HEALTH CONDITION OF UPLAND FARMERS: A STUDY ON THE EFFECTS OF THE UPLAND DEVELOPMENT PROGRAM IN LAKE BALINSASAYAO

Rowe V. Cadeliña and Vilina V. Cadeliña

Introduction

One of the important concerns of economic development in a mmunity is health improvement of its inhabitants. If one assumes that health is dependent on the availability of food and ther basic resources, an increase in the quantity and quality these goods is, therefore, imperative.

The Silliman University Research Action Development Promin the Uplands (SURADPU) particularly in Lake Balinsaao, started around three years ago (1984). It is an integrated proach aimed at conserving the remaining forest by keeping cleared farms stable. This aim is mainly carried out by inducing soil conservation techniques appropriate for the highds. The embodying philosophy is this: Once the farms are ble, production will improve. Farmers will no longer find it essary to expand forest clearings to augment production. In way, forest clearings can be considered.

During the last three years of the program, the Lake Balinayao farmers have been exposed to intensive training on appriate farming techniques which they implement on their s. More than 20 farmers adopted the techniques. Their actes were monitored during the last two years to assess their production changes and their health condition. The assumpis that the farmers' present health condition is partly a retion of the effects of their present food condition brought to by the adoption of new farm development techniques.

Baseline Health Condition of the Farmers

In May 1982, seven communities around Lake Balinsasayao were surveyed A major concern was the assessment of the munities' health condition. This took place around two years the project started operating. The study collected data on

Table 1

Percentage of Various Age Groups Who Are 10 Years Old and Younger By Nutritional Levels Based On Body Weight

| | | | - 12 July 19 J | |
|-------------------|---------------|-------------------------------------|--|--------|
| Age Groups | Normal (%) | First Degree Malnourished (%) | Second Degree Third Degree Malnourished Malnourished (%) (%) | |
| Below | | | | |
| 2 years old | 54 | 31 | 8 7 | 100.00 |
| | | | | |
| 3-4 years | 00 | 47 | 0 | 100.00 |
| old | 20 | 47 | 33 0 | (15) |
| | | | | |
| 5-6 years old | 0 | 75 | 25 0 | 100.00 |
| 7-8 years | | | | |
| old | * | * | * * | * |
| | | | | |
| 9-10 years old | * | * | * * | * |
| old | | * | i i je | |
| | | | | |

* No data

Source: Fontelo 1985:87

anthro of pre include

Or the wo rears of found its prejudan 50 register

elow colder or elow wheight) evel (6:3% we

In

For ars an ators (ightly his different arm

In 1 me the central s. Fif

mal infe

measur

Anot the last the basick,

inthropomorphic measurements as indicators of health conditions of preschool children (aged 0-6 years old). These measurements include weight, height and arm circumference (Fontelo 1985).

On the basis of weight, the study (see Table 1) showed that worst health condition was found among children aging 3-6 ars old. While it is true that third degree malnutrition was and among children whose ages are two years old and below, preparation (only 7% for third degree) was negligible. More an 50% were on the normal range. A very low percentage was sistered as normal for those aging 3-6 years old.

In terms of height, those children aging two years old and low consistently demonstrated better condition compared to the ler ones. More than 60% of those children aging two years and low were under normal condition of height (91-100% of ideal left). Nobody was considered as belonging to the third degree left (61-70% of ideal height). Among children aging 3-4 years old, were considered third degree malnourished (see Table 2).

For ideal area circumference, however, children aging two sand below no longer performed as well as in the other indicates (ideal height and weight). The older age groups were the better off than the younger age category (see Table 3). It difference could be due to error in measurement especially arm circumference, which is highly sensitive to inaccuracy assurement slippage) compared to bodily weight and height.

In 1983, another study was conducted (Cadeliña 1984). This the study did not do any anthropomorphic measurement, but entrated on collecting information about incidence of ill-fifteen percent of all the respondents contacted were sick time of the interview. They reported to be afflicted with infection (such as flu) and respiratory trouble.

