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## JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

# REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

# THE STUDY ON SABO AND FLOOD CONTROL IN THE LAOAG RIVER BASIN

FINAL REPORT
VOLUME IV-1
DATA BOOK I

**DECEMBER 1997** 

CTI ENGINEERING CO., LTD.
IN ASSOCIATION WITH
SANYU CONSULTANTS INC.
PASCO INTERNATIONAL INC.

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# FLOOD DAMAGE AND FLOOD FIGHTING SYSTEM

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#### Flood Damage and Flood Fighting System Survey for The Study On Sabo And Flood Control In Lacag River Basin, Philippines

#### 1. Introduction

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The Flood Damage and Flood Fighting System Survey (FDFFS) was conducted as part of The Study on Sabo and Flood Control in Laoag River Basin, Philippines

The objective of the study is to formulate a master plan for sabo and flood control in the Laoag River Basin and to confirm the technical and economic feasibility of the urgent or priority project(s) identified in the master plan.

The study includes the evaluation of the flood damages and the possible solutions on how to control or to fight flooding within the 1,350 km² Laoag River Basin. To clarify the flooding conditions and extent of flood damage during the past major flood events, the JICA Study Team contracted Woodfields Consultants, Inc. (WCI) to conduct a questionnaire survey. The questionnaire survey was conducted from April 25 to May 17, 1996, and the results of which are presented in this report.

#### 1-1. Objective

The objective of the flood damage and flood fighting system survey is to know the flooding conditions, damages and non-structural measures for flood mitigation during the past major flood events in Laoag River Basin.

#### 1-2. Survey Area

The survey area is the flood prone area of the Laoag River Basin. This area consists of alluvial fan complex in the upper reaches and floodplain in the lower reaches. The total survey area is approximately 400 km<sup>2</sup>.

The survey area comprises one city and eight municipalities, namely, Laoag City, San Nicolas, Sarrat, Piddig, Nueva Era, Espiritu, Marcos, Dingras and Solsona, all in the Province of Ilocos Norte. As listed in Table 1, a total of 115 barangays were included in the survey area.

#### 1-3. Objective Persons (Survey Respondents)

A total of 115 barangays were surveyed, and their respective barangay captains were the respondents of the questionnaire survey. Some of the LGU officials were also interviewed. From them, various data and information regarding flooding within the Laoag River Basin were gathered. Also in Table 1 are the names of the respondents and the dates of interview.

#### 1-4. Methodology

WCI put up three teams for this survey. They visited the 115 barangays, accomplished the questionnaires prepared by the JICA Study Team, and verified the geographical locations of the barangays using Global Positioning System (GPS).

The barangay captain/chairman or his representative was the respondent of the questionnaire survey.

Mayors were also visited to make courtesy call, gather data and get their endorsements to the barangay captains/chairmen.

Inundated areas in the barangay were also identified in the field and plotted on the map of the city/municipality.

Coordination meetings with Mr. Kazuto Suzuki of the JICA Study Team were held to discuss the progress of the survey and to submit the accomplished questionnaires.

#### 1-5. Questionnaire Survey Items

The questionnaire survey form used in the survey is presented in Appendix A.

The major survey items are as follows:

- a) Area affected by flooding, the date of occurrence and its duration.
- b) The type of flood the area had experienced.
- c) Identification of the location where there is breached or river washed lands.
- d) Extent of direct and indirect damages.
- e) Possible flood control projects requested by the residents.
- f) Present flood fighting system used by the residents.

#### 2. Survey Results

As presented in this report, the surveyed data were inputted in the database, processed and as much as possible compared with both published and unpublished statistics of the different government agencies.

#### 2-1. Surveyed Barangays

As shown in the table below, the 115 surveyed barangays which were identified by the JICA Study Team represented about 46.4% of the total number of barangays in Ladag City and the eight towns of the survey area. All the barangays of Solsona were surveyed, and only 10 out of 80 barangays in Ladag City.

MUNICIPALITY	TOTAL NUMBER OF BARANGAYS	NUMBER OF SURVEYED BARANGAYS
Piddig	23	7
Lagag City	80	10
San Nicolas	24	6
Sarrat	24	18
Espiritu	20	11
Marcos	13	9
Dingras	31	26
Solsona	22	22
Nueva Era	11	6
TOTAL	248	115

As shown in the table below, the eight municipalities and one city covered by the survey accounted for 50.6% and 50.4% of the total number of households and total population of the province in 1990. For the surveyed barangays, the respective percentages are 22.5 and 22.6.

	HOUS	EHOLDS	POPULATION		
		SURVEYED		SURVEYED	
MUNICIPALITY	TOTAL	BARANGAYS	TOTAL	BARANGAYS	
Piddig	3,466	802	17,060	3,963	
Lacag City	16,866	1,909	83,215	9,618	
San Nicolas	5,523	1,406	27,614	6,925	
Sarrat	4,369	3,533	21,272	17,339	
Espiritu	2,947	1,761	15,337	9,233	
Marcos	2,532	1,802	12,954	9,234	
Dingras	5,942	5,084	30,512	26,149	
Solsona	3,720	3,720	18,867	18,867	
Nueva Era	1,038	583	5,230	2,907	
TOTAL	46,403	20,600	232,061	104,235	
ILOCOS NORTE	91,606		46	0,684	

Population and households in 1990 and in 1996

The 1996 FDFFS survey results on households and population are presented in Appendix B: Table B-1 for the 115 barangays, in Tables B-2 to B-10 for each municipality, in Table B-11 for poblacions and in Table B-12 for non-poblacions.

According to the FDFFS survey results, the 1996 population susceptible to floods in the 115 barangays totals 131,029. Dingras has the highest number of people surveyed at 34,707, next is Solsona at 25,286. As reflected in the above-said tables, the three most populous barangays are San Marcos in Dingras with 3,983, Barcelona in Solsona with 3,623, and San Bautista in San Nicolas with 3,600. On the other hand, Barangays Cacafean (Marcos), Bimmanga (Piddig) and San Julian (Solsona) have the least number of people at 253, 265, and 285 respectively. The municipality with the highest average number of people per barangay is San Nicolas at 1,436, followed by Dingras at 1,335.

The survey area is predominantly rural with 80.9% of its 131,029 population living in rural non-poblacion barangays, while the rest residing in urban poblacion barangays.

As shown in Table 2, the 1996 population in the 115 surveyed barangays is 131,029 which is a 25.7% increment from the 1990 census population of 104,235. This increase means an average annual growth rate of 3.67% which is more than twice the observed annual growth rate of 1.78% between 1980 and 1990 for the entire Laoag City and the eight municipalities (Table 3). The municipalities of Nueva Era, Piddig, Solsona and Dingras registered more than 4% average growth rate per annum at 7.92%, 4.88%, 4.86% and 4.68% respectively. These figures are higher than those observed between 1980 and 1990 for each entire municipality (Table 3).

The notable increase in population may be due to transmigration of farmers and migration of people from Muslim provinces of Mindanao and lahar-affected communities of Pampanga.

As shown in Table 3, the municipalities with population densities greater than 500 persons per square kilometer in 1990 were Lacag City (779.13) and San Nicolas (560.49). Nueva Era is the least dense with only 8.12 persons/km<sup>2</sup>.

Again in Table 2, the average household size for the survey area in 1990 and in 1996 are 5.06 and 6.01 respectively. For the province, the 1990 observed figure is 5.04.

There were 20,600 households in 1990 for the survey area, and the FDFFS survey shows 21,792 households in 1996.

The urban poblacion barangays have smaller average household size as compared with the rural non-poblacion barangays: 5.54 against 6.13 in 1996 and 4.96 against 5.09 in 1990.

Also in Table 3, the number of households and the average household size in 1990 for the entire Laoag City and the eight municipalities were 46,403 and 5.01 respectively.

Occupations of people in the surveyed barangays

The 1996 FDFFS survey results on occupations are presented in Appendix C. Table 4 shows the average number of people by type of occupation and by municipality.

About 15,047 people in the survey area are engaged in farming and 86.5% of which live in the non-poblacion barangays; the next major group (2,036 people) are employed as public officials.

#### 2-2. Characteristics of the Households

Types and prices of dwelling units

Appendix D shows the FDFFS survey results on types of dwelling materials and prices of dwelling unit by type of dwelling material. Table 5 presents the average number and price of dwelling units by type of dwelling material and by municipality.

About 48% of the households in the survey area live in houses made of concrete, and 36%, 9% and 6% in houses constructed with a combination of concrete and wood, with indigenous materials and with wood respectively. There are more houses made of combination of wood and concrete and only wood in poblacions than in non-poblacion barangays. On the other hand, more residences are constructed with concrete and indigenous materials in non-poblacion barangays than in poblacions. The average price per square meter of houses made of concrete is 2,370 pesos, wood 1,500 pesos, concrete and wood combined 1,939 pesos, and indigenous materials 467 pesos.

#### Prices of residential lots

Table 5 also indicates the average price of residential lots by municipality. Appendix D also shows the details of this table.

The most expensive lots are found in San Nicolas at 558 pesos/m<sup>2</sup>, followed by Laoag City at 281 pesos/m<sup>2</sup>. Lot prices of less than 100 pesos/m<sup>2</sup> are found in the mountain towns of Piddig (partly mountainous), Espiritu, Marcos, and Nueva Era. The ratio of residential lot prices between poblacion and non-poblacion barangays is 5.56:1.

## Numbers and prices of house furnitures/appliances

Table 6 shows the average percentage of households by type of furniture/appliance and the average prices of furnitures/appliances by municipality. Details of this table are shown in Appendix E:

Of the 21,792 households in the survey area, 38% have chests of drawers, 46% have televisions, 2% have carpets, 66% have dressers, 79% have sofa sets, 84% have stereos, 80% have cabinets, 95% have dining sets, and 39% have refrigerators.

