GLOBAL HEALTH ACCELERATION REPORT
SUDTONGGAN HUMAN DEVELOPMENT PROJECT
MAY 1977

This is the report of the team of health professionals assigned for the past month to work with the staff and citizens of the Sudtonggan Human Development Project. The intent of this acceleration team, all of whom are fully trained in both the Social Methods of the ICA and in their particular professional arena, is to provide expertise in the arena of community delivery of preventive health care. The ICA or Institute for Cultural Affairs, is the coordinating agency for the Sudtonggan Project. It is a non-profit voluntary agencyoperating globally with interest in the human factor in human and community development.

The expertise of the team is delivered through four areas of action. They are as follows:

Coordination of Sudtonggan Human Development Project Health program with the services of those larger health service institutions available in the Sudtonggan area.

Strengthening the health services infrastructure of Sudtonggan Human Development Project, primarily through advancing the organization and effectiveness of the Community Health Caretakers in the village.

Direct training of the Project staff, the Community Health Caretakers and the Community at large through appropriate training even s such as classes and health fairs.

Building whatever demonstration building is required to advance the overall health status of the community - and by engaging in the physical labor to demonstrate visibly the concern of the team for the health of the entire project.

The report of our program in Sudtonggan follows.

Coordination of local program with available services

During the three weeks many contacts were made with individuals in government and private agencies which enabled the Teams understanding of local conditions and enabled the tasks of the Project, Most obvious was the extensive support recieved for the Health Fair in Sudtonggan. Here is a list of these agencies and their displays.

Opon Emergency Hospital Staff - provided medicalconsultation and free circumcision during the fair day.

Velez-Cebu Institute of Medicine - provided demonstration of microbes and parasites.

SouthWestern School of Dentristy - provided dental care instruction

Miller Sanitorium - provided excellent teaching demonstration on malnutrition and a display of nutritional foods.

Nutrition Rehabilitation of Southern Islands Hospital - provided nutritional information and excellent visual aids.

The School ofNursing of Southern Islands Hospital - provided a isplay and teaching on fetal growth, a subject of great interest to the mothers of Sudtonggan.

Lapu Lapu City Dept of Health initiated T.B. screening and gave cholera immunizations as well as providing teaching materials on responsible parenthood.

Although these organizations are listed in reltionship to their Health Fair displays, allof them also provided consultation and encou agement in the overall design ofthelogal program.

In addition, the Department ofPublic Highways Region VII, responding to a request by Mayor Patalinjug and Dr. Berdin, enabled theinitiation of sanitary toilet system by providing the air compressor and j ck hammer needed to dig thepit n eded for the septic tank. ISECOR, an engineering firm, has designed and is building the windmil needed to provide water to make the toilet system a water sealed system.

The Regional Health Office has assured that T.B. screening of Sudtonggan will be carried ou in full. Dr Fernandez of Cebu Institute of Medicine renewed his contract to provide medical coverage of the Sudtonggan Health Clinic through the services of his physicians in training program. He has indicated to distribute the Treatment by Symptom Manual being created by theCebu Institute so it may be used by the Health Caretakers ofSudtonggan.

An invitation was extended by the Rural Missionaries of the Philippines for one of the ICA staff to attend a confrence for supervisiors of h alth workers to be held in August of t is year. And finally, the Cebu Shipyard and Engineering Works responded readily to support the Health Program with every possible assistanc .

The Health Team was most impressed by the willingness of all thee organizations and people to participate in the Sudtonggan Project. The high level of public spirit surely reflects an authentic decision by thePhilippines to work toward improved health of all its people.

Strengthing the Health Infrastructure

During the three week program of Health Acceleration in the Sudtonggan Human Development Project, twelve of theprojects fourteen programs were accelerated to some degree. The following components to the Infrastructure were created.

1. Clinic number system for village clinic records.
2. Holding charts for data obtained through prenatal care, monthly visiting, monthly weighing of children under five, weekly feeding program.
3. Guidelines for comparision of and full u elization of dat
4. large wall chart for monthly statistics in 12 categories.
5. Wall displays of Health Worker responsibilities, normal height for age and five good groups for placement in the new Sudtonggan Clinic.
6. Monthly schedule for family visiting and weighing in each purok.
7. T.B. screening arrangements with the Regional Health Office.
8. Extended referral and participation possibilities to outside agencies.
9. Four month Mother-Infant Curriculum including nutrition, child development, human sexuality, and home and environmental sanitation.
10. Medical Bags provided for each Health Caretaker
11. Coordination meetings between Early Learning Center Staff and theHealth Caretakers.
12. Guidelines for increasing infnat feeding program
13. Self-support recommendations for Health Caretakers
14. Product and Market Promotion of nutritional snacks and milk buying list of the Sari Sari stores.
15. Proposals from theHealth Town Meeting were assigned to all guilds.
16. Recommendations for community and family planting to move the village toward calorie self sufficiency in the near future.

TRAINING OF PROJECT STAFF AND COMMUNITY WORKERS.

The training aspect of the program focused during the week on the health caretakers, and during the weekend on thecommunity at large. The Health Caretakers Curriculum broadened the base of understanding of basic principals of health care, prevention, sanitation and community infrastructure. The focus was preparing health caretakers as teachers in the community.

Lead rship training was enabled throu h the training of local workshop leaders for the Community Forum. The Community Forum and Health Fair, both with a focus on health, allowed the community to exp rience the brod scope of health throughout every aspect of the project. Each guild display created further articulation of their participation in the health of the village.

Morning lectures to the project staff increased their understnding of nutrition and communicable disease. Advice for isolation and cleaning procedu es of the infant school should result in decreae of cross contamination. Mass visitation during the initial weekd in the community set the context for the Health team throughout the community.