Another question was asked on the incidence of illness durthe last 12 months before the interview contact was made be basis of recall. 31% of the respondents claimed to have sick, on the average, six times during the last 12 months.

SILLIMAN JOURNAL Vol. 35 1st-4th Quarters 1988

Percen

Below :

3-4 yea

5-6 year

18 year

=10 yea

Sour

Table 2

Percentage of Various Age Groups Who Are 10 Years Old And Younger By Nutritional Levels Based On Desirable Height (1982)

| % al (%) Total (% |
|---------------------------------------|
| |
| |
| 100.00 (13) |
| |
| 100.00 (15) |
| 100.00 |
| · · · · · · · · · · · · · · · · · · · |
| Bur Haran |
| |

* No data

Source: Fontelo 1985:88

all the mass of the

SILLIMAN JOURNAL Vol. 35 1st-4th Quarters 1988

Table 3

Percentage of Various Age Groups Who Are 10 Years Old And Younger
By Nutritional Levels Based On Ideal Arm Circumference (1982)

| | 91-100% of Ideal Arm Cir- cumference | 81-90% of Ideal Arm Cir- cumference | 71-80% of Ideal Arm Cir- cumference | 61-70% of Ideal Arm Cir- cumference | Total |
|---------------------|---|--|--|--|----------------|
| on the s | (%) | (%) | (%) | (%) | (%) |
| Below 2 ears old | 54 | 38 | 0 | 8 | 100.00 (13) |
| years | 60 | 40 | | 0 | 100.00 |
| 36 years | 50 | 50 | 0 | 0 | 100.00 |
| 3 years | * | * | * | * | * |
| years | * | * | * | * | * |

^{*} No data

Source: Fontelo 1985:89

Each length of illness or sickness usually lasted for three days. This suggests that on the average, the morbidity rate in the area forced the ill farmers to stop from working around 18 days per year.

When the project started, another study which still included health condition was conducted (Harvey n. d.). This time, the data did not show marked improvement on the condition of the preschoolers. On the basis of weight, only 7% was reported normal; 51% was reported to be first degree malnourished; 35% second degree and 7% third degree. The information was, however, not disaggregated for the younger age groups.

Unlike the first study, the third study did not show consistency of health condition of the preschoolers when other indicators were used. For instance, when ideal height was used 39% was reported to be normal and the rest were first degreemal and anourished. When arm circumstance was used, 15% was reported normal First degree malnourished was on the magnitude of 66%, 15%, second degree and 4% for the third degree. On the whole, the same study also reported that around 12% among the preschoolers showed physical manifestations of anemia.

Assuming that health education can improve health condition of the population, the second study also attempted to determine the proportion of households in the community having received basic health education. The data revealed that around 17% on received basic information and the rest did not.

Present Health Condition

From March 1986 to the present, a monthly monitoring the health condition of our farmer cooperators of SURADPU Lake Balinsasayao has been done. This includes documenting incidence of illness among children and adults and the change of the anthropomorphic measurements of children up to age These measurements include weight, height and arm circumence.

For this paper, the data analyzed include only those collection March 1986 to February 1987.

Mor

patte old h ents lump were 12 m the re of 12 been

bidity
12 mc
and be
groups
than f

F

the 11the mo
10+, a
monthl
wo per
f Mar
and pr
t shou

In mon

e are

Bety be m

and :

Morbidiy Pattern

The study in 1983, which was supposed to show the morbidity pattern of the community was refined by our ongoing one-year ald health monitoring in the area. In the 1983 study, the respondents were not disaggregated according to age and sex. They were imped into one category only. Most of the information sought were on the number and types of illness experienced during the 12 month period. At the time of the interview contact, 15% of the respondent population were reported to be sick. For the period 12 months before the interview contact, 31% reported to have seen sick.

The data on our present study allow us to see trends of mordity pattern of various age and sex groups during a period of months. Figure 1 shows that for the age group, 10 years old and below, the peak of incidence of illness could be seen both sex roups, although the peak tends to be higher for the females an for the males.

