. second workshop has been started and should finish by April 1984. This centre will serve as a model village food processing enterprise, a food display centre and a facility for occasional food & nutrition training courses.

6.3.2 Workshops and Displays.

A few successful food training programmes and displays were conducted to assist the A.T.D.I. extension programme.

6.4 1984 Activities

Staff: Rashimah New, Marcella Parkua.

6.4.1 Establishment of the A.T.D.I. Food Centre.

After the completion of its construction, the HNAT centre will function with the following aims:

- To Promote and develop a small food enterprise.

Project Implementation

- Develop a range of new good quality food products based mainly on local ingredients.

- Identify the potential products that would be commercially viable.

- Design the process techniques, testing and get the necessary equipment.

- To find and train a suitable person to manage the production through recommendations and self selection.

- Guide the production and the commercial aspects until it is commercially viable.

- Continue with occasional backup, support and troubleshooting.

- To set up a display of all the developed products.

Attractive exhibition will draw people's attention and belief that it is possible to carry out such activities. Three display cabinets have already been acquired from the Business Development Office.

- To facilitate the occasional practical training for Food and Nutrition Programme.

The centre will operate as an independent business group. Certain fees will be charged for all the services and the developed products will be for sale to generate a revolving fund for the centre's operation cost.

Possible Products & Services:

- Coconut Products.

- Seasonal fruit products e.g. mango - five corners.

- Peanut based products.

- Sago products.

- Fruit drinks.

- Catering.

- Food preparation training for extension officers.

- Cooking classes.

6.5 Food Research and Development.

6.5.1 Follow up and impact evaluation on Situm Project

To find out if the project is still continuing and if the innovations or the technologies introduced to people are well maintained, improved or changed.

To measure that the development of the program has made a contribution and is benefitting the community.

6.5.2 Sago Products.

The continuation of sago product development along with its implementation to disseminate the production to a community group. The initial production willtake place at the A.T.D.I. Food centre.

6.5.3 Traditional Food Technology Series.

To study and document the existing traditional food processing and preparation technologies and practices in P.N.G.

6.5.4 Mushroom Cultivation.

The Lae Interim Authority and the Department of Forestry at Unitech are interested in developing small mushroom production units. This project would involve investigating the viability of both imported and local mushroom cultures, developing suitable growth media, such as sawdust, sago wastes, or decaying logs, and researching the most feasible methods of processing and marketing the products.

6.5.5 Agricultural Drying.

The ATDI food technology trainee is working with the Department of Mechanical Engineering and DPI to develop a suitable dryer for Agricultural produce. In many parts of PNG the problem of post-harvest treatment is considerable, often making the difference economic profitability and project failure. Initially this work

will involve drying of cardamom which requires careful drying to get the best prices on the market. The aim will be to develop a dryer which operates mainly using solar energy and which will eventually will be able to be disseminated to the villages in a small, relatively inexpensive kit form. It is also hoped that designs will be developed which will serve for the drying of mushroom, and other fruits and vegetables.

6.6 Food Education & Extension Work:

6.6.1 SPATF/ATDI Extension

Assistance will be given to the A.T.D.I. extension team in running a food programme in their regional workshops.

6.6.2 Solomon Islands

Assistance will be given to SDI garden project at Kolumbangara, Iriri, The Solomon Islands to help them process their surplus garden produce.

6.6.3 Publication and media outlets.

Production of 2 publications on: 1. Community based food processing industries for PNG: The experience with Situm Banana Chip Enterprise; and 2. Sago Product Development.

Leaflets on local food preparation will also be produced.

6.7 Apiculture

Staff: Peter Nugu and Andrew Ikofi.

ATDI maintains 12 beehives in various parts of Lae and the Markham valley. These hives are normally located at a site which is either used as demonstration, such as those at the ATDI office, or for instruction to aspiring beekeepers. In the latter case arrangements are made with an individual or group for them to look after the hive with the idea that eventually they will be able to purchase the equipment or make their own and set up their own honey production. It is hoped that in 1984 that this aspect of the programme can

be expanded to bring in more interested people.

6.8 Collaborating Groups.

1. DPI/Chem. Teh. Food Processing & Preservation Unit.
2. East Sepik Provincial Government.
3. Lae Biscuit Company.
4. Lae Health Food.
5. Niugini Produce.
6. Business Development Officer.
7. International Human Assistance Programme.
8. Foundation for the Peoples of the Pacific.
9. Nutrition Department.

7 Liklik Buk Information Centre.

Staff: Clara Romaso, Delma Nateleo

The Liklik Buk Information Centre is set up to:

a) Publish and distribute a variety of development materials.

b) Collect and exchange information.

c) Maintain a small resource library.

d) Respond to information requests with the technical support from ATDI and Unitech staff.

e) Disseminate information to both urban and rural people.

Since the setting up of the Liklik Buk Information Centre in 1976 the centre has now expanded its distribution of publications.

The famous handbook, the "Liklik Buk", which is popular overseas is now being printed in the United States by VITA (Volunteers In Technical Assistance).They have agreed to cater for world wide orders.

7.1 Save na Mekim

Save na Mekim, Buk bilong kainkain wok na kainkain samting bilong helpim sindaun bilong yumi. This book is in Pidgin and is therefore aimed for PNG and a few Pacific Islands such as the Solomon Islands and Vanuatu. Save na Mekim is one of our major selling books. Promotion of this publication was done through the newspaper or by sending brochures to Government Departments, Provincial Governments, Section Heads and Individuals. When the brochures were first sent out sales were high. The sales during 1983 have come at a slower rate.

One of our main achievement this year was the completion of the Save na Mekim Workshop which was planned to promote the book. People who came to this workshop were community educators, nutritionists and also those who are recognized a facilitators in their own communities. The one week long workshop was considered a success in a way that people felt they achieved something to bring back to his or her community. Lots of new ideas were introduced, collected and put together. A booklet on the proceedings is being printed to be sent to all course participants and funding agencies. Ideas and recommendations about the book were one of the things talked about. Recommendations made by the participants in the workshop were:

1. Workshop of this nature should be held more regularly either at the provincial level or at a regional level.

2. Workshop should be longer than a week.

3. Participants should learn all the skills presented at the workshop.

4. Recommended that a newsletter containing some of the things in the book be published and sent to people who are in the network.

7.2 Other Publications

The Centre also distributes publication for other organizations. These are:

Where There is no Doctor: A Village Health Care Manual (The Hesperian Foundation) Sales are second to that of Save na Mekim. Most requests of this manual come from people who are concerned with the general health and well being of the people. We are also the sole distributor of this

manual in the South Pacific. This came about after a visit was made to the authors of the book.

Helping Health Workers Learn: A book of methods, aids and instructions for health educators. This publication seems to sell quite well. With 50 copies ordered on trial basis we may have to reorder again. Most buyers have been health educators, community facilitators and other individuals.

Nutrition Publications Other books are also being distributed. One or several of the books on Nutrition which were published by ESRDP (East Sepik Rural Development Program) are now being distributed by the Information Centre after permission was granted this year by E.S.R.D.P. These publications are sought after by people overseas who have had some connections with Elizabeth Cox, who is the author for most of the Nutrition Publications. Again promotion is our main set back. All income from sales of these are placed in a revolving fund to be used for other publications.

ATDI Publications.

Traditional Bridges of Papua New Guinea by J. Siegel.

A Pelton Prototype Design by A.R. Inversin.

Technical Notes on the Baindoang Micro Hydro and Water Supply Scheme by A.R. Inversin.

They are quite popular booklets overseas. A new book on Traditional Fishing Technology is in the works at the moment.

7.3 Other Activities.

A major problem to overcome this year is in better promotion, which perhaps can be done through improved publication lists, brochures and advertisements. It would also help to have a more consistent pricing policy which we hope to initiate this year.

The mailing list will be hopefully completed and will be programmed into the computor.

Liklik Buk Committee Meetings have been very useful and new

people are making contribution to this. I am now beginning to admit that an effective meeting depends on the preparation of minutes, adendas of which I feel a little confident about doing now.

The Centre has been involved in taking students and staff, both in and out of the University to explain to them the works of ATDI and Liklik Buk Information Centre. More and more people are coming either to enquire where information can be found and also to ask for help in their own island or village.

Requests are mainly from people either interested on publication or asking for technical details of things. Technical enquiries are mostly on Water Supply of which project officers on this program can handle. The dissemination of information is done by the Information officer who is also incharge of cataloguing. Day to day running of the Information Centre is supervised by the co-ordinator.

7.4 Collaborating Groups.

Appropriate Technology Development Institute (ATDI).

Melanesian Council of Churches (MCC).

South Pacific Appropriate Technology Foundation (SPATF).

University of Technology, Lae.

There are others who helped one way or another.

7.5 Activities For 1984:

Most of this activities are ongoing, distribution will be going on for most of the publications. More publications will be added.