Purok V recieved training in concrete slab construction and septic tank planning. Finally, the Health Workers were left with a basc resource library for future lesson planning in the Mother-Infant Curriculum.

Building a demonstration Building

The building selected for demonstration was a sanitary septic tank toilet. This involved creating theplans such that it would be within the financial capability of the village, and organizing the mterials and use of a jack hammer to dig t e pit.

Acceptance of this structure by the community at large will result in its replication throughout the community.

18 May 1977

Socio-Economics of Health in Sudtonggan

Sudtonggan is a community of 800 people. It is a village which currently produces more children than it can feed, but we can assume that it was not always this way. Before the advent of a major trading system, people of this island must have been essentially self-sufficient in food. We can imagine a time when the people ate primarily what was offered by the jungle growth - bananas, coconut, casava, fish and various fruits in season. The population remained stable within the bounds set by the food supply - and most societies had developed ways to keep their numbers within these bounds without real starvation enforcing the limit. Traditions such as infantacide, head hunting, prohibitions on reproduction, probably have more to do with honoring population limits than anything else.

Then, somethinghappened to allow increase in numbers. Agriculture may have arrived as recently as the Spanish conquest 400 years ago. Maize was introduced as a crop which would produce concentrated calories with cultivation. In the fertile soil, good crops could be obtained and the population was allowed to exceed previous limits. But corn is notroious for depletion of good soil. Soon the food production began to deteriorate. Confronted with dwindling food availability and a situation in which it was no longer possible to put limits on population growth - at least not by the old means, the village has tried several strategies to feed itself.

Copra production was probably an initial solution. Compared to the price of food, copra is no longer enough. Today there is a maize of fish ponds and dykes that have been created over the last 50 years. These represent a second attempt at solution. But today the ponds don't grow fish as they did and the evidence of most malnutrition among the fishermen's children suggests that this solution will prove to be partial. Within the life of the current generation, rope spinning was initiated as a third attempt at solution to the problem. Mr. Amistoso invented the equipment for semi-mechanization of the process. But once again the village is caught in the crunch of rising food costs and decreasing price paid for the service being provided in exchange for food. The culture long ago lost its population limitation schemes, and is probably about 10 years from effectively taking up new forms of population limitation. It is a classic deteriorating situation.

Just how bad is the situation now? If you take all the malnourished kids in the Philippines and arrange them inorder with the bottom end of the scale those who will soon die and the top end of the scale those who are nearly normally nourished you can then divide these kids into 10 groups. Ten percent of Sudtonggan's children under 2 fall in the bottom 20 percent of malnourished kids. These kids do not come near to reaching potential size, strength and intellectual activity./ minor illness would prove fatal to them. 45% of the children under 2 would be on the chart between the bottom 20 % and 60% - that is, they are in worse nutritional shape than 40 % of the malnourished Philippine kids. These same figures would apply to children up to 5 years if the ELC were not providing three meals a day to that age group.

In addition to calorie malnutrition, there are other deitary deficiency diseases such as Pellagra and night blindness. These problems represent without question the highest health priority in Sudtonggan.

Several levels of response are appropriate. The first level is emergency feeding such as is already being done in the Early Learning Center for children 2 to 5. Use of U.S. commodity foods in such a program is appropriate when an overall plan exists to provide eventual independence of such outside sources. This program may be supplimented with inexpensive foods purchased through charit events or a poor tax., or by foods raised corporately for that purpose. The existing program of infant feedings in the Purok's is badly in need of expansion. It is appropriate to collect firewood as a 'fee' for such a program, but it must be kept in mind that cash payments are unnecessarily obstructive to participation by people who most need the service.

The second level of response is to plan an economic structure for the village which will result inlong-term self sufficiency for the village and allow sufficient income accumulation so that other health service might be provided by the local economy.

The village is currently raising a little food and trying to earn cash to buy the rest. Using our rule-of-thumb of 3,000 cal per day per person, we must be talking about 24,000,00@ calories each day just to feed people enough calories. Corn grits are about 1.70P a kilo, providing 3650 cal per kilo, so would cost 1117 ₱ a day. If we are serious about cash income for the village, we must come up with the industriy and services which will provide this magnitude of cash flow. And it must provide this much cash 365 days of the year. Such an industrialized society would be production oriented, and have with it all of the socially upsetting aspects typical of a production oriented society - i.e. lack of productive role for phase I and IV, uneven distribution of wealth, etc. Most importantly, a production oriented society requires considerable managerial skills not now known to be available in Sudtonggan. We might well end up with outside manager-owners benefiting most from the economic system.

If we turn instead to intensive farming and attempt to rais all or most of the caloric needs, we must deal with a quite different situation. The caloric requirements per day don't change. But the task is formidable. The ground is terribly bad, both rocky and depleted from many years of corn planting. There is not much land. It would have to be faithfully fertilized and crop rotation practiced to restore fertility. The people of Sudtonggan are not familiar with these practices and are not used to the all year labor they require. Yet the labor is not so much different from what people have done in the past. An agricultural economy finds a place or role for everyone. The Philippines as a whole is in trouble with its balance of payments due to need to import food, so if you could achieve food sufficiency here in Cebu you would be a real sign and achieve considerable attention throughout the Islands. To put the demand into perspective, we are talking about raising the equivalent of 657 kilos of rice or corn ~~xxxxx~~ meal a day, or 369 kilos of peanuts a day or even 26,666 bananas a day.

Let me explore the technical feasibility of such a venture given the 90 acres (aprox 40 hectares) of airable land available in Sudtonggan.

All figures represent as good output as can be anticipated from rocky acerage which has been well fertilized and intensively cultivated.