For the older age groups, two age levels were compared, i.e. 11-29 years old and 30 years old and above. Figure 2 shows morbidity pattern of four groups of population (female aging + aging 11-29, male aging 30+ and male aging 11-29) on a nothly basis for 12 months. Similar to our first observation, peak periods of illness (see Figure 2) occur during the months March and November. This suggests that illness is seasonal probably coincides with weather and temperature changes. should be noted that the onset of the southwest moonsoon in area occurs during the month of March and the northeast noon, November.

In almost all age groups (see Figure 1 and 2), the females more prone to illness. A higher incidence of illness in almost months have been registered by the females for age groups and younger and aged 30 and older.

Between age groups, the youngest and oldest categories tend to more susceptible to illness compared to the middle age ups. This suggests the general condition that the youngest and

Frequ

Percent

80

70

60

50

20

Figure 1

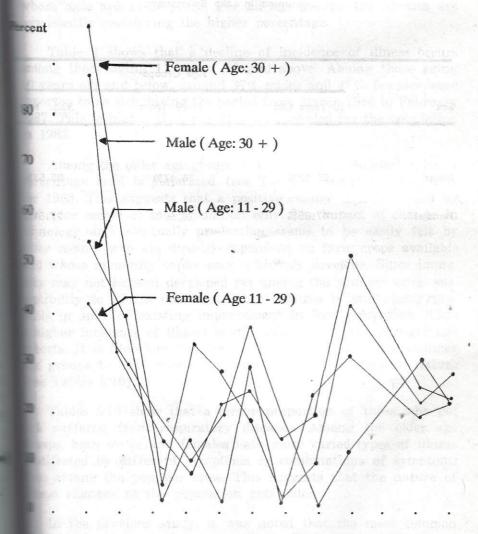
Frequency Trend of Male and Female Population Aged 10 Years Old and Younger Who Got 111 During a 12-Month Period of Monitoring

Percent domination of to find with transits one of the heart 8 month period. At the time of the interview contact . Note of the respondent pullation were reported to be side. For the partial of 12 months in the interview contact, 81% reported to make At the time of the interview country and the 80 Male (10 years old and below) The data on or 70 guera sag out for faul a alaso sat welst be 60 mg. and we made and of about found the gomes of sit tor he 50 . atte de Control I about Morby during the months sagg vegine nd te aperature changes. the southwest meensoon in 20 diron out bus Female (10 years old and below a 10 mg. and 12 bmg f same months have been registered by the formies for ane groups - and younger and aged 10 and older.

Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb 1986

Figure 2

Frequency Trend of Male and Female Population Aged 10 Years Old and Younger Who
Got 111 During a 12-Month Period of Monitoring



Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb 1986 1987

Table 4

Average Percentage of Individuals Under Various Age and Sex Groups Sick
During 12-Month Period (March, 1986-February, 1987)
Monitored In Lake Balinsasayao

| Version and a service | | Age Groups | # / T |
|-----------------------|---------------------|-------------|-----------|
| Sex | 10 Years Old | 11-29 Years | 30+ Years |
| | see paal 710 yearns | SA SM | Sec |
| Males | 36.62% | 16.47% | 25.53% |
| Females | 47.35% | 20.67% | 27.51% |

the calso incide is am whose whose consis

among 10 year report 1987. in 198

T

percent for 190 the older sand what mity materials bable in a higher

Tab sick suf groups, manifest

than am

cohorts.

In to mess is present

Table 6

Kinds of Illness of 10 Years Old and Younger For a

Kinds of Illness of 10 Years Old and Younger For a Period of 12 Months (Female)

| 0 0 0 40% 65% | 0 | | 1986 | 1986 | 1986 | 1986 | 1986 | DEC JAN 1986 1987 | FEB 1987 |
|--------------------------------------|----------------------------|------|------|------|------|--|--|----------------------|-------------|
| 40% 65% | ٥ | | | | | 40 40 40 40 40 40 40 40 40 40 40 40 40 4 | 40 40 40 40 40 40 40 40 40 40 40 40 40 4 | | |
| 40% 65% | | ٥ | 20% | 0 | 17% | 0 | 1 | 0 | 0 |
| 40% 65% | | • | | | | | | | |
| | 67% 100% 100% 80% 100% 83% | 100% | 208 | 100% | 83% | 57% | | 100% | 100% 75% |
| Others (tonsilitis, sore eyes, | | | | | | | | | |
| sore eyes, | | | | | | | | | |
| swelling of | | | | | | | | | |
| knees,etc.) 20% 0 8% | 0 | 0 | 0 | 0 0 | 0 | - 7.62 | ı | 0 | 25% |