Liklik Buk will participate in the SPATF/ATDI regional workshops.

An Editor for the third english edition will be recruited.

The network newsletter, Liklik Buk Forum will be established.(This may carry the name of Yumi Kirapim.)

7.6 Training For 1984:

Introductory Management - Clara

Basic Library Course - Clara

Keeping Accounts - Delma

8 Applied Communications.

Staff: Margaret Ogomeni, Tom Jumurii, Regina Graham.

The Community Outreach activities of SPATF/ATDI Extension Program aims:

- to provide skills training for development workers both at rural and urban levels.

- to demonstrate various alternative technologies and methodologies which assist in promoting development.

- to develop methodologies for communicating technical information and problem solving skills to PNG communities.

- to provide technical back-up for community projects.

8.1 1983 Activities:

The Extension Program continued its community outreach activities through conducting community skills training courses as a means to improve general well being of the PNG community.

Its major activities included the National Appropriate Technology Workshop which drew a lot of grassroot community workers in establishing a stronger network at a national level. This year's activities also saw the completion of the Integrated Community Workshops for the Morobe Province which was funded by the German Appropriate Technology Exchange. This series of workshops tested the participatory non-formal approach which was both benefical to staff and participants.

Many of the skills training courses revolved around promoting household technologies. These skills included:

- water supply and sanitation. Ferrocement water storage -- water pumps --latrines

- Energy for food preparation. Drum ovens -- Wood conserving stoves -- Charcoal making and charcoal stoves.

- Sustainable gardening. Intensive gardening -- Composting.

- Food Processing. Solar food drying -- Bee keeping for honey production.

- Home Activities. Sewing -- Silk screen printing -- Sewing machine repair -- Coleman lamp repair --Crafts

The following list summarizes the 1983 program activities which were either partially or entirely conducted by the SPATF/ATDI Extension Program.

8.1.1 Community Workshops:

1. Morobe Women's Association.
   Women's Leadership Course.
   Place: Nasaupum.
   Participants: 80
   Date: 17th - 18th January, 1983.
2. Aseki Community Integrated Workshop.
   Place: Aiya village.
   Participants: 100
   Date: 28th - 4th March, 1983.
3. Garaina Community Integrated Workshop.
   Place: Garaina station.
   Participants: 80 Youth/Women's representatives.
   Date: 25th - 29th April, 1983.
4. Follow-up Menyamya Workshop.
   Place: Menyamya Vocational Centre.
   Participants: 20
   Date: 16th - 18th May, 1983.
5. Lae Urban Women's Leadership Course.
   Place: Cassawary United Church - Lae.
   Participants: 35 (Morobe Women's Association)
   Date: 18th - 19th May, 1983.
6. Aseki Follow-up Workshop.
   Place: Aiya village.
   Participants: 30
   Date: 19th - 21st May, 1983.
7. Garaina Follow-up Workshop.
   Place: Soupa village.

Participants: 40
Date: 7th - 19th June, 1983.

8. Save na Mekim (National AT Workshop).
   Place: Gavien Inservice Training Centre.
   Participants: 100
   Date: 18th - 22nd July, 1983.
9. Esa'Ala Women's Youth Workshop.
   Place: Esa'Ala Station.
   Participants: 80
   Date: 1st - 5th August, 1983.
10. Raba Raba District Youth/Women's Workshop.
    Place: Menapi village.
    Participants: 80
    Date: 24th - 28th October, 1983.
11. Momase Women's Regional Workshop.
    Place: Divine Word Institute - Madang.
    Participants: 40
    Date: 14th - 25th November, 1983.

8.1.2 Training Workshops:

1. Peace Corps. Training course.
   Place: Kapa Kamiliki
   Participants: 14
   Date: 10th - 14th January, 1983.
2. SPATF/ATDI Staff Training Workshop.
   Place: ATDI - Lae.
   Participants: 17
   Date: 31st - 4th February, 1983.
3. Balob Teachers College Students Workshop.
   Place: Gabmazung.
   Participants: 25 Students.
   Date: 15th - 17th March, 1983.
4. Young Catholic Youth (School Leavers).
   Place: St. Joseph's.
   Participants: 10 School leavers.
   Date: 21st - 23rd March, 1983.
5. Women's Leadership Course.
   Place: Butibum village.
   Participants: 40
   Date: 14th - 15th June, 1983.
6. Mid-Year Program Evaluation (Staff Training)
   Place: Bundun.
   Participants: 10
   Date: 8th - 12th August, 1983.
7. National Youth Training Program.
   Place: ATDI Facilities.
   Participants: 17
   Date: 19th - 30th September, 1983.

8.1.3 Demonstration, Displays and Lectures.

1. Appropriate Technology in PNG.
   Place: Port Moresby,
   Development Bank Training College
   Participants: 15
   Date: 27th January, 1983.
2. Interagencies Meeting
   Place: Lae.
   Participants: 30
   Date: 15th February, 1983.
3. Unitech Staff Orientation.
   Place: ATDI.
   Participants: 13 new staff members.
   Date: 22nd February, 1983.
4. Appropriate Technology Lecture.
   Place: University of Technology, Lae.
   Participants: 24 Mechanical Engineering Students
   Date: 9th April, 1983.
5. Morobe Province Vocational School Instructors.
   Place: ATDI/Unitech., Lae.
   Participants: 8.
   Date: 13th April, 1983.
6. Unitech Orientation Week.
   Place: ATDI.
   Participants: 100-300 students.
   Date: 14th April, 1983.
7. De - Forestation Lecture.
   Place: University of Technology, Lae.
   Participants: 20 students,
   Man and the Environment Course.
   Date: 24th April, 1983.
8. Symposium: AT in PNG.
   Place: University of Papua New Guinea.
   Participants: 50 - 75.
   Date: 10th May, 1983.
9. Sago Mill Display.
   Place: Unitech
   Participants: 100-300
   Date: 15th May, 1983
10. Renewable Energy Biogas Lecture.
    Place: Unitech.
    Participants: 25 students.
    Date: 20th May, 1983.
11. Inter Agencies Meeting (Topic Training).
    Place: Ukarumpa.
    Participants: 30
    Date: 30th - 31st May, 1983.
12. Mt. Hagen Show, W.H.P.
    Place: Mt. Hagen.
    Participants: 2000
    Date: 1st - 2nd July, 1983
13. International Sago Day.

Place: Unitech
Participants: 300-400
Date: 13th July, 1983

14. Interagency Meeting (Topic Health).
    Place: Port Moresby.
    Participants: 30.
    Date: 12th - 13th September, 1983.
15. Technical School Students Lae.
    Place: ATDI/Unitech, Lae.
    Participants: 60
    Date: 29th September, 1983.
16. Communication Engineering Students.
    Place: ATDI/Unitech, Lae.
    Participants: 72
    Date: 13th September, 1983.
17. First Food/Nutrition Conference.
    Place: Goroka Sports Institute, Goroka.
    Participants: 100.
    Date: 31st October - 4th November, 1983.
18. Inter Agencies Meeting (Topic Resources).
    Place: ATDI/Unitech, Lae.
    Participants: 40
    Date: 21st - 22nd November, 1983.
19. Regional Seminar Barriers to Implementation: Institutional Interface Problems.
    Place: Manila, Philippines.
    Participants: 30
    Date: 5th - 9th December, 1983.

8.1.4 Small Projects (listed separately in the other program sections):

8.2 1984 Program Activities:

8.2.1 Regional Workshops.

Four Regional Workshops are the main activities planned for 1984 Extension Program. This series of Appropriate Technology Workshops is aimed at the regional level in response to the recommendations made at last year's National Appropriate Technology Workshop. The Regional planning and participation is seen to be more relevant to its respective needs and more cost-effective. Resources within the certain regions are expected to contribute to the training of trainers.

Place: Unitech
Participants: 300-400
Date: 13th July, 1983

14. Interagency Meeting (Topic Health).
Place: Port Moresby.
Participants: 30.
Date: 12th - 13th September, 1983.

15. Technical School Students Lae.
Place: ATDI/Unitech, Lae.
Participants: 60
Date: 29th September, 1983.

16. Communication Engineering Students.
Place: ATDI/Unitech, Lae.
Participants: 72
Date: 13th September, 1983.

17. First Food/Nutrition Conference.
Place: Goroka Sports Institute, Goroka.
Participants: 100.
Date: 31st October - 4th November, 1983.

18. Inter Agencies Meeting (Topic Resources).
Place: ATDI/Unitech, Lae.
Participants: 40
Date: 21st - 22nd November, 1983.

19. Regional Seminar Barriers to Implementation: Institutional Interface Problems.
Place: Manila, Philippines.
Participants: 30
Date: 5th - 9th December, 1983.