1.5 hectare good rice land, irrigated, fertilized, farmed by Japanese intensive methods for 4 crops a year in continuous rotational production.
rice, 56,800 kilograms* x 3650 cal/kilo — 207,320,000 cal/year

10 hectare marginal land planted with intercropped corn (maize) and sweet potato (camote) two crops a year with peanuts rotating a third crop a year for both soil improvement and calorie production.
corn, 40 cavan/hectare x 50 kilo/cavan x 2 harvests/year x 3630 cal/kilo x 10 hectare — 1,089,000000 cal/year
sweet potatoes 10 hectare x 10 ton/hectare x 100 kilo/tone x2 harvests/year x 1260 cal/kilo — 25,200,000cal/year
peanuts 10 hectare x 30 bushels/acre x 30 kilo / bushel x 1 harvest/year x 5670 cal/kilo — 5,203,000 cal/year

20 hectare rocky land , computed at 1/2 normal yield casava and legume pasture intercropped
casava , 20 hectare x 10 tons/hectare x 100 kilo/ton x 1 crop a year x1&10cal/kilo — 18,200,000 cal/year
legume pasturage would be cropped by goats and improve casava production by nitrogen fixation.

3 - 6 hectare rocky land in epil-epil trees providing foddor for goat herd. Anticipate 30 she-goats producing 2 quarts milk/day plus a kid a year
30 goatsx 2 quarts/day x 380 cal/quart x 300 days/year — 228,000 cal/year

2 miles banana"trees" lining both sides of the road with a clump every fifteen feet (clump = 3 stalks)
banana, 10560 divided by 15 feet x 2 sets / clump/year x 15 kilograms edible/clump x 900 cal/kilo — 19,008,000 cal/year

calories produced per year: ** — 1364,159,000 cal/year

calories needed by Sudtonggan — 876,000,000

* production figure from existing rice farm using methods elsewhere in Philippines

** figures do not account for calories produced by coconut or breadfruit in existence

This balance sheet suggests that it is theroetically possible to raise sufficient food to feed all of Sudtonggan by utelizing available land resources.

To achieve such a goal would not only provide a way to feed all of Sudtonggan's children well, but by holding money in Sudtonggan which is now being spent outside of Sudtonggan to buy food, the impact of the other industry program on the economy of Sudtonggan will be magnified.

The farming style we are talking about is one in which a family engages in hard labor more or less continuously ten hours a day. Caring for the soil requires hauling manure from the goat pens. Milking goats takes a twice a day discipline that is not typical of Philippine agricultural methods. Intensive crop production of any kind requires intelligent application of seeds and fertilizer, as well as good crop harvest techniques. All of this represents a sizeable committment be made by the project and the people of the farming families in Sudtonggan. Ironically, such day-long- working style is a possibility only for those people who already enjoy good nutrition. It may be necessary to consider supplemental food as well and supplimental agricultural training as part of the necessary initial expense of such a method.

The economics of health includes also the cost of procuring health care services. We must look beyond the issue of feedin people to other issues such as paying for t e services of the healt caretakers and funding occasional illn ss costs. The health caretakers currently working in Sudtonggan are an excellnt group. They are a good example of utelization of local resources to effectively deal with health. The overall plan for the program must be carefully considered so that the honorarium for these workers do not end up being destructive to the long-tern build up of economic effectiveity in Sudtonggan. I do not beliebe the the current economy in Sudtonggan will allow either a fee-for-service sufficient to really pay for the health workers, or a community tax arrangement to pay for the workers. The health workers are not required to work full time at their service role. They might easily spend three quarters time employed in any village industy. One possibility is to organize them into a foods processing operation which would prepare locdly grown foods into attractive forms which could be sold through the sari sari stores. Through such a system, money would not only be held in Sudtonggan, but there would be the added advantage of providing foods of good nutritional quality to the children who frequent the sari sari stores for snacks. Such a plan would enalbe the workers to maintain their identity as a team.

The cost of physician care is currently subsidized by the training hospitals providing training for their interns at Sudtonggan. It seems wise to caution against too early attempts to develop insurance programs to help those few who have large medical costs. These programs always require more money than projected and easily impede the economic progress of the whole population out of proportion to the assistance rendered to those who are ill. Several of our programs have experimented with a standard fee for medication. By charging the same price for aspirin or antibiotics, a form of self-funding mini-insurance can be established. Especially early in the project life, it must be possible for people to pay this fee through labor in the health program. The cost of medicine might be paid by preparing food for infant feeding in one of the Parok's daily for a week, for instance. This would lighten the work load of the health caretakers at the time when yours are trying to give them duties associated with self-support, hence might prove very desirable.

Having mentioned the value of selling locally produced foods in the Sari Sari stores, I would ~~R~~ like to underscore that point. Health is clearly related to standard of living, and standard of living is clearly related to accumulation of capital in Sudtonggan so t at local people will have enough in their budget tp partidpate in economic support of local industry and agriculture. The largest issue here is food purchases, and that issue has already been addressed. Luxury consumer goods are capable of siphoning off remarkably large sums from the local economy. Assuming a bottled drink distributor were to regulary serve Sudtonggan as the level of prosperity rose. If each of the six stores sold only a case of bottled drink a day, that would be 144 bottles in a population of 800 people. This doesn't seem an extravagant possibility. The bottles retail for 60 centavos, and the store pays 45 centavos to the distributor in Cebu for every bottle. Selling a case a day for 360 days a year results in 23,328 ₱ a year leaving Sudtonggan. This would completely erase any economic gains made through such work as the Bur~~g~~ craft industry. From the point of view of economics in Sudton gan, it would be far healthi r to be selling locally produced Tuba than Coke produced in Cebu. This illustration must be repeated for beer, cookies, breads and vegetables if one is to fully understand the importance of controlling the pattern of retailing. It is a little like trying to pump the tank full when several taps have been left open.