#### 2-3. Agriculture and Fishery

#### Areas and prices of farmlands

As shown in Table 7, the average farm size is 153 has/barangay and 1.04 has per farmer. It is 0.52 ha/farmer in poblacion barangays and 1.13 has/farmer in non-poblacion barangays. The farm households in Lacag City, Sarrat and Solsona possess on the average less than one hectare of farmland.

Table 7 also shows that the average farm lot price is 44.98 pesos/m<sup>2</sup>. The highest farm lot price is 137.50 pesos/m<sup>2</sup> in San Nicolas, followed by 124.50 pesos/m<sup>2</sup> in Laoag City, while the lowest is 10.67 pesos/m<sup>2</sup> in the mountainous town of Marcos. The price in poblacion barangays is twice the price in non-poblacion barangays.

Details of Table 7 are shown in Appendix F.

## Cropping patterns of different crops

The cropping patterns and calendars prevailing in the survey area are presented in Table 8. Appendix 6 shows the FDFFS survey results, while Appendix J presents the same data at city/municipal level as provided by the Provincial Agriculture Office (PAO). The following four types of cropping pattern can be deduced from the survey results:

i) Paddy rice + paddy rice
ii) Paddy rice +
iii) Paddy rice + upland crops
iv) + upland crops

In the survey area, the wet season paddy rice is transplanted as early as May and as late as July and harvested as early as August and as late as December. The dry season paddy rice is transplanted as early as September and as late as January depending on the supply-limits of irrigation water, and it is harvested from January to May. The cropping time varies from year to year due to unstable irrigation conditions.

In Table 8, the cropping pattern usually prevailing in the city/municipality, as provided by the Provincial Agriculture Office (PAO), is shown for the purpose of comparison with FDFFS survey results.

As shown in Table 8, upland crops like corn, mongo beans, vegetables, etc. are mostly cultivated in the dry season, except for tobacco which grows in one year.

#### Planted Areas

According to the FDFFS survey results as shown in Table 8, the total planted area in the wet season is 25,193 has, and 82% of which are covered with different crops in the dry season.

About 19,153 has are irrigated paddy fields in the wet season. The irrigated area in the dry season is estimated at 9,003 has which are cropped with dry season paddy rice. The rainfed paddy fields account for about 5,302.5 has, occupying about 22% of the total hectarage for paddy rice.

After harvest of the wet season paddy rice, 82% of the farmlands are planted with different crops in the dry season. Upland crops like corn, mongo beans, vegetables, etc. are grown without irrigation in about 11,673.6 has. About 92.5% of which are planted with corn (5,182 has), mongo beans (2,001.5 has), vegetables (1,682 has), garlic (854 has), tobacco (584 has) and cotton (490 has).

Wet season upland crops are grown only in 737.5 has.

Appendix H shows the survey results on planted areas in detail.

#### Yields and prices of crops

As shown in Table 9, the average yield of paddy rice in the survey area ranges from 2.95 MT/ha in Laoag City to 4.05 MT/ha in San Nicolas. For the whole city/municipality, the average yield varies from 3.5 MT/ha to 4.0 MT/ha in 1991 and, according to PAO, from 3.7 MT/ha to 4.5 MT/ha. The large variation may be attributed to different irrigation condition in different places.

The average price of palay in the survey area ranges from 10,000 pesos/MT to 11,360 pesos/MT, which are comparable with those given by PAO.

Table 9 also shows the yields and prices of upland crops in the survey area, as compared with those in 1991 and those provided by PAO. The details of yields and prices of paddy rice and the different upland crops are found in Appendices I and J.

#### Productions and prices of livestock

According to PAO's data in Table 10, the average production of cattle in one barangay ranges from 41 heads (6.1 MT) in San Nicolas to 257 heads (38.2 MT) in Piddig, assuming a carcass weight of 150 kgs for one cattle. The hogs' average production varies from 62 heads (3.6 MT, assuming a carcass weight of 58 kgs) in Laoag City to 302 heads (17.5 MT) in Dingras. For chicken, the highest and lowest average production per barangay are 1,125 heads in Marcos and 208 heads in Piddig respectively.

As shown in Table 10, the FDFFS surveyed prices for cattle and chicken are higher than those of PAO.

Appendices I and J detail the survey results on the productions and prices of livestock.

### Productions and prices of fish

As shown in Table 11, Tilapia is raised in Laoag City and the seven municipalities excluding Piddig. Its average production ranges from 0.40 MT in Espiritu to 4.64 MT in Solsona and its average price is 65,000 pesos/MT. Bangus and other fish are produced in Laoag City.

Appendices I and J present the survey results on fish productions and prices.

#### 2-4. Social Conditions

#### Infrastructure

Table 12 presents the type, number and cost of the infrastructures existing in the survey area by municipality. Appendix K shows them in detail. Take note in this table that no hospitals but only day care and health centers were found in the surveyed barangays.

#### Factory

Table 12 and Appendix K show that only six factories were surveyed: one in Sarrat and five in Laoag City.

#### 2-5. Flooding

## (a) Characteristics of Flooding in Laoag River Basin

## Typhoons/storms that caused heavy flood damages in the area

Table 13 list the names and dates of occurrence of the typhoons that caused heavy flood damages in the survey area. Although Typhoon Pepang flooded 78 barangays as compared with the 60 barangays inundated by Typhoon Gening, the flood water in the latter was deeper than in the former. Out of the 14 typhoons mentioned by the respondents, these Typhoons Gening, Pepang and Maring were

the most devastating. As indicated in the table below, Typhoon Gening was most damaging (in terms of the number of barangays affected) in Laoag City, San Nicolas, Sarrat and Marcos, while Typhoons Pepang and Maring affected greatly the municipalities of Espiritu, Dingras and Solsona.

Typhoon	Piddig	Laoag City	San Nicolas	Sar- rat	Espi- ritu	Mar- cos	Ding- ras	Sol- sona	Nueva Era
Gening	4	9	6	14	2	10	1	0	2
Pepang	3	1	0	2	9	0	16	20	3
Maring	Ö	0	0	0	0	0	4	1	0

#### Causes of flooding

As shown in Table 14, the main cause of flooding in the survey area during Typhoons Gening and Pepang was river overflow. And, a combination of river overflow and poor drainage system caused the inundation in some of the poblacion barangays.

#### Flood duration in the barangay

Table 14 shows that the duration of flooding in the surveyed barangays during Typhoons Gening and Pepang ranged from as short as one (1) hour to as long as seven (7) days. As indicated in the table below however, floodwater in majority of the surveyed barangays subsided in 3 to 12 hours.

Flood duration (hrs)	Piddig	Laoag City	San Nicolas	Sar- rat	Espi- ritu	Mar- cos	Ding- ras	Sol- sona	Nueva Era
1 2 3	1 2	1 1 4	1	2 6	3	1.00 1.00	14	9	<b>3</b> .
6 12	2	2	5	2 7	8	3	9	7	
24 48 >48	2	1		1		4 2	2	1 5	1 1

Moreover, the table below demonstrates that flood duration in the barangay is not relative to the floodwater level. At different levels of flood water (from 0 to more than 1.5 m.), flood receded within 12 hours in almost all the surveyed barangays.

Floodwater level above		Flood o	luration (hours)		
road	0 to 12	12 to 24	24 to 48	>48	
0 to 0.5 m.	23	0	1	2	
0.5 to 1.0 m.	35	1	4	4	
1,0 to 1.5 m.	20	· ' <b>0</b>	0	0	
> 1.5 m.	11	0	1	0	· · · · · ·

## Flood flow velocity in the barangay / Type of inundation

As shown in Table 14, the type of inundation in the survey area was generally flowing, and the flood flow velocity in the barangay was related to the flood duration. Thus, a flood duration of 0 to 12 hours would mean a very fast flood flow velocity; 13 to 24 hours would mean a fast flood flow rate; 25 to 48 hours would mean a moderate flood flow velocity; and more than 48 hours would mean a slow to very slow flood flow velocity.

The survey indicates that the flood flow velocity in the barangay during Typhoons Gening and Pepang was very fast considering the number of cases where the flood lasted within 12 hours only.

## Extent of inundation in the farmland

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During Typhoons Gening, Pepang and Maring, most of the farmlands in the survey area were 100% inundated as shown in Table 14 and emphasized in the table below.

Percentage of	Number of	
farmland flooded	barangays	
0 to 0.5	10	
0.5 to 1.0	104	

## Maximum depth of floodwater above street level, groundfloor and farmland

The table below shows by municipality the ranges of maximum depths of flood water above street level and the number of surveyed barangays in each range. It indicates that the maximum level of flood water in most barangays in the survey area was within 1.5 meters only.

•	7							
Floodwater levels (m)	Piddig	Laoag City	San Nicolas		Espi- Mar- ritu cos	Ding- ras		Nueva Era
				1	1 2	5	7	
0 to 0.5	2			*1	4 6	0	4.1	. 1
0.5 to 1.0	1	- 6	2	6	5 3	9	111	
1.0 to 1.5	2	2	3	2	1 3	7	2	1
. •	3	-	Ÿ .	~	1	1	1	
1.5 to 2.0	1			3	•	•	•	
> 2.0			1	_3	1	<u> </u>	<del>-7</del>	

Here, it must be emphasized that if the flood water level is above the road level, it follows that the farmland is already under water since, in most cases in the survey area, the road level is higher than the farmland.

Because of the absence of a common benchmark for the entire survey area, it is difficult to compare the extent of inundation or the floodwater depths among the surveyed barangays.

Condition of floodwater/sediment deposits at farmlands, residential areas and roads

After the flood, boulders are deposited along riverbanks; gravel and sands are transported to the farmlands by floodwaters; and silts are found not only in farmlands but also in residential areas and road systems.

In the table below, the survey shows that the sediments deposited in the farms of the downstream municipality of San Nicolas and Laoag City are mostly silt and sand. Piddig, Espiritu, Marcos and Nueva Era which are upstream towns receive sand and gravel deposits in their farmlands. The sediment deposits in the farmlands in Sarrat, Dingras and Solsona vary from silt to gravel including debris.