8.1.4 Small Projects (listed separately in the other program sections):

8.2 1984 Program Activities:

8.2.1 Regional Workshops.

Four Regional Workshops are the main activities planned for 1984 Extension Program. This series of Appropriate Technology Workshops is aimed at the regional level in response to the recommendations made at last year's National Appropriate Technology Workshop. The Regional planning and participation is seen to be more relevant to its respective needs and more cost-effective. Resources within the certain regions are expected to contribute to the training of trainers.

8.2.2 Extension Program Evaluation and Follow-up Workshops:

The Extension Program plans to evaluate its past community outreach activities through visits and feed-back from questionaires to conduct follow-up workshops with interested groups.

8.2.3 Trainers Workshops:

The trainers workshop will continue as per request, and also plans are under way for the SPATF/ATDI Extension Team to be involved with the Non-Formal Education and other Government Departments in the training of trainers.

8.2.4 Community Workshops:

The Community workshops will continue through requests, in trying to equip village level leaders with appropriate skills for self reliance and general well-being at the village level. They will aim to assist youth and women's leaders with technical skills and project identification.

8.2.5 Demonstration and Displays:

1. Goroka Show.
2. Unitech. Orientation Week.
3. Menyamya Show.
4. Morobe Show.
5. Wau Agricultural Show.

8.2.6 Small Projects:

The small community projects will be initiated at the workshops and training directed towards individual communities. Project areas will include those that were covered in 1983 workshops and skills training. In addition more effort will be placed on small business development. Funds for these projects will come from

the SPATF/ATDI Extension Program and the Foundation of the South Pacific.

8.2.7 Communications:

1. Quarterly reports.
2. Press Releases.
3. Yumi Kirapim.
4. Slides.
5. Radio Program on Community Development.
6. Non-Formal Education Newsletter.

8.2.8 Staff:

The Community Development Program depends on a wide variety of expertise within ATDI/SPATF and also the various collaborating groups. In 1984 the Extension Program will recruit a full team of 4 Extension Officers who will be responsible for the expansion of its program.

8.3 Collaborating Groups:

- PNG University of Technology.
- East Sepik Rural Development Program.
- Momase Women's Association.
- Morobe Women's Association.
- Madang Women's Council.
- Milne Bay Women's Council.
- Wau Ecology Institute.
- Summer Institute of Linguistic.
- National Youth Movement Program.
- Young Womens Christian Association, Lae.
- Young Mens Christian Association, Lae.
- Non-Formal Education - Waigani.
- Rural Development Centre, Tonga.
- German Appropriate Technology Exchange.
- Foundation of the South Pacific.
- Rorango Theological College.
- Melanesian Council of Churches.
- Unitech Show Committee.
- Liklik Buk Information Centre.

1983 EXPENDITURES

Programme Area	Unitech Funds	Outside Funds	Source
I. Industrial Development			
CAVI			
Sawmill R and D			Morobe Provinsel Gavman
Transport		1706.00	"
Housing		963.74	"
Capital		1982.83	"
Sago Mill Development		727.24	"
Materials			East Sepik Provincial Government
Subcontracts and Support		3466.72	"
Overheads and Administration		1152.90	"
II. Energy		1767.60	"
Stove Development			
"		196.26	Minerals and Energy
Charcoal Research		1224.00	Works and Supply
"		655.32	UNESCO
III. Water Supply	2078.00		Research Committee
Handpump testing			
Masa		2412.29	World Bank
Busama		67.49	New Zealand High Commission
Busion	8.00		Community Development Committee
Kaisenik	64.00		ATDI
Tami	20.65		CDC
Busu		1666.30	Morobe Commerce Division
Water Tank Research	16.16		CDC
Handpump Research	156.00		ATDI
Water Testing	120.42		ATDI
SPATF Consultancy	120.00		ATDI
IV. Housing	25.41	163.00	ATDI -- SPATF
Office Extension	5533.39		
Toilet	305.66		ATDI -- Minor works Committee.
House Maintenance	264.00		ATDI -- Minor Works Committee.
			ATDI

V.	Food Technology			
	Situm		1295.25	Foundation for the South Pacific
	Sago Research		1720.29	East Sepik Province
	Food Centre	512.94		ATDI
	Fish Aggregation Device		1097.59	PNG Biological Foundation
	"		504.41	Foundation for the South Pacific
	Apiculture	117.88		ATDI
VI.	Information			
	Liklik Buk Operations		2094.33	Liklik Buk
	Cost of Books sold		9605.30	"
	New Stock		4225.86	"
VII.	Applied Communications			
	Morobe Integrated Workshops		4983.66	German AT Exchange
	Volunteer Training		1233.00	US Peace Corps
	National AT Workshop		8200.86	Village Council -- UNESCO
	Training Workshops		2945.85	Workshop Sponsors and Communities
	National Youth Workshop		900.00	YMCA -- National Youth Affairs
	General Outreach Expenses	2356.06		ATDI
	Inter-Agency Meeting	480.00		ATDI
VIII.	Administration			
	Travel	1758.06		ATDI
	"		960.00	SPATF
	Consumables	4587.96		ATDI
	Capital -- Vehicle purchase	7000.00		ATDI
	Vehicle maintenance	392.42		ATDI
	Conferences and Training			
	Sago Study Tour		1866.00	YWCA -- FSP
	Women's Forum -- Manila		2920.00	YWCA
	AT Seminar -- Manila		1450.00	UNESCO
	Food and Nutrition Conference	391.00		Research Committee -- ATDI
	Salaries and Benefits	71000.00		ATDI
	"		8576.00	SPATF
	"		11489.12	Liklik Buk -- MCC
	Sago		5235.00	East Sepik Government
	Sago Mill		13056.37	"
	CAVI		24950.81	Morobe Provinsel Gavman

Fisheries Project			
"	2593.00	1497.60	PNG Biological Foundation
Recruitment	2000.00		Research Committee
Unitech Indirect Services(estimated)		500.00	Unitech -- SPATF
Office Supplies	1000		Stores
Printing	1000		Print room
Vehicle Use and Fuel	4000		Transport
Photography	500		AV Unit
Other Services	1000		
Overheads	3000		
sub-totals	112401.01	129458.99	
TOTAL 1983 Expenditure	241860.00		

A.T.D.I. COMPOSITE BUDGET 1984

	AREA	UNITECH FUNDS	OUTSIDE FUNDS	SOURCE	FUNDS REQUIRED
I.	Community Industries	K550.00	-	-	-
	Morobe (CAVI)	-	K4,500.00	Morobe Provincial Government	-
	Southern Highlands	-	11,500.00	S.H.R.D.P. (negociating)	-
	Ceramic Kiln Development	-	-	Industrial Development Request	K5,000.00
II.	Energy	-	5,000.00	UNDP (Negociating)	-
	Stove Development	-	500.00	Minerals and Energy	-
	Micro Hydro Study	1,000.00	-	(Research Committee)	-
III.	Water Supply and Sanitation	1,250.00	-	-	-
	Handpumps	-	6,500.00	World Bank	-
	Handpumps	-	-	Research Committee	550.00
	Masa hydro-ram	-	-	New Zealand High Commission	1,600.00
IV.	Housing				
	A.T.D.I. House #4	-	6,000.00	A.T.D.I. Consultancy Income	-
	Extension Program Staff	-	20,000.00	(SPATF) (FSP)	-
V.	Food Program	1,100.00	-	-	-
	Food Centre	-	4,070.00	(negociating with IHAP)	-
	Sago research	-	500.00	East Sepik Provincial Government	-
VI.	Information	400.00	-	-	-
	Liklik Buk	-	30,000.00	Internal funds	-
	Traditional Technologies	-	1,600.00	UNESCO, BCL	6,500.00

AREA	UNITECH FUNDS	OUTSIDE FUNDS	SOURCE	FUNDS REQUIRED
II. Applied Communication	K700.00	-	-	-
Extension Program	-	K27,450.00	F.S.P.	-
Extension Program	-	1,250.00	S.P.A.T.F.	-
Capital	-	1,800.00	F.S.P.	-
III. Conferences & Training				
Pacific Network (Tonga)	-	3,000.00	Commonwealth Science Council	-
Light Industry W/shop (Utech)	-	10,000.00	Asia Foundation, ESCAP/RCTT	-
A.T. Fair	-	2,500.00	UNESCO (negociating)	-
dministration				
Travel	1,300.00	1,680.00	S.P.A.T.F.	-
Consumables	3,160.00	-	-	-
Capital	4,350.00	-	-	-
Staff Salaries and Benefits	70,986.00	-	-	-
Staff Salaries (SPATF)	-	36,225.00	S.P.A.T.F.	-
	-	8,085.00	Liklik Buk	5,000.00
Southern H/lands AT Project	-	27,930.00	S.H.R.D.P. (negociating)	-
CAVI	-	5,775.00	Morobe Provincial Government	-
Training	12,750.00	-	-	-
Staff Training	-	10,100.00	F.S.P.	-
Food Course for Trainee	-	-	-	2,500.00
upport Services (estimates)				
Office supplies	1,000.00	-	Stores	-
Printing	1,000.00	-	Print room	-
Vehicle use & fuel	4,000.00	-	Transport	-
Photography	500.00	-	A.V. Unit	-
Other Services	1,000.00	-		-
Overheads	3,000.00	-		-
	K108,046.00	K225,965.00		K21,150.00

TOTAL ESTIMATED BUDGET K355,161.00

QUARTERLY PROGRAM REPORT

JANUARY - MARCH 1984

MARGARET OGOMENI

SPATF/AIDI EXTENSION SERVICES MANAGER

Best Available Document

SUMMARY

During the first quarter the Applied Communication and Extension Services Program revolved around training for new members of the Extension Team to familarize with SPATF organizational goals and the SPATF/ATDI approach to community development.
It also provided basic practical skills training in appropriate technology to equip the team for community training as a means to improve the general well being of the PNG community.