Thus it is clear that health inSudtonggan is not the responsibility of the Community Services guild alongh New farming practices and attitudes about nutrition must be inculcated through the community education guild. The increased farming itself must be done by the agricultural guild as they work towards very specific production goals. Finally the Communit Commerce Guild becomes critical in creating and holding the wealth of Sudtonggan for use by the people of Sudtonggan.

Global Health Acceleration Team Recommendations to Sudtonggan HDP

Nutrition, the first priority

1. The 876 million calorie food production plan be instituted as a community wide project - thus making Sudtonggan self-sufficient in essential food.
2. Backyard gardens be continued with focus on individual families supply of fruits and vegetables
3. The current infant feeding program (tweice a week) and the demonstration cooking program (once a week) be combined and extended to a seven time a week feeding program for all children too young to be enrolled in ELC program. This feeding program would be in the format of mother-infant classes.
4. Regular meeting be instituted for a combined team of health workers andELC teacher to evaluate health status of children in the ELC age group - and institue steps necessary to upgrade overall health and nutrition of this group.
5. Food sources for the infant feeding and the ELC feeding be expanded toinclude food funded through dev lopment, and or food purchased by community funds or grown in community gardens - but not be limited by availability of food from CARE.

Clinic and Health Care System - the secondpriority

6. Efforts be made to improve liason with the District Health Service (Lapu Lapu health dept) through eliciting monthly visit from the public health nurse tokeep hea acquained with our system, and sending statistical reports to the district health office on amonthly basis.
7. A printed calandar of specialty clinics be created showing which special services are available on which days - and then be delivered to the various pole in institutions responsible for delivering that care as well as to the community people.
8. One Health Caretaker be designated to coordinate the various services and record systems of the clinic - and others be designated as responsible for specific purok coverage.
9. Purok sanitary services be pursued - including purok windmill, toil ts, shower and clothes washing facilities.
10. Self support for the Health Caretakers be created through some system such as fee for service at clinic, standard fee for medication, and creation of a snack food preparation business selling nutrition Sudtonggan grown andprepared foods to the Sari Sari stores

May, 1977

INTER TREK REPORT HEALTH AND NUTRITION SUDTONGGAN MAY 1977

General Context and Current Situation

The village of Sudtonggan, now completing its first year of the Human Development Project finds itself well along in most of the programs outlined in the consult document. Evidence of this can be seen as one approaches the village from Lapu Lapu City, attractive signs clearly mark the road to Sudtonggan. At the village boundary a large sign announces "Sudtonggan Human Development Project" and white painted stones begin to line both sides of the road. Friendly faces appear and one of our team reports that it is here that he stops being addressed "Hey Joe" and hears his name prefaced with a real greeting.

A recently completed primary school lies within the limits of the village. It was built preferentially by school authorities on land donated by a village family. There is also an Early Learning Center which presently enrolls 170 pupils. The children appear bright eyed and alert as they line up for the opening flg ceremony in their village made green plaid school uniforms. Those who have been with the project since the May 1976 consult observe that the hildren appear healthier and are more animated now, probably due to the two substantial snacks and lunch provided for each child everyday. One would have to acknowledge also the role played by the continuously in training teachers and the curriculum.

Each day the buri and craft shops are filled with young men and women creating products for sale outside the community. A recent visit from an exporter plus successful market contacts promises a wider market and additional sales and income. Many homes display hand operated rope makin wheels which were inven ed by a local man and serve as the basis for the key village industry. Rope making, however, can not of itself provide enough income to support a family. Additional money must be made elsewhere, eith r by several family mem ers workin as pedi-cab drivers, shipyard workers, and carpenters or through the family producing considerable food on their land.

Such basic services as electricity, runnin water and sanitary waste disposal have yet to come to the village. A large generator capable of producing enough electricity to providelight for each village home and street is nearly ready to operate as soon as wires and poles can b obtained. A gift from the private sector, the generator stands as a promise ofthings to come. In the meantime, ligh comes f om candles and kerosene lamps. Hand-dug concrete wells, recently cleaned, provide water for drinking and washing as well as waterin the gardens. Most wells, of which there are several in each Purok, have a concrete apron that extends only far enough to keep thevell site from being muddy. Many wells have covers, bu they are seldom used. There ia on y one toilet in the village other than the one at the staff house. Village people go to the toilet "on the rocks". It is not surprising that chronic infestation of intestinal parasites persists.

Report to Social Development Trek

The community is heavily Roman Catholic in religious orientation and the teaching of the Spanish tradition of the Roman Church permeates much of village life. Religious feast days and special masses and observance of weddings, baptisms, and funerals all provide a backdrop for village activity. There are three chapel committees in the community, each with its own devotional chapel. The local priest must serve many villages and is able to say mass once a month in Sudtonggan. The priest is impressed with the project progress and is willing to support it when asked to do so.

Families tend to be large, 5-8 persons in size. Family planning represents a recently introduced technology and has not yet changed family life. The Health Trek initiated a change of vocabulary to call such activity child spacing in an attempt to put emphasis on the value of protecting the child you now have by spacing out before another child is born to share the milk and energy of the mother. The response to child care through the preschool reveals varous attitudes. Some mothers use the freedom that preschool represents for them to be engaged in teaching or the craft guild. Other mothers are consumed with caring for other infants or are not yet ready to be separated from their pre-school children. There has been growing acceptance of the preschool each quarter since it began.

The Consult Document judged literacy to be 15% in the village. In the year that has followed the consult, Adult Education classes have been held on a regular basis. The Education Guild has established a goal of 100% literacy. As a symbolic step toward that goal persons are now signing their name to a "literacy scroll" containing a pledge to work for literacy in the village. As of May 15 Health Fair, 101 persons had signed.