Sedi-	Piddig	. •					Ding-		Nueva
ments		City	Nicolas	rat	ritu	cos	ras	sona	Era
Silt	0	8	0	5	0	0	15	3	1
Sand	3	1	6	3	1	4	1	2	1
Gravel	4	1	0	9	10	6	4	11	3
Debris							6	6	

The table below for the sedimentation in the road system indicates almost the same results or pattern as in the above table (for the farmlands).

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Sedi- ments	Piddig	Laoag City	San Nicolas	Sar- rat	Espi- ritu	Mar- cos	Ding- ras	Sol- sona	Nueva Era
Silt	2	8	6	9	5	3	- 15	5	1
Sand	2	1		8	5	4	2	1	1
Gravel	3	1		1		1	3	. 11	
Debris							3	4	

#### (b) Details of Flood Damage

#### Direct damages

#### Damage to crop and livestock

In Table 15, the percentage of crop damaged is expressed in terms of the total crop production expected from the flooded farmland. However, the crop damage ratio should be derived considering flood depth, flood duration, sedimentation, flood flow velocity and crop growth stage.

The table below shows the apparent relationship between percentage of crop damaged and floodwater level. The direct relationship between the two could be clarified only if the floodwater level is tied up with true elevations after a topographic survey of the study area is made.

Floodwater level above		Percentage of	of crop damaged	
road	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1.0
0 to 0.5 m.	3	°6'''.	9	6
0.5 to 1.0 m.	3	8	12	. 17
1.0 to 1.5 m.	1	2	5	16
> 1.5 m.	. + 0 , + 1 1	2	3	- 6

The percentage of livestock damaged is expressed in terms of the total livestock production. As shown in the table below, this percentage is relatively small: only less than 25% in most cases. It is also indicated that no direct relationship between percentage of livestock damaged and floodwater level exists because of human intervention: livestock is moving and can be evacuated easily during floods.

Floodwater level above		Percentage of li	vestock damage	d
road	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1.0
0 to 0.5 m.	12	5	1	• 0
0.5 to 1.0 m.	31	7	2	1
1.0 to 1.5 m.	16	4	3	1
>1.5 m.	3	3	0	0

#### Damage to buildings

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There are about 21,792 households subject to flooding in the survey area. About 84% of houses is made of strong or mixed materials such as concrete or woods and 9% is made of indigenous but weak materials and could easily be destroyed by strong flood current.

As shown in Table 16, most houses that were totally damaged in the survey area were due to the very fast flood flow velocity in the barangay. The flood duration in the barangay was mostly 12 hours. In the table below, the percentage of houses totally damaged was mostly lower than 25%, regardless of the height of floodwater in the barangay. This percentage is low since only few houses are made of weak materials.

Floodwater level above	F	Percentage of hor	uses totally dama	ged
ground floor	0 to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1.0
O to 0.5 m.	6	i 0	0	0
0,5 to 1.0 m.	10	∜ 1	0	0
1.0 to 1.5 m.	ġ	₹ 1	0	0
> 1.5 m.	6	1	0	<u> </u>

## Damage to building contents (furniture and appliances)

As shown in Table 17, furniture/appliance damage in the survey area was mostly related to the very fast flood flow velocity and the 12-hour (or shorter) flood duration in the barangay. In the table below, the percentage of furniture/appliance

damaged was mostly lower than 25%, also regardless of the height of floodwater in the barangay. This low percentage is due to the fact that furniture and appliances are usually evacuated or placed in higher places during floods.

Floodwater level above	•	Percentage of fo	urniture damaged	
ground floor	O to 0.25	0.25 to 0.5	0.5 to 0.75	0.75 to 1.0
0 to 0.5 m.	8	0 11 2 1 4	1	0
0.5 to 1.0 m.	17	3	0	1
1.0 to 1.5 m.	12	5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1
>1.5 m.	12	4	2	U.

#### Number of casualties

Table 18 shows that Typhoon Gening claimed 13 human lives and Typhoon Pepang had 29 casualties.

#### Indirect damages

The indirect damage consists of the income loss due to suspension of normal activities due to flood.

As shown in Table 19, suspension of farm operation and road transportation lasted from one day to several years. This did not depend obviously on the duration and height of floodwater but on the thickness of sedimentation. Sediments deposited on the farmlands are sometimes too thick to cultivate. While the restoration of unpassable roads depends on how fast the government respond to the request of the barangay for equipment that will remove the sediment deposits.

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#### River washed areas

Most of the non-cultivated areas belong to the river washed lands along the big tributaries in the survey area. These washed lands are covered with gravel and sands which are too thick to cultivate. The table below summarizes Table 20 with regards to the present land use and hectarage as surveyed. The surveyed river washed areas are shown in the inundation map in Appendix N.

	·
Present land use	Hectarage
Rivercourse/watercourse	94.04
Bare	1,657.7
Fishpond	3.5
Partially planted	406
Others	1.5 : :
	2,162.74
Total	2,1

#### 2-6. Flood Preparedness/Fighting

#### (a) Flood Preparedness

Appendix L contains the Calamities and Disaster Preparedness Plan prepared by the National Disaster Coordinating Council (NDCC). This plan presents among

others the composition and responsibilities of the national organization for emergencies, the organization that will provide the vehicle for a concerted and coordinated disaster control effort from the National down to the Regional, Provincial, City/Municipal and Barangay levels. Under this plan, the NDCC shall exercise direction and control, through the Office of Civil Defense, over all emergency operations from the regional down to the lowest political subdivisions /councils. The Council shall coordinate the department's support/assistance activities in disaster management through this organizational arrangement. It shall likewise provide top executive management and control over multi-departmental types of disaster-stabilization operations.

At barangay level, a Barangay Disaster Coordinating Council composed of the Barangay Captain as Chairman and leading persons in the community as members has the following tasks:

- Establishes the Barangay Disaster Operations Center (BDOC);
- 2. Coordinates from the BDOC, the disaster operation activities of its tasked units;
- Implements within the barangay the guidelines set by the Municipal Disaster Coordinating Council (MDCC);
- Advises the members of the Barangay Disaster Coordinating Council regarding disaster management; and
- 5. Submits recommendations to the MDCC/CDCC as necessary.

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With regard to flood preparedness in the survey area, the barangay officials and people undertake the activities enumerated in the table below and detailed in Table 21, including those of DPWH and LGU. The two most common measures adapted by the barangay is to construct temporary river bank protections and to advise on possible evacuation. The participation of DPWH has been limited to a few barangays because their measures are permanent and require funds from the government. About 23 barangays are inactive relative to flood preparedness.

		Number of
	The ad Dropped pass	Barangays
	Flood Preparedness	4
1	Brgy officials instruct people to evacuate	43
2	Brgy people construct temporary river bank protection	5
3	DPWH constructed spur dikes and ripraps	33
4	Brgy officials advise people to prepare for possible evacuation	23
5	None	1
6	LGU declogs drainage system	7
7	People construct temporary trench made of bamboo and stones	1
8	Poods transfer furniture to higher places	2
9	DOWN deedged Burnay River and constructed temporary dikes	
10	People transfer commodities and livestock to higher places	<u> </u>

#### (b) Flood Fighting

As shown in Table 21 and summarized in the table below, the barangay resorts only to evacuation of affected families to higher grounds as a means to fight flood.

		Number of
	Flood Fighting System	Barangays
1	Evacuation of affected families to higher grounds	59
2	None	47
3	Transfer of furniture to higher grounds	2
: 4	Construction of emergency river bank protection	7

#### 2-7. Request for a Sabo and Flood Control Project

Since there is always the possibility of occurrence of big floods and subsequent damage of existing cultivated areas in the future, some measures to protect the enlargement of this non-cultivated area are requested by the surveyed barangays.

Table 22 shows that the measure requested by most of the barangays is dredging of the river (35%), followed by bank protection (22%) and general river control (17%). The barangay people were very receptive to any project that will mitigate flooding in Laoag River Basin. This table is detailed in Appendix M.

#### 2-8. Inundation Map

Appendix N contains the inundation map of the survey area. This map (1/70000) was made based on the various data collected during the FDFFS survey. This map is expected to be revised when the actual topographic survey of the study area is completed and more accurate data are collected.

- 1. Inundated area is shown in yellow color. The boundaries of which were approximated during the survey or interview.
- 2. River washed areas are shown in blue color. The boundaries of which were also estimated during field interviews.
- 3. Rivers and other bodies of water are dark blue lines and colored dark blue.
- 4. Largest flood (LF) indicates the year of occurrence of the largest flood experienced in the surveyed barangay.
- 5. Depth of water (DW) indicates the maximum floodwater level above the street, farmland or groundfloor experienced in the surveyed barangay.
- 6. Type of flow (TF) indicates the flood flow velocity in the barangay during the largest flood and whether the floodwater is flowing or ponding.
- 7. Extent of damage (ED) includes river washed areas and damage to crop, houses, and furniture/appliances. Damages are presented as described above.

#### 3. Conclusion

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This report presents the results of the FDFFS survey as to the flooding conditions, damages, and non-structural measures for flood mitigation during the past major flood events. In particular, the data gathered from this survey shall form the basis for estimating the damageable values of crops, livestock, fish, infrastructures, etc. and calculating damage ratios to be used for flood damage analysis.