Thus the first quarter activities included:

(a) Familarization Attachment Training. - Bus. Development Officer
(b) In House Food/Nutrition Training - Nutrition Educator
(c) Ogranang Community Workshop.
(d) SPATF/ATDI Staff Training.
(e) Vilis Teknik Community Workshop - Bulolo.
(f) Kavieng Site - Survey.
(g) Manang Inter Agency Meeting.

Funding for these activities came from SPATF, ATDI, SIL and Vilis Teknik Semka.

Trainers for the program consisted of:

VES, Tru-Cast Foundry, Hanuatek, ATDI, University of Technology, SIL, Foundation of the South Pacific, SPATF Director, and SPATF Board of Directors, Vilis Teknik, and SPATF/ATDI Extension Program.

INTRODUCTION:

The following report describes the activities carried out by the Extension Program beginning from the 2nd January to the 30th March 1984.

(a) Familarization Attachment Training:

Mr. T. Jumurii the newly recruited Business Development Officer was assigned to some of the SPATF related small industries in Lae and Port Moresby to get aquainted with business operations. Mr Jumurii felt this course was valuable as it gave him a broader understanding of SPATF and small industries as a whole. Some of the groups Mr. Jumurii worked with include Liklik Buk, the charcoal business, VES, Morobe Foundry, and Hanuatek Small Industries Centre.

* Mr. Jumurii's report is attached.

(b) Indoor Food/Nutrition Training:

A four day, in-house food processing and preservation course was held at the Chemical Technology Department at the University of Technology from the 16th - 19th January 198[illegible].

The purpose of this course was to equip the Extension Team with new Recipes and food processing knowledge to implement in their community training workshops. This workshop did not fully fulfil participants expectation as some of the desired food processing areas were left out due to ill health by trainers.

Some of the outside organizations in the SPATF/ATDI network participated in this training.

(c) Ogranang Community Workshop:

The Ogeranang Community Workshop in Literacy and Appropriate Technology was co-ordinated by the SIL Community Development Section from Ukarampa from the 23rd - 27th January, 1984.

Margaret and Regina were invited to participate in Nutrition Education. The response was very good and local women took pride in sharing their traditional dishes.

Skills taught included, Tok Ples Writing, Tok Ples Reading, Sewing Machine and Coleman Repair, Bush Carpentry, Drum Oven and Food/Nutrition Education. All expenses were met by SIL.

(d) SPATF/ATDI Staff Training:

The SPATF/ATDI staff training was held at Sivarai Namona Centre from the 19th - 24th February, 1984.

The purpose of the course was to identify management problems in and to provide possible solutions through role plays, discussions and watching video tapes on good management. This course also enabled new members of staff to meet some of SPATF's top men and to be clear of what SPATF was all about.

Most of the expectations were met but future workshops have to consider finance and time wastage.

SPATF/ATDI funded this course.

(e) Vilis Teknik Community Workshop:

This workshop was co-ordinated by the Tok Ples Skul in Bulolo with SPATF Extension Program from the 12th - 15th March, 1984.

Skills demonstrated by our team included:

Lorena stove, Solar Drier and Food and Nutrition Demonstration.

The response was very good and the local people requested a follow-up workshop later in the year. The expense for this workshop was met by Vilis Teknik Centre and ATDI assisted with transport and some materials.

(f) Kavieng Site Survey:

The site - survey for New Guinea Islands Regional Workshop was conducted from 12th to 16th March, 1984.

The main purpose of this workshop was to link up with the local network for allocated responsibilities during the workshop and to select a suitable site for the workshop.

Expense for this workshop was met by SPATF and ATDI.

(g) Madang Inter - Agency Meeting:

The Co-ordinator of the Extension Services attended this working committee meeting to compile materials from the voluntary agencies to develop a resource manual.

Expenses for this trip was met by SPATF/ATD. Extension Program.

Conclusion:

Most of the activities scheduled for the first quarter for 1984 have been carried out, except for the Misima workshop which had to be cancelled to give enough preparation time for the New Guinea Islands Regional Workshop. Next quarter will keep the Extension Team busy as they will be conducting their first Regional Workshops.

Please see attached 1st Quarter Expenses and a review of 2nd Quarter Program Plan.

FIRST QUARTER EXPENSES

	Details	Travel	Food	Materials	Truck	Acc.	Comm. Contribution.
1	Food & Nutrition Training			K200.00			
2	Inter-Agency Meeting	K 53.00	K35.00		K15.00		
3	Original Workshop			50.00			
	Community Contribution						
	- Excess baggage						K31.30
	- Travel						100.00
	- Materials						50.00
	- Food & Accomodation		100.00			K20.00	120.00
4.	SPATF/ATDI STAFF TRAIN.	1.024.00		441.00	105.50	100.00	
5.	Mainvanda Com. W/shop			19.24	7.10		
	Utlis Teknik Cont.						
	- Accomodation					5.00	5.00
	- Transport				30.00		30.00
	- Food		25.00				25.00
6.	Kavieng Site Survey	280.00	50.00				
		K1,357.00	K85.00	K710.24	K157.60	K100.00	K361.30

Summary:

1.	- Travel	K1,357.00	
	Food	85.00	
	- Materials	710.24	
	- Truck/Taxi	157.60	
	- Accomodation	100.00	
			K2,409.84
2.	Total Community Contribution.		361.30
	T O T A L		K2,771.14

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SPAIF EXTENSION PROGRAM PLAN 2ND QUARTER APRIL - JUNE 1984

Month	Week	Activities
April	2nd-5th	NGIR workshop material preparations.
"	9th-13th	New Guinea Islands Regional Workshop.
"	16th-20th	New Guinea Islands Regional Workshop Report Writing.
"	23rd-27th	Other Office Work.
May	1st-11th	Proposal to Government Departments etc. for Papuan Regional Workshop.
"	21st-25th	Alotau Material Preparation.
"	28th-1st.	Nutrition Trainers Workshop.
June	4th-8th	Workshop Report. ½ Half June. Margaret in Tonga.
"	11th-15th	Esaie Follow-up workshop report writing.
"	18th-22nd	Lousia Community Workshop.
"	25th-29th	Report Writing.

July 16-20th Papuan Reg. Wrkshp.

Aug 6-10th - Western Wrkshp.

NEW GUINEA ISLANDS REGIONAL WORKSHOP ON APPROPRIATE TECHNOLOGY.

INTRODUCTION:

The South Pacific Appropriate Technology Development Foundation (SPATF) is a semi government organization that seeks to promote appropriate technology in Papua New Guinea.

It aims to develop new technologies relevant to PNG situation using local available resources finance and man power to encourage self-reliance.

Its Extension Program runs community training to equip both government and non-government agencies with technical skills to help improve their way of life. The Islands Regional Workshop is among the first series of regional workshops to be held in 1984 to equip grass root workers and development workers and development workers with practical skills. This workshop also aims to link up with your activities to strengthen a network where by necessary developmental information and technologies can be shared.

CONTENT OF THE COURSE

The activities in the workshop are some of the new technologies tested and modified for PNG situation by the Appropriate Technology Development Institute a research section of the organization.

These activities include:-

1. Water Supply (Ferrocement bamboo tanks and hand pumps).
2. Energy. (Charcoal and charcoal stoves, fuel conserving stoves, solar drier).
3. Food Processing (Sago processing, fruit drinks).
4. Gardening. (Composting banana pots and planting).

CONDITIONS:

The workshop is for one week. Participants will be expected to attend each session and some physical work will be involved.

FACILITY:

Still to be finalized.

TITLE: "NEW GUINEA ISLANDS REGIONAL WORKSHOP ON APPROPRIATE TECHNOLOGY".

NAME:.................... AGE.......... SEX..........

PLACE:.................... PROVINCE..........

ORGANISATION/EMPLOYER:....................

SPONSOR:....................