- No data

Table 9

Kinds of Illness of Male Individuals Aged 30+ For a Period of 12 Months

| Illness | MAR 1986 | APR 1986 | MAY 1986 | 1986 1986 | JUL 1986 | AU6 1986 | SEP 1986 | 1986 1986 | 1986 1986 | | JAN 1987 | FEB 1987 |
|-------------------------------------|----------------|-------------|-------------|---|-------------|-------------|-------------|--------------|--------------|--|-------------|-------------|
| Abdominal Problem 10% | 707 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 10 10 10 10 10 10 10 10 10 10 10 10 1 | 0 0 - | 0 |
| Respiratory diseases (cough with | iseases 107 | | 1007 | 7001 | o | 722 | | 1007 | 205 | 1007 | 100% | 100% |
| Others(tonsilitis, | litis, | | 84 | | . 8 | | | | | | | |
| swelling of knees,etc.) | 30% | 29% | 0.00 | 1,000 | 100% | 711 | 7007 | 0.3 | 20% | 100 | • | 0 |
| Combination of the above | of 50% | 147 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 0 | 0 |

- No data

Kinds of Illness of Female Individuals Aged 11-29 For a Period of 12 Months

not supposed 11-29 For a Period of 12 Months of the supposed 11 and 11 a

| 2 2 2 11 12 12 12 12 12 12 12 12 12 12 1 | 1986 | APR 1986 | 100 | JUN 1 986 | JUL 1 986 | JUL AUG 1986 1986 | SEP 1986 | 361 | NOV DEC 1986 1986 | DEC JAN 1986 1987 | 1987 |
|--|-----------------|---|-------------------------------------|-------------------------------|--------------|--|--------------------------------|--|---|--|--|
| Abdominal problem 11% | 117 | Tis manness and | old and lorale d difference | males for | O | di Neuit s. s. o rs old at | er X ise in diMicult | në that the present control | A .doum | da o s a p ategories i at the s | r age ear sange" sin gar o ed in |
| Respiratory diseases (cough with | 72% | | 5-6 years Our their eless the | 100% the make the make the te | 5000 a 500 | 80% 3g 107 yea | effect an ir | Super it is the Super in at | | | of the old of old of old one one |
| Others | oras m v | istance - | SIFTIM SUITS | VILLOIS | _ | 35 | thich co | rters 19 | is almost demens & | | g only i o detern tudies w |
| sore eyes, swelling of knees, etc) | iz males | Z ining 1 7 01 res ind high | | KIUS JUBI | | Individu | 33% | suggests ti O 1 of t beriod | ference is sistently | | occuring ifficult t re o wo s |
| Combinatio of the above | 10n 56% | moma maire | 1113 3925 5251 | ow election | | | ha % lays for the | Table 11 n the propor at the initial ha | ject. The dif illnoss are con grosps, secre | able 1 | of illness is ference is dateron the near the ne |

of illness is occurring only for the older age category. Such difference is difficult to determine as "change" simply because the data from the two studies were not organized in a similar manner.

Table 11 reveals the number of days a person gets sick during the past 12 months. For all categories of respondents the average number is longer than that at the start of the project. The difference is almost twice as much. A longer length of illness is consistently demonstrated by the females from all aggroups.

Table 11 suggests that while it is true that there is a decline in the proportion of those who got ill at present compared to that at the initial period of the project, the length of illness has not changed. In fact, the data reflect an increase in the number of days for the present. Such condition is difficult to explain.

Anthropometric Measurements

For the individuals aging 10 years old and below, thremeasures were taken. These were body weight, height and arcircumference.