**TABLES** 

Table 1 Survey	red barangays, respondents and date Y BARANGAY	BARANGAY CHAIRMAN	DATE OF INTERVIEW
1 Piddig	Bimmanga	Leonor BALGUNA	5/11/1996
-	Callusa	Jimmy BAYAG	5/10/1996
2 Piddig	Dupitac	Bernardo HILARIO	5/10/1996
3 Piddig	Estancia	Octavio CASTRO	5/11/1996
4 Piddig	Gayamat .	Nestor BRINGAS	5/10/1996
5 Piddig	Libnaoan	Rogelio BARTOLOME	5/11/1996
6 Piddig	Mangitayag	Anastacio SANTOS	5/11/1996
7 Piddig	1 San Lorenzo (Pob.)	Arturo GERONIMO	5/10/1996
8 Laoag City	30-a Suyo	Ricardo PASCUAL	5/9/1996
9 Laoag City	30-b Santa Maria	Ruben DULDULAO	5/9/1996
10 Laoag City	34-b Gabu Norte East	Serafin ACIERTO	5/10/1996
11 Laoag City		Graciano ALONZO	5/9/1996
12 Laoag City	43 Cavit (4) 45 Tangid	Narciso MOLINA, SR.	5/9/1996
13 Laoag City	51-a Nangalisan East	Gilbert MARTILLANO	5/10/1996
14 Laoag City		Aurelio PASION	5/10/1996
15 Laoag City	51-b Nangalisan West	Constantino CORPUZ	5/9/1996
16 Laoag City	53 Riceng	Godofredo MANGAOIL	5/10/1996
17 Laoag City	54-b Camangaan	Edgar ESPEJO	5/16/1996
18 San Nicolas	1 San Francisco (Pob.) 24 Santa Monica (Nagrebcan)	Jaime ULEP	5/15/1996
19 San Nicolas	San Baltazar (Bo.2) (Pob.)	Ruben LAZO	5/16/1996
20 San Nicolas	The state of the s	Victor QUETORAS	5/15/1996
21 San Nicolas	San Bartolome (Bo.4) (Pob.)	Napoleon HERNANDO	5/16/1996
22 San Nicolas	San Ildefonso (Bo.3) (Pob.) San Juan Bautista	Loreto HERNANDEZ	5/15/1996
23 San Nicolas	. · · · · · · · · · · · · · · · · · · ·	Gerardo GANIRON	5/13/1996
24 Sarrat	San Agustin (Pob.)	Rolando AGORILLA	5/15/1996
25 Sarrat	San Andres	Ireneo H. CALAMAAN	5/15/1996
26 Sarrat	San Antonio San Cristobal	Doroteo BASUG	5/14/1996
27 Sarrat		Ermilio DOCTOR	5/14/1996
28 Sarrat	San Felipe San Francisco (Pob.)	Manuel TABORA	5/16/1996
29 Sarrat	- The state of the	Donato RAMOS	5/14/1996
30 Sarrat	San Isidro	Camilo RASOS	5/15/1996
31 Sarrat	San Joaquin (Pob.) San Jose	Jimmy GANITANO	5/14/1996
32 Sarrat	San Leandro (Pob.)	Onofre FERNANDEZ	5/13/1996
33 Sarrat	San Lorenzo	Felix GANAL, SR.	5/14/1996
34 Sarrat	San Manuel	Federico GANAL	5/14/1996
35 Sarrat	San Marcos	Mariano DORONIO	5/14/1996
36 Sarrat	San Nicolas	Ferdinand GANO	5/14/1996
37 Sarrat	San Roque	Sotero CALANTO	5/13/1996
38 Sarrat	San Vicente (Pob.)	Anthio BULALACAO	5/13/1996
39 Sarrat	Santa Barbara (Pob.)	Doroteo PAZ	5/15/1996
40 Sarrat	Santo Tomas	Juanito AGMATA	5/14/1996
41 Sarrat	Balioeg	Artemio GALARSE	5/14/1996
42 Espiritu	Bugasi	Domingo ABIAN	5/14/1996
43 Espiritu	Caestebanan	Maximiano AGPALASIN	5/10/1996
44 Espiritu	Caribquib	Teodorico MORELLA	5/11/1996
45 Espiritu	Catagraguen	Elideo de la CRUZ	5/10/1996
46 Espiritu	Hilario (Pob.)	Marilyn ABROGENA	5/11/1996
47 Espiritu 48 Espiritu	Lorenzo (Pob.)	Rodolfo DOMANICO	5/11/1996
•	Macayepyep	Santiago MORALES	5/11/1996
49 Espiritu	Sinamar	Damian BENITO	5/10/1996
50 Espiritu	Tabtabagan	Julio LAROCO	5/9/1996
51 Espiritu	IndiadaSmi		

Table 1 Surveyed barangays, respondents and dates of interview. (2/3)

		DAPANCAY	BARANGAY CHAIRMAN	DATE OF INTERVIEW
	MUNICIPALITY	Valdez	Ignacio RAMOS	5/9/1996
	Espiritu	Cacafean	Roberto PUGYAO	5/8/1996
	Marcos	Daquioag	Anselmo B. MABUTI, JR	5/8/1996
	Marcos	Elizabeth (Culao)	Llanes A. BASUG	5/8/1996
	Marcos	Escoda	Benjamin C. TANGONAN	5/9/1996
	Marcos	Ferdinand Ferdinand	Marcelino J. BALLON	5/8/1996
	Marcos		Marilyn A. JUAN	5/7/1996
	Marcos	Fortuna Pacifico (Agunit)	Angel B. MALVAR	5/9/1996
	Marcos	· · ·	Wison C. SIMEON	5/8/1996
	Marcos	Santiago	Gines S. GUILLERMO	5/8/1996
	Marcos	Tabuchuc (Ragas)	Nerio P. PILLOS	5/7/1996
	Marcos	Valdez	Benigno AQUINO	5/1/1996
	Dingras	Albano (Pob.)	Dionisio FELIFE	4/30/1996
	Dingras	Bagut	Ambrocio MANDING	4/27/1996
	Dingras	Parado(Bangay)	Loreto ROSQUESTA	4/26/1996
	Dingras	Baresbes	Elpidio DE LOS SANTOS	4/26/1996
	Dingras	Barong	Santiago LAGRIO	5/1/1996
	Dingras	Bungcag	Renato CEREDON	4/30/1996
	Dingras	Dancel	==::	4/28/1996
	Dingras	Elizabeth	Carmelo BASILIO	4/27/1996
71	Dingras	Foz	Donato RUBIO	4/30/1996
72	2 Dingras	Guerrero (Pob.)	Joefrey SAGUID	
73	Dingras	Lanas	Bernardino SARMIENTO	4/28/1996
74	Dingras	Lumbad	Roland BALLESTEROS	4/30/1996
75	Dingras	Madamba (Pob.)	Elvis PARADO	5/1/1996
76	Dingras	Mandaloque	Reynaldo HIDALGO	5/16/1996
· 77	Dingras	Medina	Dominador CASTRO	4/27/1996
78	Dingras	Peralta (Pob.)	Agustin LAGRIO	5/1/1996
79	Dingras	Puruganan (Pob.)	Emiliana VALENCIA	5/2/1996
80	) Dingras	Root (Baldias)	Benigno SABUCO	5/2/1996
- 81	Dingras	Sagpatan	Anastacio ABADILLA	4/29/1996
82	2 Dingras	San Esteban	Egmidio MACARIO	4/29/1996
83	3 Dingras	Francisco	Elena BALENDIA	4/26/1996
84	Dingras	San Marcelino (Padong)	Vivencio AGUILAR	4/26/1996
8	5 Dingras	San Marcos	Ernesto SALVADOR	4/29/1996
8	5 Dingras	Sulquiano	Generoso MONTE SR.	5/3/1996
	7 Dingras	Suyo (3)	Julio CALANO	5/2/1996
	B Dingras	Ver	Artemio BAYUDAN	4/28/1996
	9 Solsona	Aguitap	Faustino VALDEZ JR.	5/3/1996
	O Solsona	Bagbag	Mario AGCAOILI	5/3/1996
	1 Solsona	Bagbago	Brigido JUAN	5/8/1996
	2 Solsona	Barcelona	Edwin MATEO	5/2/1996
	3 Solsona	Bubuos	Andrew MACKAY	5/3/1996
	4 Solsona	Capurictan	Efren IOSE	5/3/1996
	5 Solsona	Catangraran	Franklin CALUMAG	5/5/1996
	6 Solsona	Darasdas	Melecio DE LOS SANTOS	5/1/1996
	7. Solsona	Juan (Pob.) (1)	Cresencio VILORIA	5/8/1996
- 1	8 Solsona	Laureta (Pob.)	Edison De LARA	5/8/1996
100	9 Solsona	Lipay	Freddie ABAD	5/2/1996
	O Solsona	Maananteng	Augusto PASCUA	4/30/1996
	1 Solsona	Manalpac	Elpidio DOMINGO	5/5/1996
10	T Salgana			

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MUNICIPAL	eyed barangays, respondents ITY BARANGAY	BARANGAY CHAIRMAN	DATE OF INTERVIEW
103 Solsona	Nagpatpatan	Loreto RARANGOL	5/5/1996
104 Solsona	Nalasin	Andres JAMIAS	4/30/1996
104 Solsona 105 Solsona	Puttao	Cirilo RAYMUNDO	5/5/1996
105 Solsona	San Juan	Nestor GALLEGOS	5/2/1996
100 Solsona	San Julian	Eymard GANAL	5/2/1996
107 Solsona	Santa Ana	Jose MARTINEZ	5/5/1996
	Santiago	Benjamin GASPAR	5/8/1996
109 Solsona	Talugtog	Macarte AGPAOA	4/30/1996
110 Solsona	Acnam	Aurencio GALUT	5/12/1996
111 Nueva Era	Cabittauran	Osias BUENO	5/13/1996
112 Nueva Era		Fernando BALAGSO	5/12/1996
113 Nueva Era	Caray Poblacion	Lenin ALEJANDRO	5/13/1996
114 Nueva Era 115 Nueva Era	Santo Nino	Macario DE LOS REYES	5/13/1996

Santo Nino

115 Nueva Era

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Table 2 Population, annual growth rate, average household size and number of households of surveyed barangays by municipality: 1990 census and 1996 FDFFS survey.