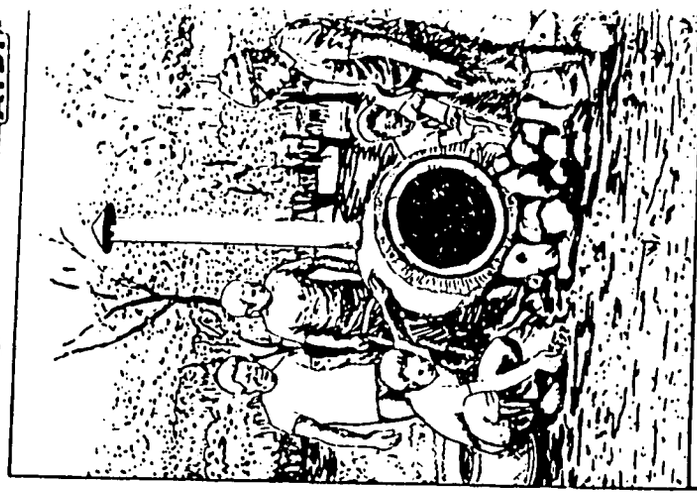
WHAT DO YOU DO FOR YOUR COMMUNITY?....................

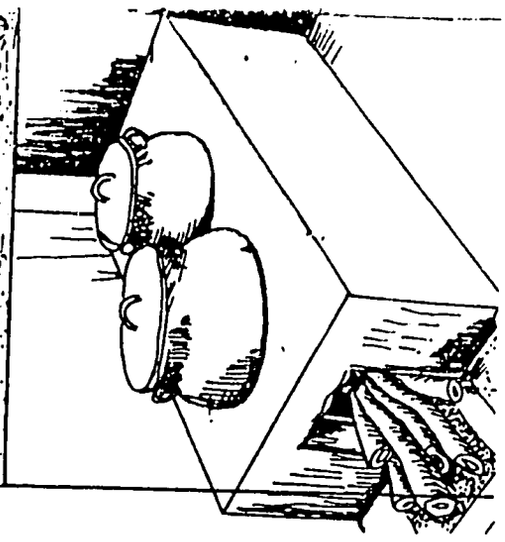
....

WHAT ARE YOUR FUTURE PLANS?....................

....

New Guinea Islands Regional Workshop





HOW TO APPLY:

Fill in the application form, tear along the line and return to:-

A.T.D.I.,
UNIVERSITY OF TECHNOLOGY,
PRIVATE MAIL BAG,
LAE.....P.N.G.

Registration Fee: K10.00

Food & Lodging: K20.00 person per week.

Registration Fee Due 30 days before workshop. All other fees to be paid on arrival.

WHAT DO YOU HOPE TO LEARN FROM THIS WORKSHOP?

.....

.....

.....

.....

IF YOU ARE ACCEPTED FOR THIS WORKSHOP WHO WILL PAY FOR YOUR FARE?

.....

.....

.....

.....

WHAT PRACTICAL SKILLS CAN YOU OFFER TO THE WORKSHOP?

.....

.....

.....

.....

APPLICATION CLOSE: 12TH MARCH 1984.

SEND APPLICATION TO: SPATF/ATDI EXTENSION SERVICES,
PNG UNIVERSITY OF TECHNOLOGY,
PRIVATE MAIL BAG,
LAE,

SMALL PROJECTS PROGRESS REPORT

oject mber	Description	Funds spent to date (US$)	Date of Completion	Cost/Benefit Ratio (US$)	Date last Contact	Status
1	Goat farm	720.00	7/82	2.40	8/82	starting to tur
2	Family Planning Training	1,525.05	5/82	.03	7/82	27 women traine in Province
3	Health Training Facility	3,000.00	10/82	.01	3/83	50 staff traine 70 women group
4	Vocational Training	2,393.37	11/82	47.87	4/84	50 students/yea starting new pr student entrepr carpentry
5	Prototype fishing boat	2,960.00	10/83	1.97	5/84	demonstration completed & use with fishermen
6	Vocational Training	2,922.00	11/82	47.80	3/83	60 students/yea sewing & cookin added to girls
7	Banana Chip cottage industry	2,640.97	10/83	8.80	4/84	successful & pr
8	Irrigation water supply	2,299.00	9/83	45.98	12/83	system install ational, vegeta sold
9	Cottage poultry industry	2,639.00	1/84	1.32	8/83	chickens just r
10	Cottage poultry	2,820.00	9/83	1.41	9/83	starting to sel batch of chicke

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SMALL PROJECTS PROGRESS REPORT

roject umber	Description	Funds spent to date (US$)	Date of Completion	Cost/Benefit Ratio (US$)	Date last Contact	Status
11	Demonstration fishing catamaran	2,329.25	9/83	1.55	12/83	boat completed used as demonst
12	Fishing tackle store	4,802.51	3/83	1.92	2/84	continues opera tackle sales to
13	Demonstration nutrition garden	1,180.69	10/83	.39	3/84	first crop dest rascals & pigs. to new location (see report)
14	Cottage poultry	1,223.94	12/83	.49	12/83	chickens just p
15	Goat farm	774.77	2/84	1.94	2/84	original 8 goat being raised, p with tribal figl
16	Women's group sewing industry	1,619.60	1/84	10.12	1/84	equipment purch
17	Village group piggery	2,624.95	5/83	.34	5/83	first group of being raised
18	Cottage poultry	751.70	5/83	.54	8/83	sold first lot chased 2nd, pur ice box to free
19	Potatoe farming	2,700.00	10/83	27.00	2/84	1st crop sold a 2nd planted
20	Cottage poultry	2,726.50	8/83	.65	9/83	1st 100 chicken 150 repurchased

SMALL PROJECTS PROGRESS REPORT

ct r	Description	Funds spent to date (US$)	Date of Completion	Cost/Benefit Ratio (US$)	Date last Contact	Status
	Village group piggery	2,406.18	5/83	1.20	6/84	profitable -see final report. Expanded to di & vegetable gardening
	Youth group piggery	2,693.33	7/83	53.87	9/83	starting to sell firs lot of stock. buildin permanent housing
	Group piggery	2,988.57	8/83	.25	1/84	from 14 original pigs have sold 36 for K4,0 Have improved site
	Village group poultry	2,532.00	11/83	.25	11/83	housing built & first lot chickens being ra
	Village group poultry	2,245.75	11/83	14.97	11/83	starting to sell firs lot of chickens
	Village group piggery	2,918.76	9/83	.97	9/83	starting to sell firs lot of pigs
	Road construction	4,159.05	6/83	.76	6/83	road still being constructed
	Fish Aggregating Device constructed	1,193.54	2/84	.60	2/84	FAD installed and dri away lost. See report
	Water supply	1,879.68	11/83	3.13	12/83	water storage tank installed. training project ongoing
	Storage shed for animal feeds	5,035.39	12/83	8.39	12/83	See report See report

SMALL PROJECTS PROGRESS REPORT

oject mber	Description	Funds spent to date (US$)	Date of Completion	Cost/Benefit Ratio (US$)	Date last Contact	Status
31	Vegetable farming	3,450.00	1/84	1.73	1/84	first crop plan
32	High School vegetable farm	4,447.09	12/83	1.78	12/83	first crop plant
33	High School fishing project	-0-	--	4.72		proposal submitt
34	Food processing training and demo centre	-0-	--	9.02		proposal submitt
35	Nutrition publications	-0-	--			project postpone by ATDI awaiting of Elizabeth Cox
36	Leadership Training	-0-	--	--		proposal submitt
37	Youth carpentry workshop	-0-	--	6.85		proposal submitt
38	Sawmill training	-0-	--	.17		proposal submitt
39	Shoe factory	-0-	--	.05		proposal submitt
40	Water catchments	-0-	--	1.17		proposal submitt

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11

REPORT ON GARDENING AT FUABA.

We started clearing the bushes for our Nutrition demonstration garden at Fuaba, a self-help settlement, at the end of January this year, 1983.

There were about 30 women who helped us to clear up the bushes. They are all from that settlement and are members of the club.

We started planting mung beans, coupeas, eggplant, okra, corn and winged beans on the second week of February.

Then towards the end of February we planted taro, kaukau, tapiok, banana, rosella, aibika, pumpkin, water melon, cucumber and paupaw.

In March we harvest the beans and shared them among the women. In the old bean patch we planted peanuts.

After we finished planting everything, we did the weeding towards the end of March and April.

We harvested the corns in April, which we shared again some among ourselves and the women sold some at the market. During this month, we decided to extend the garden because we had a piece of land available.

In early May we cleared up the bushes. It took us almost two months, May and June, to clear up the bushes, because during those two months, apart from gardening we did some cooking and gave Nutrition lessons to the women.

We harvested kaukau in June, which we used some of them for cooking demonstrations, gave some to the women and sold some at the market.

We started planting corn in our new garden on the second week of July and taro on the last week.

We haven't finished planting yet in our new garden, because on the last week of July we were busy harvesting peanuts and taro. Again we shared some among ourselves and sold some at the market.