The village is organized into 5 Puroks, the equavalent of stakes. Each purok is divided into teams. The puroks meet biweekly in the puroks, with the purok leaders (and team leaders) meeting on the alternating week at the community center. Puroks have been concerned with meeting food needs through the creation of purok gardens to which every family contributes labor. Theproduce from these goes to the Early Learning Center lunch program. They have also served as a teaching tool. Persons have learned to plant new foods and have now used their knowledge to plant and care for their backyard gardens.

Puroks serve the function of recruiting people for various activities such as workdays. They also recruit for theEarly Learning Center and Adult Education Classes. Perhaps the largest area of purok care is health. The village health workers, of which there arepresently 8 (2 are young assistants, one is a midwife) are responsible for the health of the people in their purok. They conduct a monthly baby weighing programand refer any babies that are not gaining weight to the infant feeding program. They alsocheck on infant immunization.

The purok health workers have begun monthly visits to each family in their purok. They check on people who are chronically ill to see how they are doing, and be sure they are taking their medicine and making use of follow-up services. They keep records of all pregnant women and encourage them to attend the prenatal clinic, supplying supplementary food and vitamins when necessary.

rept to Social Development Trek - cont

They keep records of births and deaths. In the infant feeding program they give mothers instruction regarding nutrition, child development and good health practices. In short, the purok health workers serve as the basis for purok care.

In our estimate, the stakes and guilds of Sudtonggan are functioning well. It is not an immediate priority to prove the services of the social development acceleration team.

Report to Agriculture Trek

principle crops - maize, casava, bananas, coconut, camotes

principle animals - goats, chickens, dogs - all of which are occasionally eaten for meat. Goats are not milked.

rainfall - dry period March, April, May when there is virtually no rain at all
rainy period - rainfall well distributed rest of year

soil - very rocky with rock formations caused by coral build up long ago. Most areas have much exposed rock with soil in spaces between. Soil is depleted by many years of corn and casava agriculture. Methods of soil preservation are unkown locally.

During our stay in Sudtonggan, our first priority was in the area of adequate nutrition. It was decided to attempt to produce all the necessary foods in Sudtonggan. This 876 million calorie plan will require considerable input from theagriculture acceleration tam.
plan of land use
1.5 hectare in intensive Japanese style rice culture,irrigated
10 hectare planted two crops a year corn and camotes, a third crop a year in peanuts. - marginal land
20 hectare planted in one crop a year casava in the niches between the rock with a legume to improve soil and provide fodder for livestock
3 hectare Hawaiian giant epil epil trees for fodder for livestock
2 miles of banana plants along the roadway
an additional 2 hectare of truck gardening for the cash market and backyard gardens for fruits and vegetables for home consumption.
a herd of 30 milking goats is envisioned
fishponds are not scheduled in calorie production, but are counted on for sales of fish to produce income.

The experimental phase of agriculture in Sudtonggan has had tremendous sucess. There is no question that with adequate fertilizer applied, virtually any variety of vegetable will grow well. The rabit raising project is a proven success with third generation rabbits cu rently expected and production schedules on a regular bsis. Ducks are surviving - but not yet reproducing. Two hybrid male goats of a good milking variety arrived during our stay and 30 females are being sought. While there, we created an elementary hydroponics system based on water culture in which a locally made hemp mat floated on the su face of water held in a hole in the grnd. The very slow drainage of the soil makes this feasible, but not prven.

rept to Agriculture cont

From thepoint of view of nutrition, animal production is not as critical of an issue as calorie production. However, production of animals and fish to produce increased village income is valid so lng as these animalsare fed in such a way that they are not in competfion with humans for the grain food supply. The goat herd is well plamd. A decision must still be made as to whether goats will be cared for centrally or dispersed a few to each home. The collection of manure for use on fields is an issue that must be kept in mind when these decisions are made. A piggery is envisioned with a central breeding operation and pig raising pens located in each of the five puroks (stakes).

Fish ponds can be expanded infinitely as they are already created and require only a program of fertilization and stocking to begin producing fish. A UN consultant has provided specific guidelines for this.

The project has done an exceptionally fine job of collecting phamplts and written advice about the crops they intend to raise. There is a detailed soil survey available done before the consultand giving considerable specifics as to both agricultural qualities of the soil and rainfall history. This was done by Pillipine Dept of Agriculture Bureau of soils. It rates the soils of the area as marginally suitable for corn, upland rice, fruit trees and leafy vegetables.

I anticipate that theproject will make a major effort to get crops in the ground using new seed and whatever fertilizer is available. Presuming normal planting season, (late may), a good time for the agriculture acceleration trek to arrive would be two months later when the quality of the crops could be assessed and advice given as to what might be done to improve the next planting which is done in August. Practical plans for piggery layy out and goat management might then also be timely. It is important that any consultant be clearthat the context is to develop whatever can be produced in this location rather than bemoaning the inadequacies of the soil situation. Finally, intensive rice culture is anticipated for use on the best soil available. This will involve irrigation. Someone with real experience in this system would be very helpful. The economics of the situation willnot permit chemical fertilizers, so a knowledge of organic methods would be helpful.

An additional area of expertize is needed in preserving andpreparing foods for consumption in the local Sari Sari store system. Foods such as salted sunflower seed, cassava and rice bran donuts, as well as a bread, roll, cookieline and a beverage to compete with cola drinks are all needed to provide locally grown, locally produced goods to sell in the Sari Sari stores in a strategy which will keep Sudtonggan income in the village. If this business could be expanded to produce sales outside the village, further income might be produced from agriculture.

Report to Economic Acceleration Team

CHAT arrived in Sudtonggan several months after Rod Wilson et al arrived as the Employment and Industry Task force. Hencesour inter-trek report is primarily a report on the several projects which they had initiated and which are now coming to fruition.