Body Weight: On the whole, the males are found to be heaver than the females. However, the males do not consistently monstrate weight superiority over the females for all age group. For instance, the males aging 5-6 years old and 2 years old and below are relatively lighter than their female counterparts these age categories. Nevertheless, the difference is slight (see Table 12). Assuming that body weight, among others, suggescertain amount of resistance to diseases, this might explain we tend to find higher incidence of illness among the female than among the males.

Comparing the mean actual weight to the average minimideal weight of the various age groups. Table 13 shows that the females belonging to the two-year-old and younger group normal weights. Those who belong to the 3-4, 5-6 and 7-8 year-old groups are below the average minimum ideal weikghts. The underweights fall under the first degree malnutrition.

Averag

age and Gro

wale (1

and o

Tale (0mars old)

male ((

SILLIMAN JOURNAL Vol. 35 1st-4th Quarters 1988

ø

Š

60 61 101

in in in

and many map have 8 years

| and Groups | Average Monthly (Days) | Annualizing Factor (3) | Estimated (Days) Average Annually (Col. 2 x Col. 3) (4) |
|------------------------|------------------------------|------------------------------|---|
| gried - 1 | 2.51 | | Symbol States |
| e (11 years and older) | 2.6 | 12 | 31 |
| ale (11 Years | | Frea gar Taler | |
| and older) | 2.7 | 12 | 32 |
| | | | |
| (0-10 old) | 2.9 | 12 | 35 |
| (0-10 | | | |
| old) | 3.3 | 12 | 40 |
| groups | | regard arrange Sympol | |

The engle are take to a culture when the column

Among the four of the age grant of the Festale service is the relation of the control of the con

TO THE REPORT OF THE PERSON

Table 12

Average Weight (Kilograms) of Male and Female Individuals By Age Groups (10 Years Old and Younger) During the Last
12 Months (March 1986-February 1987)

| | Male | | Female | |
|--------------------------|--|---------------------|----------------|--------------------------------------|
| Age Groups | Mean Weight | C.V.* | Mean Weight | double. |
| and the property | uggesta jatajtonija 15. jedajtonija | er w. G trof III | | |
| 2 years old and below | 9.03 | .47 | 9.31 | rapalsas .42 |
| 3-4 years old | 14.45 | .38 | | ov 11) el lebio bre ⁴⁵ |
| 5-6 years old | 15.67 | | 15.78 | |
| 7-8 years old | 17.48 | .43 | 17.36 | 38. |
| 102 | | | or are hand to | |
| 9-10 years old | 20.57 | . 44 | 20.38 | 2 |

have the encloweder Movertinies, the difference of the

and send as any ballow the service and allowers, stored with the file

bylike than thou lemme cowhic

*Coefficient of Variation

old h under maln

in the ment and 8 old a group degree an im compa started

not sig males heights

dasis of the an i

Am cormal ge gro deal. T

Am heights. he idea

On grows 1: wo and 3% fall under

Among the males, the 2 years old and below and the 3-4 years old have normal weights. Only the age groups 5-6 and 7-8 are underweight. Like their female counterpart, they are first degree malnourished.

This health condition is obviously better than what we found in the community around five years ago, i.e. before the establishment of the project. Table 1 showed 7% third degree malnourished and 8% second degree malnourished from children aging two years old and below. Among children belonging to 3-4 and 5-6 age groups, 33% and 25%, respectively were reported to be second degree malnourished. On the basis of weight, therefore, there is an improvement of the present health condition of the children compared to that found in the community before the program started.

Height: The height of the male and female individuals does not significantly differ. Tabe 14 shows that both males and females from the five different age groups have almost similar eights.

Let us now assess the health condition of the subject on the asis of height. This can be done by comparing the ideal height the person given their actual weight and height. Since there an ideal height associated with a particular weight, then we assess health on the basis of actual height and weight.

Among the males, only the 7-8 and 9-10 age groups have a proper than the groups (see Table 15) have height slightly shorter than the seal. The difference suggests a first degree malnutrition.

Among the females, all age groups except one have normal ghts. Females aging 2 years old and below have heights below ideal, a condition suggesting only a first degree malnutrition.