We have planned already to plant okra, corn, beans and other vegetables in our new garden. While in the old garden where we have harvested peanuts, we planted kaukau and will rotate the other crops when we finish harvesting them.

So far we have harvested taro, kaukau, peanuts, corn, beans, tapiok, water melon and cucumber, which we shared with the women, do demonstration cooking and sold some at the market.

We have at present K40.00 cash in hand which we received from the crops the women sold at the market. With that money, we have planned to buy some seeds for our new garden, and ingredients for some of our cooking demonstrations, with the women at that settlement, Fuaba. Rebecca Siserta.(Supervisor)

I, Ana Tupou admired very much the efforts that these girls and the women put on to the Garden. As I have seen it, I personally felt that they need to continue this project. The women are very keen, their children looks healthier and because the land available as well. The women learned to use the leaves (taro, kaukau, & tapioca) for their cooking which only very rare for people to eat them when they are cooked.

I bought some wires and post for the women to make a fence around the garden, as some of their corns, kaukau, etc. damaged by the villages pigs. They warned the owners, and we got the wire to make the fence very soon.

Ana Tupou.
(General Secretary)

FINANCIAL STATEMENT
KERAKEN PIGGERY (SP 21)

(produced by FSP country director from 2 six-month reports from project: period 6/83 - 6/84)

	Income	Expenses	Balance
1. 14 pigs sold (July, Aug, Sept, 1983)	K2,440.00		K2,440.00
2. repurchase 20 pigs & feed		K1,675.00	765.00
3. impovements to pens		220.00	545.00
4. 11/83 10 pigs sold	1,815.00		2,360.00
5. loan from PNGBC	1,650.00		4,010.00
6. pig food purchased		1,650.00	2,360.00
7. 25 pigs purchased		1,000.00	1,360.00
8. vet supplies and hired labour		280.00	1,080.00
9. new buildings		548.00	532.00
10. 130 pigs purchased		5,200.00	(4,668.00)
11. feed, labour, vet supplies		2,500.00	(7,168.00)
12. sale of 115 pigs		13,275.00	6,107.00
13. repay bank loan		2,000.00	4,107.00

APPROPRIATE TECHNOLOGY
DEVELOPMENT INSTITUTE

PAUL R. WARPEHA.

P.O. Box 793, Lae, Papua New Guinea
Telephone: Work (4) 42 4999 Ext. 330
Liklik Buk Information Centre: 42 3910

Cables UTECH

19th September, 1983.

Lana Sheppard,

Foundation For The People
Of The South Pacific,
P.O. Box 1261,

Boroko, Port Moresby.

SIASSI FISHING GROUP SP-28

Dear Lana,

I met with the various parties involved with the Fish Aggregation Device Project. We managed to clear up a number of confusing points about what happened and areas of responsibility.
Mario will be writing to you a report on the meeting, but I thought I would give you my point of view.

First of all, Mario's initial report to you was written before he had discussed the situation with anyone. He had been partially unaware of the attempts that had been made to contact him about the arrival of the device in Siassi. Thus, he was not present when the FAD was installed. I feel the lack of clear communication was the significant factor in the loss of the FAD. Had communications been clear, even the broken line would not have necessarily meant the loss of the whole device.

Lack of experience in the rougher seas was the other factor. The previous sites did not have this feature.

Although the issue of the loss seems resolved in most people's minds, it is still unclear what if anything, should be done with the project. It was expressed to Eberhart that the planning for this project was not well thought out. It is understood that the villagers requested the FAD but as to the suitability of the site there are still questions. Rather than build another FAD for that site, it was decided to wait and study the area a bit more. If another is to be built for Siassi elsewhere, ATDI has committed itself to lending assistance.

Regarding F.S.P.'s reimbursement of the funds ATDI invested in the device, it will have to be left up to you. We accept partial but certainly not all responsibility for the loss. Our view point is the that what we do is research and

...eventualities add to our learning. We built, delivered and installed the device, as we were contracted to do.

Unless you have any questions of what I have written here. I would suggest the rest of the details on this project be handled through Mario or Eberhart.

Thank you for your patience.

Yours ...

Paul ...
DIRECTOR
PRW/djm.

Dear Lane

Sept 15 '83

This is in response to your last letter regarding the status of the Siassi F.A.D. project.

On Sept. 13, Paul Warrapba + I sat down with: Norman Quinn (Unitech - Fisheries)
Eberhart Mikller (Lutheran Econ. Service)
Henry Lekisi (Unitech - F.A.D. project officer)
+ Harold Brooks (Peace Corp - Country Director)
to straighten out a few thing but mainly to determine the cause behind the loss of the Siassi F.A.D. + evaluate the circumstances surrounding it -

The discussion surrounding the loss of the device centered on 2 points

① The Apparent lack of notification to me regarding the time + method of deployment +
② The actual physical cause behind the loss

After some discussion we determined that there was a serious attempt made in contacting me - There was a personal message given to the Lutheran church president, there was a message radioed to LabLab + a letter was sent - Unfortunately, the church president was unclear about the message + thus gave only a general 'for save' - The radio message was given to me as I was leaving Siassi (literally walking to the airstrip) - again this message was vague probably due to the poor radio reception at Siassi - Finally, the letter arrived late (I received the letter upon my return to Siassi

Regarding the loss, we of course could not say exactly what happened however we were able to come up with some possible explanations

① The anchor was too light
② The device sank
③ The device lost its anchor

Of the 3 possibilities, we ruled out ① & ② for the following REASONS

① if the anchor was too light & it started to drift, the F.A.D. should have followed the prevailing wind & water currents & should have traveled to the N.W. - This would put the F.A.D. into shallower waters & the F.A.D should have hooked up on a reef or some stones

② The F.A.D. couldn't sink since the barrels were foam-filled & would remain buoyant even after taking on water

③ loss of the anchor seems the most plausible because it explains the relatively quick disappearance (1 week) from the area - (If the anchor was still attached the device whole move slowly) it also would explain why the device did not hook up on any stones or on a reef.

Possible causes of anchorage loss

① rope failure (cut or broken)

② The failure of splices attaching anchor to rope or rope to device

③ The failure of shackles attaching anchor to rope or rope to device

In any case, the loss of the F.A.D. seems to be one of physical failure & realising that F.A.D.s are still experimental & that this was only the 3rd F.A.D. placed by UNITECH personnel. the loss was not caused by negligence but because of INEXPERIENCE AND CIRCUMSTANCE.

Sincerely

MARIO F. TEISL

TAMBIOK INTEGRATED RURAL DEVELOPMENT PROGRAM, AMRUM VALLEY
P.O. BOX 156, WABAG, ENGA PROVINCE
PAPUA NEW GUINEA.

SP 29-30

30th December 1983.

Cathy Nast,
Country Director,
Foundation for the Peoples of
The South Pacific,
P.O.Box 1761,
BOROKO - N.C.D.

Dear Cathy,

Suject: Overall Progress Report- Tambiok Water Supply Project (S.P.29 And Storageshed (S.P. 30)

As agreed upon, we are to submit an overall progress report to the Foundation for the Peoples of the South Pacific after the completion of the above mentioned projects, namely the Water supply and Storage-shed respectively. They are this years F.S.P. funded projects, and integral part of the organisations financial commitment to the Tambiok Development Program since 1981.

There two projects to which this report is devoted are two of F.S.P.'s major projects, whose funds became available middle of this year. Within a time range of some five months, the Tambiok Integrated Rural Development Group members have strived hard to complete the projects before my departure for the Agricultural Management course in Japan, offered by OISCA, and F.S.P being the guarantor.

Firstly we started of with the storage-shed. Group members cleared the land, carried to the site sand, gravels and stones, While I went around Wabag Town, Wapenemanda and Mt. Hagen to look for certain firms from which building materials could be purchased at reasonable prices. I found out that Housing Commission Branch at Mt. Hagen had some small-size ply wood pieces available on government prices. I made arrangements with them to get from them ply-wood nails, and some water pipes (the only items they had in stock.)

I also made arrangement with Gilden Timbers Pty.Ltd to purchase roofing & walling iron sheets and other relevant materials (such as cement bags) they had in stock. I chose this firm as it was willing to give me a 5% discount.

After all these negotiations a PTA (Plants and Transport Authority) vehicle which had a loading capacity of up to 6 ton was hired through the Division of Primary Industry, Wabag at government rate . I loaded and brought home almost three quarters of all materials needed for the construction. The next move was getting the right size timber pieces. For this task it was found that

...2/..

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obtaining sawn (both plain and rough) timber from Merimende in the close proximity was more cheap and profitable than other centers.Merimende is only 15km from Tsimbiok,and there was less difficult in getting the timber.