Buri Industry 32 persons are on 4 teams under direction of Ben Pitet, a local man. With constant sales and materials supplied by a Cebu firm, there is constant activity with possibility of earning 9 - 12 P a day. Families with a son working in Buri factory experience significant increase in income.

During our stay, an exporter arrived to inspect handicrafts and became interested in Buri also. Ben believes that he can secure alternate source of materials and the prospect of rapidly increasing sales necessitatin expansion of production is real.

Handicrafts about 10 young women are employed in the handicrafts working in macrame and basket weaving. Sales have been sporadic. Quality of goods is excellent. The above mentioned exporter purchased 97P worth of samples for her customers. Marketing in in Cebu is imminent with several serious requests for our bid on major exporter job lots - on as large as a containerized cargo full container full of baskets. Such an order wold require increasing work from 10 to more like 40 persons.

Stone Cutting still hampered by lack of mechanical stone slicer to get thin stone of type used to face buildings. Part of our work involved use of jackhammer to excavate a pit for a toilet. This provided opportunity to experience u e of j ckhammer as tool for rock extraction. The results suggested that this will not work wll.

Fishing Industry The fishing boat is built and proven sea worthy. Seven hundred meters of gill net is secu ed, attached to sinkers and floats and has been tried twice. On first occasion it caught a shark which ripped the net. On second occasion no fis were located. The fishermen are cu rently out on the sea on a 10 day trip with a experienced fish finder. Success of t is ventu e will make a significant impact on poverty in the village as the fishermen's section of town is the poorest and location of most starvation.

Sudtonggan Products - a retail outlet has been established along a main road in Lapu Lapu. It carri s the full line (cu rently 26) of Sudtonggan products and is a great symbol of village economic promis.

Sari Sari Stores - While we were in the village, we encouraged a line of food produ ts of good nutritional quality which could be grown, prepared and sold in Sudtonggan. Packaging skills are especially needed. Majuro's recipe for coconut chips, Casava chips would be helpful. Banana Chips and casava donuts are current best options.

report to Jobs and Industry cont.

Rope continu s to be the primary source of income for the village and increasing handicraft sales will result in increased sale of rope at a good price. Direct marketin of Rope has stillnot occured.

Market conditions h re seem to indicate that sales of baskets and Burl are very good. Camp red to the 2 P a day earned by rope spinners, a significant improvement of income occurs when people are employed making baskets. The Economic Acceleration task currently most needed is to assist with direct sales of such products in the U.S. and Europe. The experience here is that given a sample, the handicraft guild can produce goods to order.

The Health andNutrition Acceleration team was primarily concerned with income as a limiting factor on food purchases. There is still starvation in Sudtonggan - although much less than was the case 1 year ago. It tends now to appear in isolated families or sections of the village. Increased income will allow purchase of h alth care, medicines, etc. The goal of one fully employ d person in everyhousehold must be set and continually sought.

A SEPTIC TANK TOILET FOR 8 FAMILIES

The conditions requiring Septic Tanks:

Inlocations with rocky subsurface it is unsafe to build privy type toilets with simple leaching pitsin the earth. The rocky crevaces are likely to allow direct flow from thepit into the sub-surface water table. In t is situation, it is necessary to build a water tight tank under the toilet system. This tank may be simply a holding tank - in which case it must be pumped out about every 6 months, or however often it gets full. It is more desiragble in most cases to build a fluid outflow from the tank which allows fluids to be drained safely away and permits the tank to be used for 5 or 6 years between cleaning. This rather sophistocated arrangement is known as a septic tank toilet.

The Sewage Treatment

When inuse, the septic tank is filled nearly to the top with fluid. Feces enter through a pipe ar anged so that the pipe outlet is below the water level. This arrangement allows feces to slide below thes surface pf tje water. bit ffoes amd ver,om cammpt áass omtp tje water seal, and oders and gases cannot escape out through thewater seal.

Once in the water tank, the feces will start to deteriorate and the particulate matter will drop to thebottomof the tank and create a sludge deposit. The amount of sludge is surprising small compred to the feces deposited in the tank - about 80% of fresh feces is moisture and it "disappers" into the water of the tank.

There is very littleoxygen in this system, so biological d composition is carried on b anaerobic bacteria. Enough heat is produced to kill most of those types of bacteria which require human-body temperatu es to remain active. The eggs andlarvae of intestinal parasites die within the first 3 months for they are unable to find a new host. This initial decomposition and partial destruction of bacteria and parasites is called primary sewage treatment.

The Effluent from the tank

At one end of the tank, a 90° elbow pipe is placed so that one end will be below water surface in the tank, the other end runs thm through the tank wall and allows effluent to drain fromthe tank. This pipe outflow is about 6 inches from the top of the tank and thus maintains a constant fluid level within the tank. Thus as fresh feces is added, an equal amount of effluent will be displaced.