On the basis of height, the present health condition of these groups is better than that we found five years ago. Table 2 ws 15% belonging to the second degree malnutrition for ages and below in 1982. Among children aging the 3-4 years old, fall under the third degree malnourished level, while 7% under second degree malnourished level during that year.

on no tilleen assess me

Averag

Age G

2 years below

3-4 yea

5-6 yea

7-8 year

10 year

Among the males, the 2 years old and below and the 3-4 years old have normal weights. On 18 along are groups 5-6 and 7-8 are

Health Condition of Male and Female Individuals Aged 10 Years Old and Below on the Basis of Body Weight During the Last 12 Months (March 1986-February 1987)

| ntermonutat ast | Mean Ac | tual Weight | |
|-------------------------------------|---|--|--|
| Age Groups | Male | Female | Average Minimum Ideal Weight* |
| 2 years old and below | 9.03 | d. On the basis the process the cound 9,31 | 30 30 30 30 30 30 30 30 30 30 30 30 30 3 |
| 3-4 years old | 14.45 | 11.84 | 13.29 |
| 5-6 years old | 15.67 | 15.78 | 16.14 |
| 7-8 years old | 17.48 | 17.36 | 17.65 |
| 9-10 years old | 20.57 | 20.38 | _aidgles |
| ndi dia dia 400 0 70 N= [80] add | di ba mali ljan eo Yni w ali wa ya | sess the health is can be come | |

Among the females, all and semine exacut one have normal

e ideal, a condition suggesting only a first device malmutrition.

tall under the third degree reginoleished level, while 75

* Source: National Nutrition Council 1974:45-46.

- No data

244

SILLIMAN JOURNAL Vol. 35 1st-4th Quarters 1988

Table 14

everage Height (Inches) of Individuals Aged 10 Years Old and Below During the Last 12 Months (March 1986-February 1987)

| | Mal | e | Femal | le |
|---------------|---------------|-------|--------------------|-------|
| ge Groups | Height (subs) | C.V.* | Height (Inches) | C.V.* |
| years old and | 28.00 | . 45 | 28.08 | .58 |
| 4 years old | 37.07 | . 43 | 37.44 | .63 |
| 5 years old | 39.60 | .43 | 39.00 | .72 |
| years old | 41.56 | .39 | 41.34 | .45 |
| years old | 45.00 | .59 | 44.46 | .42 |

^{*} Coefficient of variation

Sinuad

Age Gro

years selow 4 years

56 years

-8 years

-10 year

*Sour

Table 15

Health Condition of Male Individuals During the Last 12 Months

(March 1986-February 1987) On the Basis of Height

| N 015(1197a) | | EDV1 | |
|-----------------|----------------------|--------------------|------------------------------|
| idon I | Α | ctual TipisH | |
| Age Groups | Weight (Kilogram) | Height (Inches) | ldeal* Height (Inches) |
| 2 years old and | | 37.07 | |
| below | 9.03 | 28.00 | 28.08 |
| 39.00 0.72 | | 39.60 | bio crassy |
| 3-4 years old | 14.45 | 37.07 | 37.44 |
| EA | | 44,56 | |
| 5-6 years old | 15.67 | 39.60 | 39.00 |
| \$4. 65.46 | | 45.00 | |
| 7-8 years old | 17.48 | 41.56 | 41.34 |
| 9-10 years old | 20.57 | 45.00 | 44.46 |
| | | | |

^{*}Source: National Nutrition Council 1974:44

Arm Circumforcuce: Tl 31 aldst generally tend to register a bigger arm circumference. However, the pattern seems to

Health Condition of Female Individuals During the Last 12 Months

(March 1986-February 1987) On the Basis of Height

| ermning neam con set — "satisfactory | Ac | tion of chi | |
|---|----------------------|--|------------------------------|
| | Weight (Kilogram) | Height (Inches) | ldeal* Height (Inches) |
| ears old and | rmourabum, pa | ers is consider | ,5 bentimet |
| we would above | 9.31 | 28.32 | 28.47 |
| years old off fig | 11.84 | 35.74 LDT | 32.76 |
| years (old mi gtab m | o di 15.78 di 918 | om 161,04 comp | 39.00 |
| years old | 17.36 | 41.53 | Т јево 913 |
| vears old | 20.38 | 44.79 | 44.46 |
| *Source: National Nutr | rom 40% to 50% | unong the other rished ranges i ed in 1984 (44 | e mainou conduci |