MUNICIPALITY         1990         1996         GROWTH RATE         HOUSEHOLD SIZE         HOUSEHOLDS         HOUSEHOLDS         HOUSEHOLDS         HOUSEHOLDS         HOUSEHOLDS         HOUSEHOLDS         HOUSEHOLDS         HOUSEHOLDS         RSS         HOUSEHOLDS         HOUSEHOLDS			POPULA	LATION	0661		1996	
CIPALITY 1990 1996 GROWTH RATE HOUSEHOLD SIZE SIZE SIZE SIZE SIZE SIZE SIZE SIZE				AVE. ANNUAL	AVERAGE	NUMBER OF	AVERAGE	NUMBER OF
3,963         5,318         4.88         4.94         802         6.20           City         9,618         11,465         2.74         5.04         1,909         5.62           colas         6,925         8,615         3.49         4.93         1,406         7.76           1         9,234         19,381         1.68         4.91         3,533         5.37           1         9,234         10,091         1.33         5.12         1,802         5.04           5         26,149         34,707         4.68         5.14         5,084         6.57           5         26,149         34,707         4.68         5.07         3,720         6.00           Era         2,907         4,518         7.92         4.99         5.04         5.02           Cons         2,007         4,518         7.92         4.99         5.04         5.24           Lra         104,235         131,029         3.67         5.04         4.235         5.34           Land         20,998         24,990         2.72         4.96         4.235         6.13           Soly         30,066         3.91         5.04         91,606 <th< th=""><th>MUNICIPALITY</th><th>1990</th><th>1996</th><th>GROWTH RATE</th><th>HOUSEHOLD SIZE</th><th>HOUSEHOLDS</th><th>HOUSEHOLD SIZE</th><th>HOUSEHOLDS</th></th<>	MUNICIPALITY	1990	1996	GROWTH RATE	HOUSEHOLD SIZE	HOUSEHOLDS	HOUSEHOLD SIZE	HOUSEHOLDS
lity         9,618         11,465         2.74         5.04         1,909         5.62         2           olas         6,925         8,615         3.49         4.93         1,406         7.76         1,76           olas         6,925         8,615         3.49         4.93         1,406         7.76         1,76           17,339         19,381         1.68         4.91         3,533         5.37         3,37           9,234         10,091         1.33         5.24         1,761         6.38         1,70           26,149         34,707         4.68         5.14         5.084         6.57         5.04           5ra         2,907         4,518         7.92         4.99         583         5.32           5ra         2,907         4,518         7.92         4.99         5.83         5.32         4.4           5ms         20,998         24,990         2.72         4.96         4.23         5.34         4.4           5 NORTE         390,666         106,039         3.91         5.09         91,606         6.13         17.	Piddig	3,963	5,318	4.88	76.7	802	6.20	828
olas         6,925         8,615         3,49         4,93         1,406         7.76         1           17,339         19,381         1.68         4.91         3,533         5.37         3           9,233         11,648         3.74         5.24         1,761         6.38         1           2,234         10,091         1.33         5.12         1,802         5.04         2           26,149         34,707         4.68         5.14         5,084         6.57         5           18,867         25,286         4.86         5.07         3,720         6.00         4           5ra         2,907         4,518         7.92         5.06         5.07         5.32           5ra         2,907         4,518         7.92         4.99         583         5.32           5ra         20,998         24,990         3.67         5.06         4,235         5.54         4,44           5 NORTE         390,666         5.07         5.04         91,606         6.13         17,54	Lozg City	9,618	11,465	2.74	5.8	1,909	5.62	2.040
17.339     19,381     1.68     4.91     3,533     5.37     3       9,233     11,648     3.74     5.24     1,761     6.38     1       9,234     10,091     1.33     5.12     1,802     5.04     2       26,149     34,707     4.68     5.14     5,084     6.57     5       18,867     25,286     4.86     5.07     3,720     6.00     4       3ra     2,907     4,518     7,92     4,99     583     5,32       ons     20,998     24,990     2.72     4,96     4,235     5.54     4       shoring     83,237     106,039     3,91     5.09     16,365     6.13     17       shorte     390,666     5.04     91,606	San Nicolas	6,925	8,615	3.49	4.93	1,406	7.76	1.110
9,233 11,648 3.74 5.24 1,761 6.38 1.4 9,234 10,091 1.33 5.12 1,802 5.04 2 26,149 34,707 4.68 5.14 5,084 6.57 5 18,867 25,286 4.86 5.07 3,720 6.00 4 37a 2,907 4,518 7,92 4,99 583 5.32 3.67 5.06 20,600 6.01 21 38,3237 106,039 3.91 5.09 16,365 6.13 17. 5.09 16,366	Sarrat	17,339	19,381	1.68	4.91	3,533	5.37	3.606
9,234     10,091     1.33     5.12     1,802     5.04     2       26,149     34,707     4.68     5.14     5,084     6.57     5       18,867     25,286     4.86     5.07     3,720     6.00     4       3ra     2,907     4,518     7.92     4.99     583     5.32       ons     20,998     24,990     2.72     4.96     4,235     5.54     4       shacions     83,237     106,039     3.91     5.09     16,365     6.13     17       S NORTE     390,666     5.04     91,606	Espiritu	9,233	11,648	3.74	5.24	1,761	6.38	1.827
26,149         34,707         4.68         5.14         5,084         6.57         5           3ra         18,867         25,286         4.86         5.07         3,720         6.00         4           3ra         2,907         4,518         7.92         4,99         583         5.32           104,235         131,029         3.67         5.06         20,600         6.01         21           ons         20,998         24,990         2.72         4.96         4,235         5.54         4           slacions         83,237         106,039         3.91         5.09         16,365         6.13         17           S NORTE         390,666         5.04         91,606         6.13         17	Marcos	9,234	10 001	1.33	5.12	1,802	8.8	2.001
18.867     25,286     4.86     5.07     3,720     6.00     4       sta     2,907     4,518     7,92     4,99     583     5,32       in     104,235     131,029     3.67     5.06     20,600     6.01     21       ons     20,998     24,990     2.72     4.96     4,235     5.54     4       slacions     83,237     106,039     3.91     5.09     16,365     6.13     17       S NORTE     390,666     3.91     5.04     91,606	Dingras	26,149	34,707	4.68	5.14	5,084	6.57	5.283
2.907     4.518     7.92     4.99     583     5.32       104.235     131,029     3.67     5.06     20,600     6.01     21       20,998     24,990     2.72     4.96     4.235     5.54     4       83,237     106,039     3.91     5.09     16,365     6.13     17       E     390,666     5.04     91,606	Solsona	18,867	25,286	4.86	5.07	3,720	9.9	4.217
104,235     131,029     3.67     5.06     20,600     6.01     21       20,998     24,990     2.72     4.96     4,235     5.54     4       83,237     106,039     3.91     5.09     16,365     6.13     17       E     390,666     91,606     5.04     91,606	Nueva Era	2,907	4,518	7.92	4.99	583	5.32	820
20,998     24,990     2.72     4,96     4,235     5.54       83,237     106,039     3.91     5.09     16,365     6.13       E     390,666     5.04     91,606	TOTAL	104,235	131,029	3.67	5.06	20,600	6,01	21.792
83,237       106,039       3.91       5.09       16,365       6.13         E       390,666       91,606	Poblacions	20,998	24,990	2.72	7.96	4,235	5.54	4.507
390,666	Non-poblacions	83,237	106,039	3.91	2.09	16,365	6.13	17,285
	ILOCOS NORTE	390,666			5.04	91,606		

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Table 3 Population, population density, annual growth rate, average household size and number of households by municipality: 1980 and 1990.

and 1950.					POPULATION	Z	1990	
		POPULATION	JON		VITAGE	•	AVERAGE	NUMBER OF
1			AVE. ANNUAL LAND AKEA	LAND AKEA	DENOTE I			
		5	ETA O TIMO	(sa. km.)	1980	861	HOUSEHOLD SIZE	HOUSEHOLDS
NGNICIPALITY	1980	Ž,	ONO WITH NOW	, C. C.		70.50	4 93	3,466
	VLL VI	17.078	1.46	179.70	77.78	5		3000
Piddig			70 -	100	7 80 779	779.13	4.97	16,800
1 2020 (35)	69 648	83,756	1.60	YC-/04			2	203 3
Lavas City		700	2 4 48	C 07	474.32 50	560.49	3.6	640.0
Nan Nicolas	45.55	750.17	20.1		. :	(	\$	4 369
;	100	21 222	1.24	80.30	232.94 20	263.09	60.1	1000
Sarrat	0.6/12	7,417				00 00	5.21	2.947
1	1000	15 342	1.76	74.50	112.30	56.50		300
respiritus -	700.71	200	•		130 80	163.65	8.13	2,552
30000	10 306	12.38	45.7	T+ . K .		,		(1)
Marcos	200		C7 .	100 30	264.58 3	304.58	5.14	44.0
Tringras	26.511	30,019	71.1	2007		,		3 720
		10 003	2.51	163.50	2.18	75.07	0.00	
Solsona	14.101	700.01		06 117	0 Y	× 13	5.05	1.038
Mireys Drs	3.927	5.238	76.7	2.15				507 YV
١	۱	012	1 78				10.0	CO+, C+
TOTAL	194,966	232, 130	0/1	ļ		125 01	40.4	91.606
HEADN SOCIETY	390 666	461,661	3.68	3,399,34	114.95	0.00		
21101100000	١							
			January 2010 1000 1000 1000 1000 1000 1000 100					