After all necessary materials were collected,actual erection of the building started right away.The builder (whose married to my cousin) decided to offer us free building services and the work involved required not more than two assistants to put up the frame.As a matter of fact,the framing was done easily.Then came the task of putting up the frame on sealed iron posts of 1 inche radius on an area of 32 feet long and 20 feet wide,thus making the area of the building 600 sq feet.By doing this,that is, making an elevated floor affixed to bearers sealed on to iron posts of up to 1½ feet,we had done away the orininal plan of making the entire floor with cement (cement floor.) This was found to be the cheapest way,as using latter method there would be lot of labour involved in carrying from the river banks sand,gravels and stones.That would have taken a lot of time to completely make a cement floor of something like 600 sq.feet.

Since the builder works with Department of Works and Supply,he only came to the projects site every weedend to work on the house.This factor had delayed the builder from completing the storage-shed in a matter of week or two as he had initally intended to.However almost everything is almost finished now,except a room frame work has yet to be made to make two seperate rooms, one for the incubator and the other as storageroom.The office room has already been made.

Painting of the entire building,and constructing rain catchment on the roof are yet to be done,but it is anticipated that this will all be accomplished in the due course,certainly after Iam gone.

In terms of cost effective,this storage-shed was purposely constructed in such manners that the total cost could not acceed not more than K6 000.00. All of F.S.P. allocation for the construction have been exhausted and there bills that were still outstanding have been settled with Tsimbiok Development Groups own fund,raised locally from projects already funded by the organisation.

As soon as minor works on the construction are done,such as painting ect, the storage-shed would be ready to serve itis purpose.Meanwhile,most of my books and records have been moved into the office section as they would be secured there when Iam away in Japan for the declared 15 months.

Secondly,the Water Supply:

Though the funds for this project was made available by F.S.P. initially,it was the last project to be completed.This was purposely done as we knew in

...3/..

advance that the building would require more time than this project.However, most materials were collected from Housing Commission,Mt.Hagen simultaneously with the building materials and transported likewise.Two big concrete tanks were obtained from Wamg,as well as other piping materials needed otherwise.

Actual work began on the project three weeks ago.Like the building,stones, sand and gravels were brought to the source of the water,which about 50 meters away from the storrgeshed,and some 100 meters away from the piggery.About a meter from the source a hole of about 1feet by 1 feet was dug in proportion to the size of the cement thanks.One of the thanks was placed into the hole, accompanied by the other ontop.When this was done the gap between the two thanks were sealed with own made cement,thus connecting them to be one with a volume just enough to maintain 1000 litres of water.Once that was done,the buttom was sealed as well,but an iron pipe piece was fitted with an open hollow to eliminate any form of dirt that may accumulate at the far below.The end of this pipe was again fitted to an especially-made bend iron piece with treads from outside so that a lid could be put to regulate the system whenever there is a need.

Another hollow was made one quarter up from the middle of the tank and another iron pipe piece was fitted and sealed.It's end went as far as the source and this was where.the'dam.was to be.Here the dam was made.This dam is right at the source,so the possibility of water getting mingled up with dirt is minimized.The end of this pipe mentioned in this section is again sealed up to the dam at a certain hight.As soon as water in the dam reaches this level, it flows down the pipe into the cement tank.

In the middle of the tank is the main water pipe with a filter and this pipe goes throught out the projects area,the poultry,the piggery and the storrgeshed.Currently there are three taps,one near the storrgeshed,one at the chicken yard and the last at the piggery.Water is flowing with high velocity now,and it's playing is required role in watering the piggery and the chickens.The problem of water supply is now solved!

We are yet to put another tap near the road to serve the public.The tap is available,however the highway road seem to be too busy with people,and we are afraid the kind of care free attitdde that some people may have on the water when in usage.

Materials are ready to catch water from the storrgeshed too.But this will be not done until the painting of the house is done.

Finally,the most heart-felt contribution towards the development of Taimbiok projects personnel by the Foundation for the Peoples of the South Pacific is making provision for the OISCA scholarship in Japan.This offer to the Taimbiok Development Projects is the first of it's kind and I,on be half of the

...4/..

Group and people wish to take this liberty to express my sincere thanks to FSP staff in both Papua New Guinea and New York for making this opportunity possible.

While attending this Agricultural Management Course, I will do my best to fully utilised the services provided by both FSP and OISCA, and return home with something useful to serve my people and the country. I will keep FSP informed of my progress while in Japan.

During my absence, Cathy and Theddeus Tinoko will keep accounts of the projects while Petrus Pais, our own trained school-leaver will be responsible for the day-day running of the activities. Theddeus and his wife Cathy are both teacher in the community school at Sikiro, about 100 meters away from the projects center. These three people could be contracted only by mail on the old same address.

Meanwhile I wish you and Barbara a prosperous and flourishing New Year (1984).

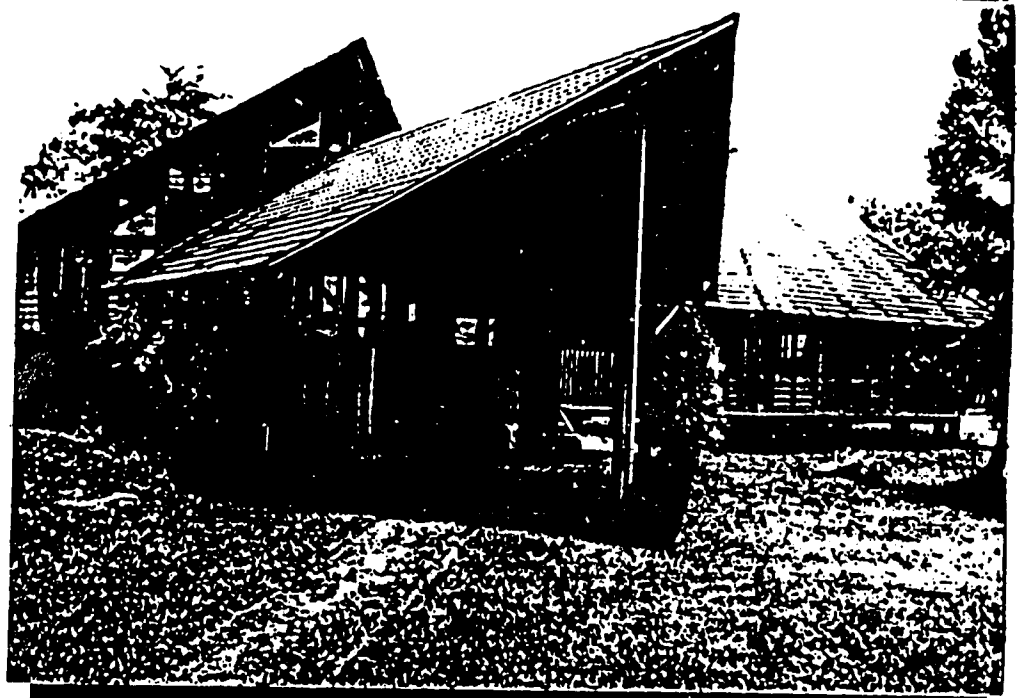
Yours faithfully in rural developent services,