Health and Charlen Education

Toward the end of 1985, a full time substitutionist was it for the project. Her responsibility was to provide educationing for the mothers on household mutation and sanital Weekly seminars were held for the atomers. On the basis of record on participation, 100 percent of the mothers within size of operation have participated in this training. During later period family planning officers from the government culation Commission) were invited to give seminars on faming in the community.

Averag

Age Gr

2 years

selow

4 year

56 years

-8 years

-10 year

Arm Circumference: The males, generally tend to register a bigger arm circumference. However, the pattern seems to change at the later age. The females, 7-8 and 9-10 years old, register a slightly larger arm circumference than their male counterparts in those age groups.

On the basis of arm circumference, the National Nutrition Council (1974:47) sets a standard for determining health condition of children. Three categories were set — "satisfactory," "at risks" and "undernourished." Individuals with arm circumference of 13.5 centimeters and above are considered satisfactory and those "at risk" have 12.6 to 13.5 centimeters. Below 12.5 centimeters is considered "undernourished."

Table 17 shows that all sex and age groups fall above the "satisfactory" marker. This suggests that on the basis of the arm circumference, the present population is under satisfactor health condition. If we compare this with our data in 1982 (see Table 3), the present condition must have improved from that of the past. Table 3 shows around 8% of those children aging two years old and below are third degree malnourished and 38% first degree. Among the other age groups, the proportion of first degree malnourished ranges from 40% to 50%. In fact, in another study conducted in 1984 (Harvey, n. d.), on the basis of arm circumference, only 15% were reported as under normal health condition.

Health and Nutrition Education

Toward the end of 1985, a full time nutritionist was hire for the project. Her responsibility was to provide educations training for the mothers on household nutrition and sanitation. Weekly seminars were held for the mothers. On the basis of record on participation, 100 percent of the mothers within area of operation have participated in this training. During the later period, family planning officers from the government (Poulation Commission) were invited to give seminars on family planning in the community.

Table 2170 solonoming for mothers on proper room preparation illness preven

During the Last 12 Months (March 1986-February 1987)

| nd vane Accord | in the capanity rece | | zbiodescod Female | |
|--|---|----------------------------|--|-----------|
| of de system de la | Arm Circum- ference (Centimeters) | aideacha dà aideacha dà | Arm Circum- ference (Centimeters) | ridedi bo |
| ears old and | relation today. | of the pop | ealth condition | Landon |
| ow a let better | 14.17 | ons. 78 | 13.96 | .71 |
| years old | 15.51 | .82 | 14.69 w hertals yours | .70 |
| embera intil | 15 00 00 3 | iorit 518 8 | 15.59 lb f | .83 |
| vears old | 16.40 | Ded 110.49 larr | 16.69 | .59 |
| years old | ernit 161 bloid 8 07 17.14 mm | the flower | as been in oper that 75.71 ge in copulation. | .6/ |

the star

of series

thin un aring m ent (Bu

n family

The program started collecting buseline information on community rive case area ()no set of information collected on health condition of Miller 1988, a continuing monthly material of information on mondence of illness and anthropomates information on incidence of illness and anthropomates under the confinuity and variate present montroved. This is a confinuing activity unite the present

Three indicators of change on health conditions were sured. These were morbidity patterns, anthropometric meant and prevalence of basic knowledge on health education though some of the data from the two periods (past rive and the present) are not directly comparable, some cents of a still had discounted the conditions of the condition

This component of the program has therefore provided local training for mothers on proper food preparation, illness prevention, sanitation and family planning. It is assumed that this training program must have equipped with the basic information on those areas.