	SURVEY	LAOAG		-1433	-5210	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	くいつく		I CONTRACT TOTAL
OCCUPATIONS		CITY NICOLAS	SARRAT	RITU MARCOS	S RAS	SONA	ERA	CIONS	LACIONS
Farmers			:			;	·		
with livestock	137 90	92	150	133 201	1 150	172	192	8	147
Farmers with-								i	
out livestock	10	16 2	8	7	31	m		80	OI OI
Camenters	7	13 43	m	7	7	Ś		16	S
Privile officials	20 18	31 24	8	14	18 19	ន	X,	51	12
I a votett	9	22 49	01	4	\$	7	12	23	7
Tichomon	: \	•			7		73	7	\ 1
risher men	1, 0	· · ·	٦		2			ν,	<b>₽</b> H
Doctors	4 6	3 C	•	· •	V	V		. 4	g-4
Engineers	<b>4</b> (0)	4 0	•	•			÷	«	7
Businessmen	7	9 T			; ;			, (	; ;
Witters		9	Ÿ		<b>V</b>			<b>a</b> .	Ž
Skilled workers		സ	Ÿ		<b>;-4</b>	V		7	V
Teachers	⊽	\$				• • • • • • • • • • • • • • • • • • •		<b>-</b> 4	Ÿ
Pensioners	V				: : :*				v V
Nurses	2 2	7	n		<b>-</b>	<b>⊽</b>	*	rrs	•
Store/canteen								•	•
cmployees		7				÷		6.3	V ·
Factory workers		7							<b>4</b>

Table 3 Average marroy mis	2 22 22 22 22 22 22 22 22 22 22 22 22 2	Table 5 Average number and price of the CONCRETE INDIGENOUS AVERAGE PRIC	AVERAGE PRICE* OF
	CONCRETE	WOOD AND WOOD MATERIAL	RESIDENTIA
	30	14 70 17	152.72
SURVEY AREA		\$ C\$	85.71
Piddig	<b>G</b>		281.11
Laoag City	178	3/ 3/	558 33
San Nicolas	74	83 10	57.57¥
Sarrat	77	18 89 10	21.50
Espiritu	79	3 53 53	COTTO TO THE TOTAL THE TOTAL TO THE TOTAL TOTAL TO THE TO
Marche	192	\$2	co.ci
Jylai CO3	7.5	19 81 17	121.96
Dingras	5 5	67	120.42
Solsona	5 6	21	95.00
Nueva Era	က မ		422.90
Poblacions	11	(A)	65 36
Non-poblacions	86	ET	
AVERAGE PRICE*		OU LYX THE CHARLE ON GOOD IN THE REPORT OF THE PROPERTY OF THE	
OF DWELLING UNIT	2,370.00		

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	HOUSE		100			1 1 1				1
SURVEY AREA Piddig		CHEST OF		Tagar	DRESSER	SOFA SET	STEREO	CABINET	SET	GERATOR
SURVEY AREA Piddig	HOLDS	DKAWEKS	NOTOR A		<b>39</b> 0	0,70	22.0	0.80	0.95	0.39
Piddig	21,792	0.38	0.40	70.0	8.		74.0	5	06.0	0.33
9.721	828	0.57	0.29	0.01	47.0	10°0				
	2	0% 0	99.0	8	0.87	\$.0 8.0	0.85	0.95	3.1	) Co
Laoug City	3,	) · ·			0.68	96.0	0.97	. 0.87	1.00	0.60
San Nicolas	61.1	ct.o	50.0	2	t c	280	0.95	0.95	8.1	0.46
Sattal	3.68	0.63	8 3	70.0	5 6	0 %	0.90	0.77	0.93	0.33
Espiritu	 E	1	9 3		0.75	350	0.71	0.57	0.73	0.25
Marcos	2,001	0.35	CE:0			27.0	97.0	0.79	0.98	0.28
Dingras	5,283	0.26	0.32	•			28.0	0.76	8.1	0.33
Solsona	4,217	0.28	0.41	90.0	(C.V	, <b>,</b> ,	0.82	0.74	8	0.21
Nucva Era	88	88.0	0.33	•	\$ 5	8.0	8	0.0	8:0	0.57
Poblacions	4,507	0,35	0. E.	0.07	0.00	8 5	180	0.78	0.95	0.35
Non-poblacions	17,285	0.39	0,40	0.01	0.0	,,,,		30 772	22 230 3	8 000
BOARD TO TAKE		4.152.46	7.833.33	1,625.00	4,933.33	6,203.50	0,000.0	4,14	5.7.5	

esos/unit

Table 7 Average number of households and farmers, average farm areas, average farm area per farmer and average

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price by t	municipality.	4117 - 1117 (550	AVE. FARM	AVE. FARM AREA	AVE. PRICE
	AVE. NUMBER	AVE. NUMBER	••••		(pesos/sq.m.)
MUNICIPALITY	OF HOUSEHOLDS	OF FARMERS	AREA (has.)	PER FARMER	
SURVEY AREA	194	147	153	1.04	44.98
Piddig	123	90	165	1.83	49,29
-	204	105	63	0.60	124.50
Lacag City	185	33*	15	0.45	137.50
San Nicolas		156	130	0.83	38.78
Sarrat	200		141	1.00	24.59
Espiritu	165	141			10.67
Marcos	222	204	229	1.12	
Dingras	217	180	209	1.16	21.67
1 -	. 199	175	170	0.97	23.34
Soisona	173	102	194	1.90	64.00
Nueva Era	•	106	55	0.52	74.65
Poblacions	225		1277	1.13	37.83
Non-poblacions	187	157	177		

Table 8(a) Palay	Table 8(a) Palay and corn: cropping patterns and planted areas by municipality, (1/2)	ms and planter	d areas by munic	ipatity, (1/2)	<u>}</u>			CORN	3	
			First Cropping		Second Cropping	ropping	First Cropping	1	Second Cropping	ropping
		•	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting
		:	Sart-End	Start-End	Start-End	Start-End	Sur-End	Start-End	Start-End	Sun-End
Probid	Cropping pattern	FDFFS	May-Jul	Sep-Nov	Oct-Jan	Jan-Apr	May-Jun	Aug-Sep	Nov-Jan	Feb-Mar
		PAO	Jun- Aug	Sep-Nov	Oct-Nov	Jan-Feb			Oct-Dec	Jan-Mar
	Planted Areas (has.)	Irrigated	1,199.0	0	95.	953.0			•	
		Rainfed	324.0	0	<u>.</u>		2	2.0		79.5
: AOAG CITY	Cropping pattern	FDFFS	Jun-Jul	Sep-Nov	Oct-Feb	Jan-May	May	Aug	Oct-Feb	Jan-May
		PAO	May-Jul	Sep-Nov	Oct-Dec	Jan-Mar			Oct-Dec	Jan-Mar
	Planted Areas (has.)	Irrigated	516.0	0	\$1	155.0				
		Rainfed						20.02	-1	237.0
SAN NICOLAS	Cropping pattern	FDFFS	Jun-Jul	Sep-Nov	Jan	May	May	Aug	PG-	May
		PAO					: :			
	Planted Areas (has.)	Imigated	63.0	C	<b>У</b>	50.0	: .			
		Rainfed	23.0				**	17.5		10.0
CARRAT	Cropoing pattern	FDFFS	May-Jui	Aug-Nov	Jan	May	May-Jun	Aug-Sep	Oct-Feb	Jan-May.
		PAO	Jun-Jul	00t-Dec	Jan	Apr-May			Oct-Dec	Jan-Mar
	Planted Areas (has.)	Irrigated	1,680.0	0.0	ÞI	140.0				
		Rainfed	1.08	0.880.1			7	268.5	Ť	143.0
DIRIGITO	Cropping pattern	FDFFS	May-Jul	Aug-Nov	Sep-Dec	Dec-May	May-Jun	Aug-Sep	Oct-Jan	Jan-Apr
		PAO	Jun-Sep	Sep-Dec	Oct-Nov	Jan-Feb	: :		96 <del>1</del> .06	Jan-Feb
	Planted Areas (has.)	Irrigated	3,485.0	5.0	8	0.168				
		Rainfed	810.0	0.				37.0	ę.	638.0
MARCOS	Crosping pattern	FDFFS	May-Jul	Sep-Nov	Oct	Jan	: .		Sep-Dec	Dec-Mar
		PAO	May-Aug	Sep-Dec	Oct-Dec	Jan-Mar	May-Jul	Aug-Sep	Oct-Jan	Jan-Apr
	Planted Areas (has.)	Irrigated	222.0	0					-	10.0
		Rainfed	2,000.5	0.5						685.0
DINGRAS	Cropping pattern	FDFFS	Apr-Jul	voN-3nV	Sep-Dec.	Dec-Mar	Apr-Jun	Jul-Sep	Oct-Jan	Jan-Apr
! !		PAO	May-Jul	Aug-Oct	Sep-Feb	Dec-May			Sep-Dec	Dec-Mar
	Planted Areas (has.)	irrigated	5,467		<b>17</b>	3,986			•	000
		Rainfed	\$\$	554.0				0.67		7.000

				PALAY	ΑY			COKN	3	
			i and	Circa Conneito	Second Cropping	ropping	Hrst C	First Cropping	Second Cropping	ropping
			Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting
			Start-End	Start-End	Start-End	Start-End Start-End	Sart-End	Start-End	Start-End	Start-End
A NOS 103	Cramine nattern	FFFS	May-Jul	Sep-Nov	Oct-Dec	Jan-Apr		:	Sep-Jan	Dec-Apr
VNDCT()C		PAO	May-Jul	Aug-Oct	Oct-Feb	Oct-Feb Jan-May	:		Oct-Dec	Jan-Mar
	Planted Areas (has.)	Irrigated	5.5	5,963.0	2,8	2,828.0		0	1.7	1,757.0
		Rainfed	1.	174.0				2:10		
NUEVA ERA	Cropping pattern	FDFFS	May-Jul	Sep-Dec					Cechan	Mar-Apt
		PAO	Jun-Aug	Sep-Nov	Oct-Nov	Jan-Feb		· · · · · · · · · · · · · · · · · · ·	OCC-NO	Jan-reo
	Planted Areas (has.)	Irrigated	\$	558.0				e.		: 0
		Rainfed	eri	329.0					١	#:?
	Planted Areas (has.)	Irrigated	19,	0.153.0	6	9.003.0				
		Rainfed	35.	5,302.5						Ć.
TOTA			24	24,455.5	ŏ.	9,003.0	1	551.0		0.104.0
2										