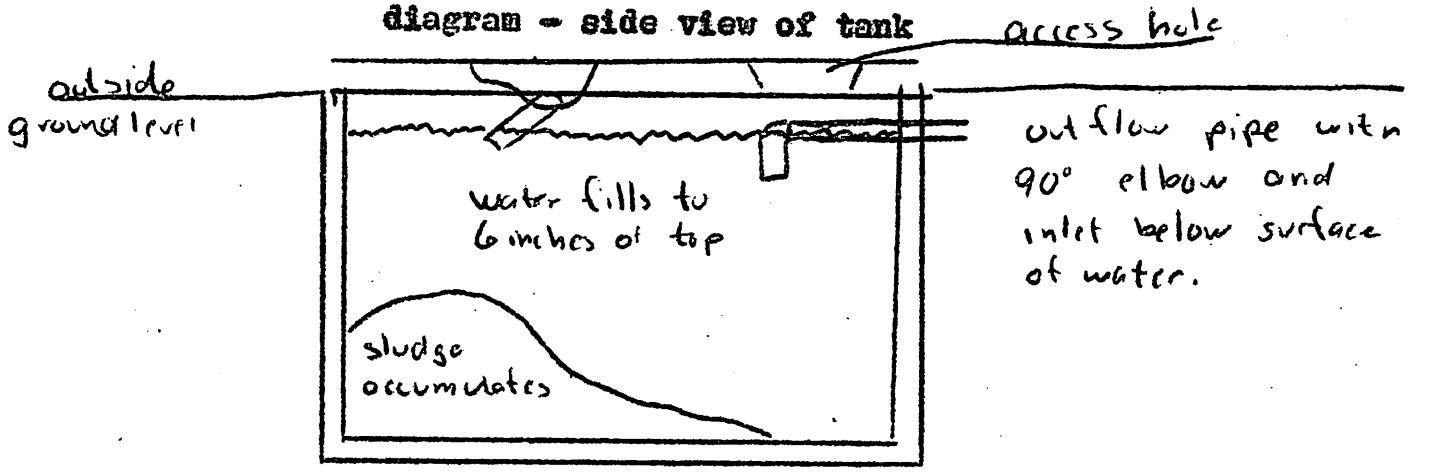
This effluent is 80% treated and rarely carries bacteria which m might be harmful to humans. However, caution requires that it be released just under ground level (3 to 6 inches below land surface) where the soil bacteria will complete the decomposition. This step is called secondary treatment and beause it utelizes the oxygen, is an aerobic decomposition.

In order to prevent a mud hole from defeloping at the outlet, the outlet pipe mu t run for 6 - 20 feet (depending upon the agsorptive capacity of the soil) and have small perforations along the entire length, or simply be laid so t at there are spaces between pipe sections. A bed of gravel around the pipe prevents clogging by soil getting into the pipe.

The Tank Design

The capacity of the tank needs to provide 25 cubic feet per family of 5. Thus, for a tank which is to serve 8 families, 200 cubic feet is required - and t is must be actual inside dimensions of the takn. The tank may be build in a hole dug out for it, or it may be built entirely above ground. The toilet may be constructed immediately over the tank, or built to one side with sewage line sloping into the tank. The main requiremtn: for the tank is that it be leak proof - which usually means it should be plastered with good quality cement on the inside surface.

diagram - side view of tank



Toilet booth facilities.

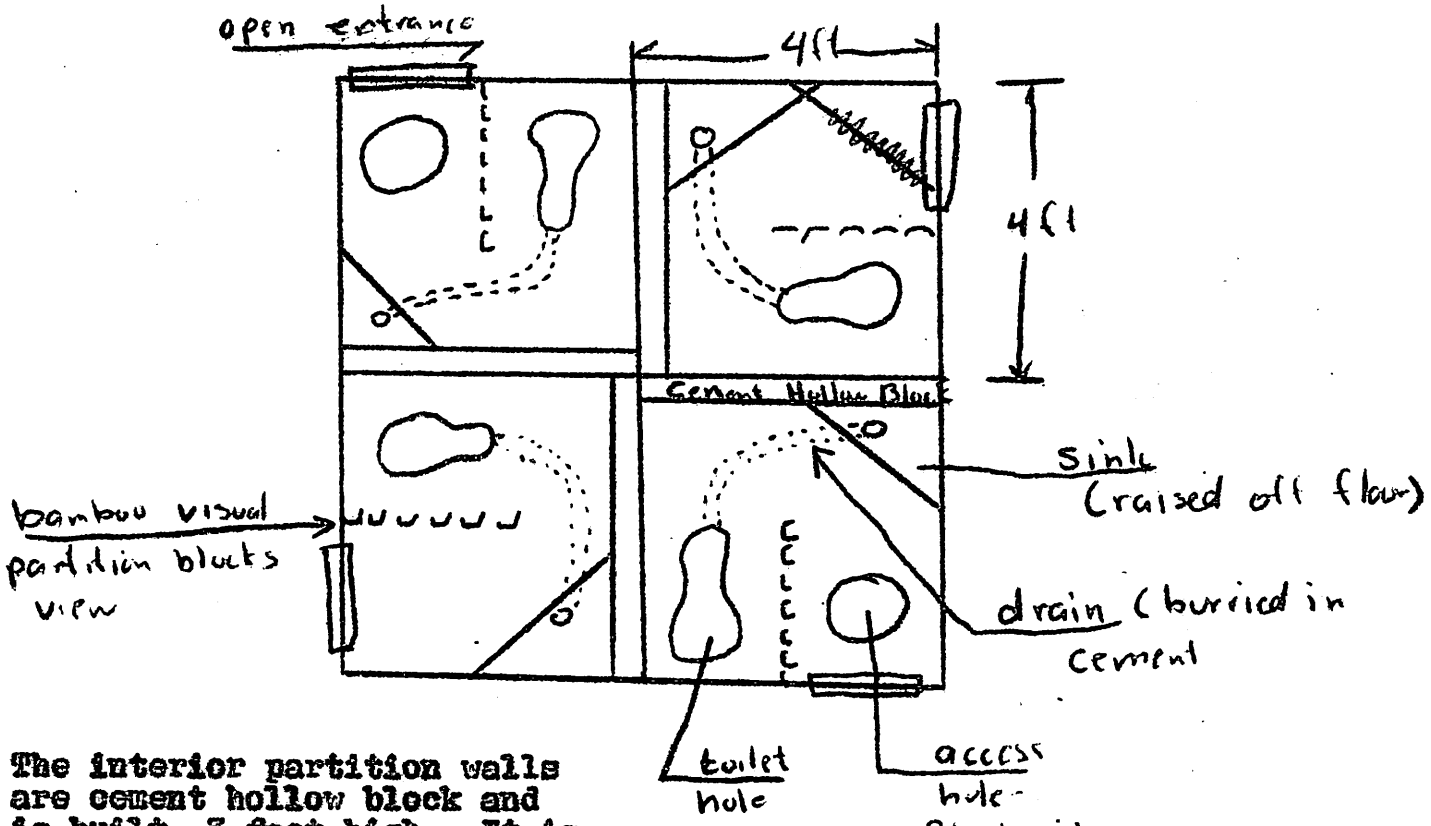
For reasons of expense, it is wise to cluster several famlies to use one large tank. For reasons of cleanliness it isbest to have emh family assigned an individual boot h with their own entrance and toilet hole to maintain. In theSudtonggan project, it was decided to have two related families use each toilet booth, so we developed a cluster of 4 toilet booths, each 4 feet by 4 feet built over a tank large enough to serve 8 families (tank 8x8x5 feet outside dimensions actually is big enough for many curious visiting relative to try).