From the study of Harvey in 1984, it was noted that only 17% of the households in the community received basic health education. Therefore, the population at present, must have enjoyed better access to health education compared to that period in 1984. The availability of better informed mothers on health at present must also have contributed to the improvement of the actual health condition of the population today.

Summary and Conclusion

The study started with the asumption that the present health condition of the farmers and their household members in Lake Balinsasayao is the result, among others, of the present upland development program implemented in the area. Since the program has been in operation on field for three years, it was assumed that change in production must have already been fet by the population.

The program started collecting baseline information on the community five years ago. One set of information collected was on health condition. In March 1986, a continuing monthly montoring of information on health was implemented. On a monthbasis, information on incidence of illness and anthropometric measurements (weight, height and arm circumference) were monitored. This is a continuing activity up to the present.

Three indicators of change on health conditions were measured. These were morbidity patterns, anthropometric measurement and prevalence of basic knowledge on health education. At though some of the data from the two periods (past five year and the present) are not directly comparable, some conclusional can still be discerned through inferences.

healt than prese all p howe

metric surem tends explai the fe

awaren nutriti One hu ready this sh only 17

It the state of th

For developings. I the impro

On the basis of the three indicators measured, the present health condition of the Lake Balinsasayao population is better than that of five years ago. Although the length of illness at present tends to be longer than that of five years ago, the overall percentage of illness incidence is lower. It should be noted, lowever, that the females are more prone to illness than their male counterpart.

There is a consistent pattern revealed using the anthroponetric measurements. If ever malnutrition exists, the three meaurements consistently show only first degree malnutrition. This ends to occur more frequently among the females. This perhaps explains why a relatively higher morbidity rate is found among the females. Nonetheless, the overall health situation is found to be a lot better than that prevailing in 1982.

The establishment of the program has improved the level of wareness on the part of the local mothers concerning proper atrition, prevention of illness, sanitation and family planning. The hundred percent of the project's clientele population has alady been exposed to these issues through seminars. Obviously, is shown a superior advantage to that one five years ago where 11 17% had been reported to have learned basic health information.

It seems that the synergistic effect of the two components the SURADPU program must have worked for the health important of the farmers. The introduction of the appropriate ming and cropping system for the uplands must have improved m production and consequently food intake. The training on per nutrition, illness prevention and sanitation must have used the risks of illness among the farmers.

For practical considerations, it appears that the impact of evelopment program on health condition is dependent on two logs. First, it hinges on the proper utilization of resources so the quantitative and qualitative aspects of production can improved. It should be noted that the nutritional quality of the products can be improved by diversification, one of the goals

of the program's cropping systems component. In fact in another study (Cadeliña 1985), it was found out that diversification of crops can improve the quantitative dimension of production.

Second, it is also anchored on adequate health and nutrition educational drive. Improvement of the cropping system is not adequate if we want to feel a stronger impact on health. A suitable training program on nutrition and illness prevention should be incorporated, a step further to reduce the risk of illness.

References Cited visitable and serious and

- Cadeliña, R. V. (1984). Poverty in the upland: Lowland migrant swiddeners in the Lake Balinsasayao forest. Negros Oriental. In Faces of Philippine Poverty: Cases from the Visayan community. R. Abad, R. Cadeliña and V. L. Gonzaga Quezon City: Philippine Social Science Council.
- (1985). Niche diversity and welfare among lowland migrant swiddeners around Lake Balinsasayao Silliman Journal 32 (1-4):93-114.
- Fontelo, C. B., 1985 Assessment of nutritional status of residents in Lake Balinsasayao. Silliman Journal 32 (1-4): 65-92.
- Harvey, I., n.d. Lake Balinsasayao An agroecosystem analysis.

 Typescript.

the principle of the principle of the splant principle of the principle of

over metrison, illness prevention and vanistion much have

and to viden lengthing of the the ruttitional quality of the

of products can be improved by diversification, one of the goals

duced the orisks of filmess cansony the Oxymen - . . .

expect
of app
conser
produc
cultura
nutriti
ditions
sonnel
eral he

West in

is he ment

uplan

by ph

Action the in

uplan

and th

Sibula

north

T

The fincienefic he far

ers to