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\*START: earliest start; END: latest end.
PAO: Provincial Agriculture Office, Province of Bocos Norte

Total O'N'S Change	Table 8/1) Change and moternop eromotor patterns and planted areas by municipality (1/2)	ing parterns	ind planted areas	s by municipality	y.(1/2)					
ושמחם (מ) סתפון	יייי פייל וכסיים ליי			SUGARCANE	ANE			ROOTCROP	ROP	
			First Cre	First Cropping	Second Cropping	opping	First Cropping	Suidde	Second Cropping	ropping
) :			Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting
			Sun-End	Start-End	Start-End	Start-End	Start-End	Start-End	Start-End	Start-End
Old Old	Coming parent	FDFFS			Jan-Feb	Jan-Feb	May-Dcc	Aug-Mar	·	
2001		PAO					*		Sep-Dec	Dec-Mar
٠	Planted Areas (has.)	Imigated							÷	
		Rainfed			3.0		24.0	0		
LYONG CITY	Cropping pattern	FDFFS		, ·			;	. :	Management	Geb. Any
		PAO			. :				TACY-VOV.	T.C.
	Planted Areas (has.)	Irrigated								
		Rainfed								
SAN NICOLAS	Cropping pattern	FDFFS	:		Jan-Feb	Jan-Feb	May	Aug		÷
		PAO			,*			•		
	Planted Areas (has.)	Imgated								<i>•</i>
		Rainfed			\$	5.0		11.5		
TAGGLA	Closping pattern	EDFES	:		Apr-May	Apr-May			ខ្ល	rest.
		PAO			Dec-Jan	Nov-Dec		٠	Oct-Dec	Jan-Mar
	Planted Areas (has.)	Irrigated		- ;						
		Rainfed			3	3.0			١.	0.0
ESPIRITO	Cropping pattern	FDFFS					May-Oct	Aug-Jan	ਲ ਹ	a i
		PAO							30	MILLO
	Panted Areas (has.)	Irrigated					:	<<	•	0 %
		Rainfed						13.0		
NARCOS	Cropping pattern	FDFFS	- · · ·						Nov-Yea	P.N.Mar
		PAO								
	Planted Areas (has.)	Imigated	tone of the state						•	
		Rainfed								

ting Harvesting Planting Harve End Start-End Start-End Start- F-Apr Mar-Apr  2.25 13.3 50.5	Table 8(b) Suga	Table 8(b) Sugarcane and rooterop: cropping parterns and planted areas of minucipality.	ing patterns as	nd planted area.	oy manucipal	OANE			ROOTCROP	CROP	
First Cropping Planting Harvesting Planting Planting PAO  Planted Areas (has.) Irrigated PAO  Planted Areas (has.) Irrigated Mar-Apr Mar-Apr Mar-Apr Sep-Dec Sep-Dec PAO  Planted Areas (has.) Irrigated Harvesting Planting Mar-Apr Mar-Apr Sep-Dec Sep-Dec PAO  Planted Areas (has.) Irrigated Harvesting Planting Planting Planting Pattern PAO  Planted Areas (has.) Irrigated Mar-Apr Mar-Apr Sep-Dec Sep-Dec PAO  Planted Areas (has.) Irrigated Harvesting Planting Planting Pattern PAO  Planted Areas (has.) Irrigated PAO  Planted A			•		SUGAK	CANE		1		Second C	ropping
Planting Harvesting Planting PAO  Planted Areas (has.) Irrigated  Cropping pattern PDFFS  Cropping pattern PAO  Planted Areas (has.) Irrigated  Rainfed  Rainfed  PAO  Planted Areas (has.) Irrigated  Rainfed  Rainfed  PAO  Phanted Areas (has.) Irrigated  Rainfed  Rainfed  PAO  Planted Areas (has.) Irrigated  Rainfed  Rainfed  Rainfed  Rainfed  PAO  Planted Areas (has.) Irrigated  Rainfed				First Cr	Zuidde	Second C	ropping	7 1811	S. Marine		
Cropping pattern FDFFS Start-End Sta				Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesung
Cropping pattern FDFFS Oct-Dec J PAO Planted Areas (has.) Irrigated Cropping pattern FDFFS Oct-Jun PAO Flanted Areas (has.) Irrigated Rainfed Rainfed PAO Planted Areas (has.) Irrigated PAO PAO Planted Areas (has.) Irrigated PAO PAO Planted Areas (has.) Irrigated PAO PAO PAINTED PAO PAINTED PAO PAO PAN PAO PAO PAN PAO PAO PAN PAO PAO PAN PAO PAO PAO PAN PAO PAO PAO PAN PAO PAO PAN PAO PAO PAN PAO PAO PAN PAO PAO PAO PAN PAO PAO PAO PAN PAO PAO PAN PAO PAO PAN PAO PAO PAN PAO				Start Ford	Start-End	Start-End	Start-End	Surt-End	Surt-End	Start-End	Start-End
PAO Planted Areas (has.) Irrigated Cropping pattern FDFFS Cropping pattern PAO Planted Areas (has.) Irrigated Rainfed PAO Planted Areas (has.) Irrigated Rainfed PAO Planted Areas (has.) Irrigated Rainfed Rainfed PAO Planted Areas (has.) Irrigated Rainfed Rainfed 135.0 Planted Areas (has.) Irrigated Rainfed 136.0 Planted Areas (has.) Irrigated Rainfed 136.0 Planted Areas (has.) Irrigated Rainfed Rainfed			EDPER	2000							;
Planted Areas (has.) Irrigated Rainfed Cropping pattern PAO Planted Areas (has.) Irrigated Rainfed RA Cropping pattern PAO Planted Areas (has.) Irrigated Rainfed PAO Planted Areas (has.) Irrigated Rainfed	DINGRAS	•	240							Oct-Dec	Jan-Mar
Cropping pattern FDFFS Oct-Nov PAO Planted Areas (has.) Irrigated RA Cropping pattern FDFFS Mar-Apr Mar-Apr Sep-Dec Planted Areas (has.) Irrigated PAO Planted Areas (has.) Irrigated RA Cropping pattern FDFFS Sep-Dec PAO Planted Areas (has.) Irrigated Rainfed Sep-Dec Rainfed Sep-Dec Rainfed Sep-Dec Rainfed Sep-Dec Rainfed Sep-Dec Rainfed Sep-Dec			rrigated				W. de strange and	:			
Cropping pattern FDFFS  Cropping pattern PAO  Planted Areas (has.) Irrigated  RA Cropping pattern FDFFS  PAO  Planted Areas (has.) Irrigated  Sep-Dec  PAO  Planted Areas (has.) Irrigated  Rainfed  Rainfed  136.0  Par-Apr  Sep-Dec  66.0			Rainfed	3 T							And the
PAO Planted Areas (has.) Irrigated RA Cropping pattern FDFFS Planted Areas (has.) Irrigated Planted Areas (has.) Irrigated Rainfed	ANON 100	Cropping pattern	FDFFS							- 10 C	Jan-Apr
Planted Areas (has.) Irrigated Rainfed Cropping pattern FDFFS PAO Planted Areas (has.) Irrigated Rainfed Rainfed 136.0			PAO	:							•
Cropping pattern FDFFS Mar-Apr Mar-Apr Sep-Dec Sep-Dec PAO Planted Areas (has.) Irrigated A		Planted Areas (has.)	Irrigated							¥i	36.0
Cropping pattern FDFFS Mar-Apr Mar-Apr Mar-Apr Sep-Dec Planted Areas (has.) Irrigated Areas (has.) Irrigated Areas (has.) 173,3			Rainfed							Jan-Jun	Apr-Sep
Planted Areas (has.) Irrigated Rainfod 13.3 50.5	NUEVA ERA		FIRES			Mar-Apr	Mar-Apt			Sep-Dcc	Dec-Mar
Planted Areas (has.) Irrigated Rainfod 13.3			540							•	•
Rainfod 13.3 50.5	٠	Planted Areas (has.)	Imigated				10 10 10 10 10 10 10 10 10 10 10 10 10 1				0.99
13.3			Rainfed				2.25		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		23.0
							13.3				

0

TOTAL "START; carliest start; END: latest end. Provincial Agriculture Office, Province of Ilocos Norte.

Table 8(c) Legum	Table 8(c) Legume and tobacco: cropping patterns and planted areas by multiplanty	pianted areas by municipanty.	i di			TOBACCO	တ္ပ	
					i	ı		au iuu
		First Cropping	Second Cropping	32	First Cropping	Build	School Cropping	Simboli
		Planting Harvesting	Planting Har	Harvesting	Planting	Harvesting	Planting	Harvesting
		4.	Sart-End Sp	Sart-End	Start-End	Sart-End	Sart-End	Start-End
PiriOiG	Cropoing pattern FDFFS		:	Apr-May				
			Sep-Dec D	Dec-Mar				
	Planted Areas (has.) Irrigated				:			
	Rainfed	21.0	49.0					
1 ADAG CTDY	Cropping pattern FDFFS							
			Oct-Dec Ja	Jan-Mar				
	Planted Areas (has.) Irrigated							
SAN NICOLAS	Cropping pattern FDFFS							
٠	OVA							٠
	Planted Areas (has.) Irrigated							
	Rainfed		2					
SARRAT	Cropping pattern FDFFS	May Aug			•		- C	Dec.Mar
ř.	PAO						3	
	Piznted Areas (has.) Irrigated		*					
	Rainfed	20.0					1 6	1.4 6.4
PSPIRITI	Crosping pattern FDFFS						Now-Dec	Sny-mr
:	OVA		Sep-Dec 1	Dec-Mar			867-Vec	Occ-Mar
	Plented Areas (has.) Irrigated					:	:	4
	Rainfed						1	V.COI
X.ARCOS	Cropping pattern FDFFS		Sep-Dec	Dec-Mar	Sep-Nov	May-Jul	. (	
			Oct-Dec	Jan-Mar			Sep-Cec	Dec-Mar
	Plunted Areas (has.) Irrigated		200			5.0		
	Kainfed							