A water supply mu t be provided to flush down the drain into the tank. Our design has the luxury of a small hand-washing basin which drains subsequently into the t oilet so that the dirtied handwashing water flushes the toilet.

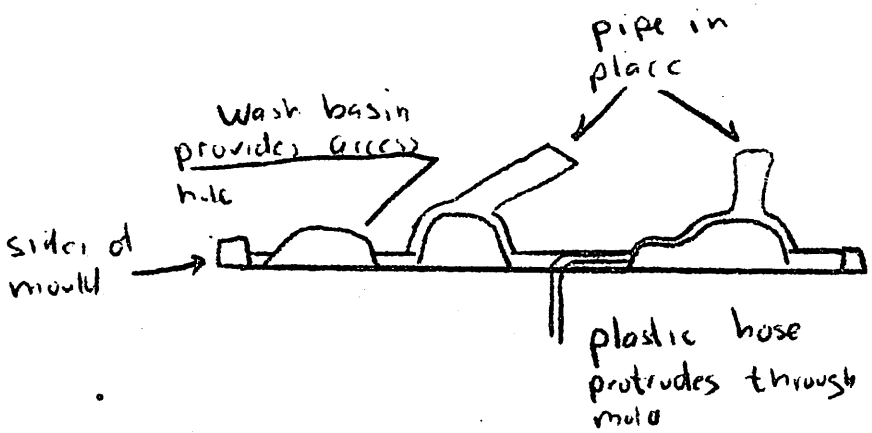
The Floor design of theBooths.

By designing a 5x8 foot basic floor design which can be poured as a single slab, it is possible to simply cast 2 such slabs to cover an 8x8 ft tank or 1 such slab to cover a two booth unit of 4x8. Each such slab is light enou gh to be carried by a team of men. Using a 4x8 slab size allows a standard size plywood sheet to be incorporated into the form for the slab.

diagram of floor design for 4 separate booths.



The interior partition walls are cement hollow block and is built 3 feet high. It is "off center" to allow maximum width to squat within the booth. At the center, the walls support the square water tank (not shown in diagram). Hose leads from the tank to th sinks (not shown) See later diagrams for plumbing. Outside wall is build around the slab and serves no purpose other than privacy so may be of any local material, as is true for the interior walls above the 3 foot cinder block.



seen upside down in the mould, the slab is formed. Note the hose must protrude through the form. All parts are greased to allow easy removal. See later text.

The Toilet Bowel as part of the Concrete Slab

The toilet bowel must slant from front to back to permit good drainage. Making it wider in the rear indicates use of that end for defication. Designing all curved edges allows it to be easily flushed clean. By haping the shape for the desired impression carved ou of wood, it is possible to cast the bowel in concrete when the concrete sl be is cast. The 4x8 design requires 2 such bowel moulds. In addition, by using a dishpan as part of the mould, the round access hole can be also included. At a later time a cast of the inside of the dishpan would create th cover for the access hole.

Placing a plastic hose withing th concrete so that the sink & drain will run through the toilet bowel will facilitate keeping it clean in the future. The drainage pipe from thedeeper end of th toilet bowel mu t be incorporated into the cement slab so that it will drain to the point just under waterlevel. This pipe can be set at an angle so that the content of the tank cannot be observed through the toilet bowel. Such an arrangemen: improves the aesthetics of the situat on consider,bly. Finally, steel tie bars must be incorporated into the slab to reinforce it.

The Plumbing for th Sink.

The following design requires no metal pipe, fawcetts or float halves. It does require the following:

a. centrally located 19 gallon square tank with a small nipple welded near the bottom of each side.
b. 4 lengths of hose, each abou 2 meters long and of an interior diameter which can be forced over the nipples.
c. 4 small diameter bam oo sections through which the free ends of the hoses can be run to hold the hose in proper position.
d 4 large diameter lengths of bamboo with horizon al notches at 3.5 feet, 4 feet and 5 feet. which will hold the short length of bamboo
e. a constant inflow hose flowing into the 10 gallon tank, and an overflow outflow hose that will carry excess water away to another location such as an i rigation location. These hoses are provided with their own nipples located very near the top of the tank.

When the tank is full of water and all 4 hoses are attached to the nipples, raising thefree end of thehose above th top of the tank will "turn off" the water/ Npwerong tje free emd wonfi " turn on" the water so that it will flow as directed . an a rangement with a string and a weight is attached to the hose in such a way that if the hose is carelessly feft in the open position, the weigh: of the rock will pull it back up before the tank drains empty.

diagram ofthe "plumbing" system