Michael Mangal Tukuliya,

Projects Co-ordinator

- Raun Raun Theatre
Goroka, Eastern Highlands
6/84

ATDI Office
Lae
1/84



SPATF MANAGEMENT STAFF

)ohn Brooksbank

Paul Warpeha

Borang

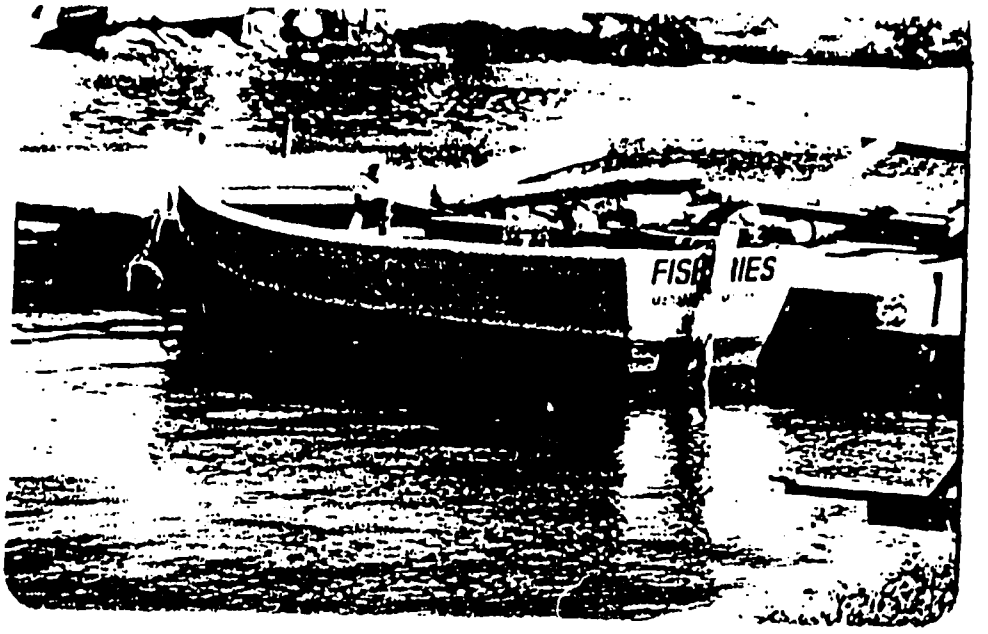
Gabriel Pisa

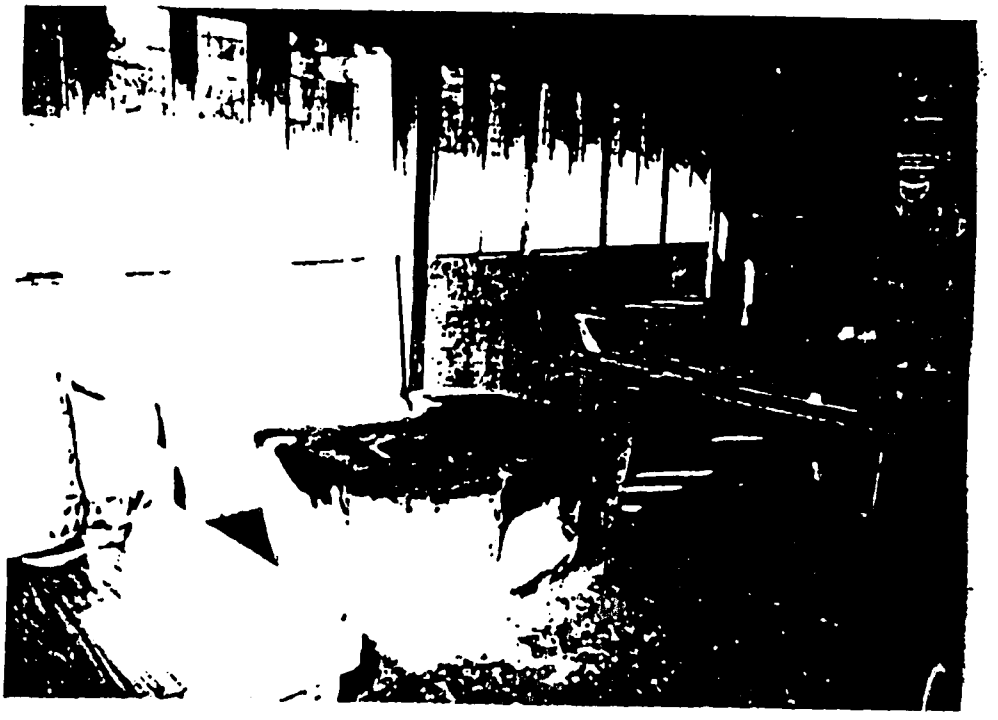
avid aunt

Andrew Kauleni

Mary

Margaret Ogomeni





Lorena Stove at Mr. Banana
Sip Factory Situm Village

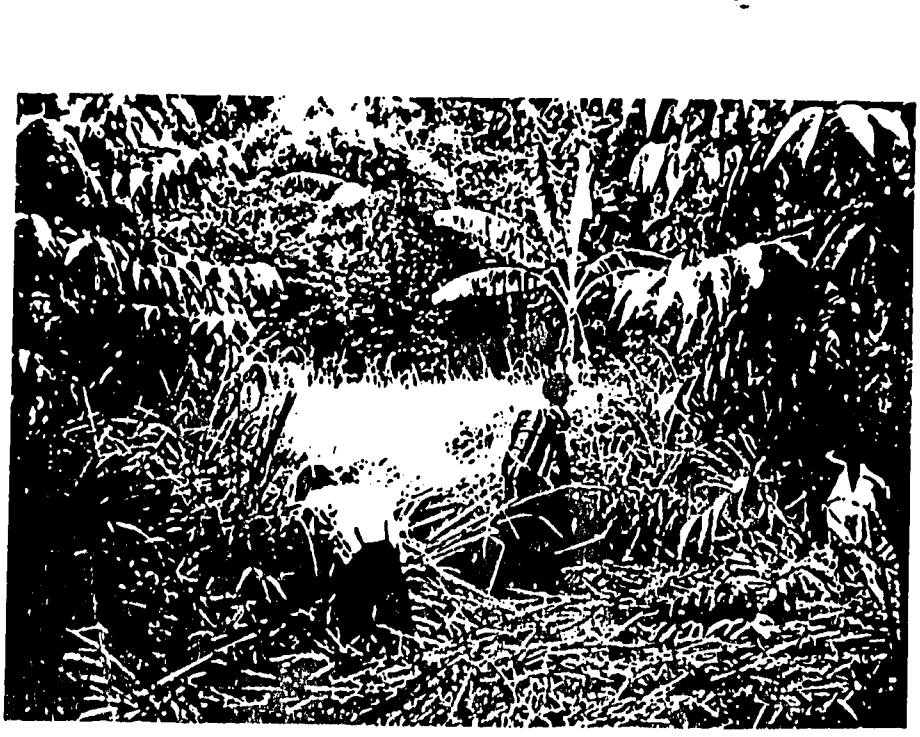
5/84

Meeting at Lagaha village for coffee growers project, Madang
Tom Jumurii, SPATF BDO &
Dere Mogaru, DPI

5/84

Madang-Lae road FSP
Suzuki Jeep

5/84



YWCA Women Clearing Garden

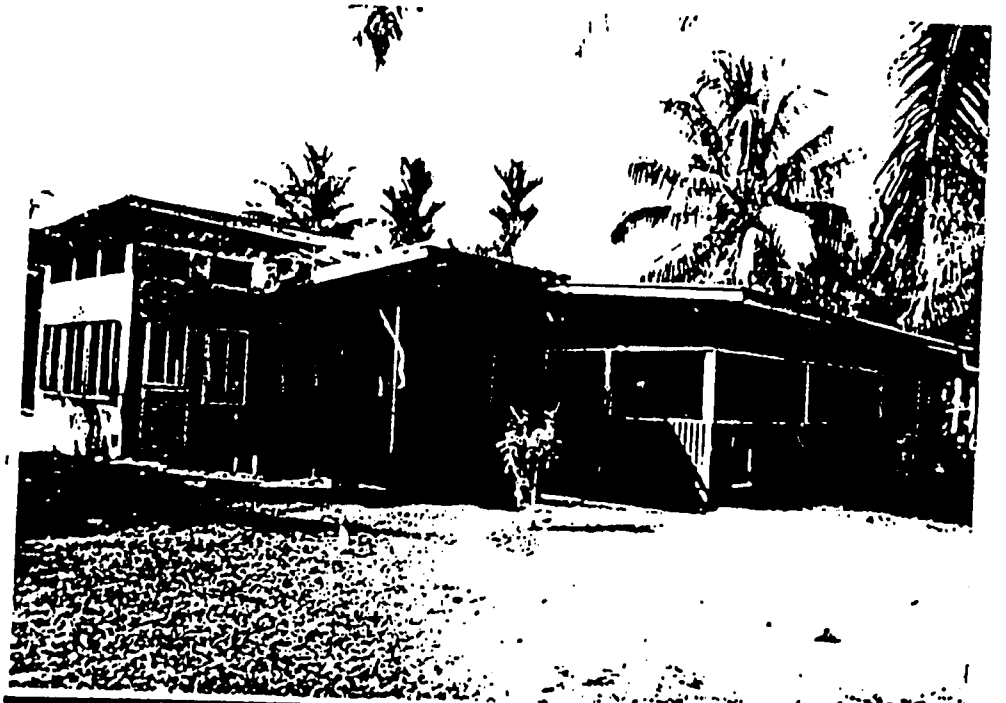
Situm Banana Chips

Vine Bridge replacing bridge washed out Lae-Situm during floods 11/83

1/84

Mr. Banana Sip Factory
Situm Village

5/84



Mr. Banana Sip Factory
Situm Village

5/84

PAPUA NEW GUINEA OPG

USAID - GRANT ASIA G-492-1726

EXPENDITURES AS OF JUNE 30, 1984

PERIOD: 09/01/80 - 08/31/84

	USAID EXPENDITURES TO DATE *	CURRENT FSP LOCAL CONTRIBUTIONS	TOTAL
PERSONNEL	301,063.29	161,210.00	462,273.29
TRAINING	110,400.89	5,558.00	115,958.89
TRAVEL	61,976.15	14,465.00	76,441.15
EQUIPMENT	8,324.38	15,676.00	24,000.38
SPACE	37,209.34	19,034.00	56,243.34
OTHER	207,445.89	71,341.00	278,786.89
INDIRECT	166,027.43	---	166,027.42
TOTAL EXPENDITURES	892,447.37	287,284.00	1,179,731.37

*SUBJECT TO AUDIT