First Cropping   First First   F	Table 8(c) Legun	Table 8(c) Legume and tobacco: cropping patterns and planted areas by municipatity. Table 8(c)	atterns and	planted areas by	municipality.	, L			TOBACCO	000	
Planting Planting Harvesting Planting Planting Planting Planting Planting Planting PAO    Cropping pattern FDFFS		· · · · · · · · · · · · · · · · · · ·	,		1	C proof C	auiouo.	OFFE	ropping	Second	ropping
Planting Harvesting Planting Francesing Start-End Star				3	Sinda		0 14	Dianting	Harvesting	Planting	Harvesting
Cropping partern FDFFS Sep-Dec Jan-Mar Feb-Mar Sep-Dec I					Harvesting	Ylanting Yeart-End	Start-End	Sun-End	Start-End	Start-End	Start-End
Cropping pattern FDFFS Oct-Dec Jan-Mar Sep-Dec I PAO Planted Areas (has.) Itrigated Areas (				אומידובוני	Sailtin					Feb-Mar	Oct-Nov
Planted Areas (has.)         Trigated         A74.0           Cropping pattern         FDFFS         Nov-Dec         Feb-Mar         Oct-Dec           Planted Areas (has.)         Irrigated         Nov-Dec         Feb-Mar         Oct-Dec           RA         Cropping pattern         FDFFS         Oct-Dec         Feb-Mar         Sep-Dec           PAO         PAO         Oct-Dec         Jan-Mar         Sep-Dec           Planted Areas (has.)         Irrigated         A1.0         301.3         S84.0	DINGRAS		FDFFS PAO			Oct-Dec	Jan-Mar			Sep-Dec	Dec-Mar
Cropping pattern FDFFS Nov-Dec Feb-Mar Oct-Dec PAO Planted Areas (has.) Irrigated Rainfed Nov-Dec Feb-Mar Rainfed Nov-Dec Feb-Mar Sep-Dec PAO Planted Areas (has.) Irrigated Sainfed Nov-Dec Jan-Mar Sep-Dec Sainfed Areas (has.) Irrigated Sainfed A1.0 301.3 884.0			Irrigated								74.0
Cropping pattern FDFFS Nov-Dec Feb-Mar Oct-Dec Plan-May Oct-Dec Plan-May Oct-Dec Pather Iso.0 PAO PAO Oct-Dec Feb-Mar Sep-Dec PAO PAO Oct-Dec Jan-Mar Sep-Dec PAO Planted Areas (has.) Irrigated Areas (has.)			Yanned				7				
Planted Areas (has.) Irrigated Rainfed Cropping pattern FDFFS Oct-Dec Jan-Mar PAO Planted Areas (has.) Irrigated A1.0 301.3 584.0	SCLSONA		FDFFS PAO			Nov-Dec Oct-Feb	Jan-May			Oct-Dec	Jan-Mar
Cropping pattern FDFFS Nov-Dec Feb-Mar Sep-Dec Jan-Mar PAO Oct-Dec Jan-Mar Sep-Dec Planted Areas (has.) Irrigated Areas (has.) Irrigated A.1.0 301.3 S84.0		reas (has.)	Irrigated			<b>32</b>	0.0				
Planted Areas (has.) Irrigated Rainfed 41.0 301.3	NUEVA ERA	1	PAO			Nov-Dec Oct-Dec	Feb-Mar Jan-Mar			Sep-Dec	Dec-Mar
Rainfed 41.0 301.3		Planted Areas (has.)	Irrigated				, 25			:	-
41.0			Rainfed			F					584.0
	TOTAL		:	7	0.	^     					

<sup>-</sup>START: earliest : unt; END: latest end.
PAO: Provincial Agriculture Office, Province of Ilocos Norte

Table 8(d) Garlic	Table 8(d) Garlie and beaus: cropping patterns and planted areas by municipality	ems and pla	nted areas by u					DOANG	3/4	
				CARLIC	.I			Sid	- 1	
			First C	First Crocoing	Second Cropping	Suiddo	First Cropping	Suiddo	Second Cropping	ropping
			Disseine	Harvesing	Planting	Harvesting	Planting	Harvesung	Planting	Harvesting
			Start-End	Start-End	Start-End	Start-End	Start-End	Sart-End	Start-End	Start-End
PIDDIG	Cropping pattern	FDFFS			May-Dec	Aug-Mar		٠		
		PAO				:				
	Planted Areas (has.)	Irrigated			-					
		Rainfed							Nov	Feb
LYOAG CITY	LAOAG CITY Cropping pattern	FDFFS			red-Nov	May-reo		٠	į	Iso-Mar
		PAO			Oct-Dec	Jan-Mar			200	
	Planted Areas (has.)	Irrigated							•	0.5
	The second secon	Rainfed			7	5.75				
SAN NICOLAS	SAN NICOLAS Cropping pattern	PDFFS			Oct-Nov	Jan-Feb				
		PAO						·		
:	Planted Areas (has.)	Imgated								
		Rainfed				0.6				
SARRAT	Cropping pattern	FDFFS	. :     •		Sep-Dec Oct-Dec	Dec-Mar Jan-Mar			Sep-Nov	Dec-Feb
1	Pranted Areas (has.)	migated								
		Rainfed			· .	758.5			100	Anr
ESPIRITU	Cropping pattern	FDFFS			Sp-Dec	Mar Dee-Mar			Sep-Nov	Dec-Feb
	Planted Areas (has.)	Imgated			10.0	0.0				0.5
SOUGHA	Cropping pattern	FDFFS			Scp-Nov	Dec-Feb			1	
CONT.		PAO			Oct-Dec	Jan-Mar			Dec-rea	MAIWA
	Planted Areas (has.)	Imgated				5.0				

Takile 8/4) Garlin	The Syd Garlie and beans: eropoing Dat	terns and plan	ned areas by mi	patterns and planted areas by municipality. (2/2)						
זשוור טותי חוויי				CARLIC	្ស			BEANS	NS	
		•	First Cropping	Stronge	Second Cropping	ropping	First Cropping	თეერ	Second Cropping	ropping
		• .	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting
		- :	OH-HAN	Start-End	Start-End	Start-End	Start-End	Start-End	Start-End	Start-End
0.00		ביויבינים			Nov	35 35			Jan-Dec	Apr-Mar
DINGRAS	Cropping patient	PAO			Sep-Dec	Dec-Mar			Oct-Dec	Jan-Mar
	Planted Areas (hax.)	Irrigated			25	25.0			3	3.0
		Sales Sales							May-Dec	Aug-Mar
SOLSONA	Cropping partern	27404	:	. :					Nov-Feb	Feb-May
		PAO	٠		; · · · · · · · · · · · · · · · · · · ·		÷ .,			•
	Planted Areas (has.)	Irrigated							7	
		Rainfed								V.V.
NUEVA ERA	Cropping pattern	FDFFS					£			
		PAO			Sep-Dec	Dec-Mar		ğ		•
	Planted Areas (has.)	Irrigated	r :							
		Rainfed								
TOTAL			:		8	865.5				14.0

\*START; earliest start; END: latest end.
PAO; Provincial Agriculture Office, Province of Ilocos Norte

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Table 8(c) Monge	Table 8(c) Monge and vegetable: cropping	patterns and	planted area	ng patterns and planted areas of municipality.	(7)			D 10 V LG CEAR	2 10 4	
				MONGO	Q			1303	2700	
		•	First (	First Cropping	Second Cropping	ropping	First Cropping	opping	Second Cropping	guiddo
		•	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting
			Surt-End	Start-End	Start-End	Sart-End	Sart-End	Start-End	Start-End	Start-End
יינים ניינים ביינים ביינים ביינים ביינים	Ceanine namem	FDFFS			Feb-Dec	May-Mar			Oct-Dec	Jan-Mar
Oronia		940							Sep-Dec	Dec-Mar
	75	Terioated								
. 1.	Planted Areas (nas.)	Rainfed			45	45.5			12	122.5
1 10 AG CTTY	Crosping patters	FDFFS			Feb-Dec	May-Mar			Feb-Dec	May-Mar
		PAO			Oct-Dec	Jan-Mar			Oct-Dec	Jan-Mar
***	Planted Areas (has.)	Irrigated								:
	The state of the s	Rainfed			63	67.0			7	77.0
SAN NICOLAS	SAN NICOLAS Cropping pattern	FDFFS	Aug	Nov	Feb	May				
		PAO					٠			,
	Planted Areas (has.)	Imigated								<b>;</b>
		Rainfed		16.5	٥	6.0				
SARRAT	Cropping pattern	FDFFS			May-Dec	Aug-Mar			Oct-Jan	Jan-Apr
		PAO			Sep-Nov	Dec-Feb				
	Planted Areas (has.)	Imgated								
		Rainfed			8	841.0			75	795.5
ESPIRITU	Cropping partern	FDFFS		:	Oct-Jan	Jan-Apr		•	Jan-Dec	Apr-Mar
		240			Sep-Nov	Dec-Feb			oct-Dec	Jan-Mar
	Planted Areas (has.)	Irrigated								
		Ramfed			7	40.0			*1	58.0
MARCOS	Cropping pattern	FDFFS			Sep	ជ័			Sep-Dec	Dec-Mar
		PAO	•		Nov-Dec	Feb-Mar			Oct-Dec	Jan-Mar
	Planted Areas (has.)	Imgated			2	25.0		recent of		70.0
		2								

(1)

, and (20)	ODNOW			MONGO	င္က			VEGE	VEGETABLE
		•	First C	First Cropping	Second Cropping	ropping	First C	First Cropping	Second Cro
			Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting
			Sur-End	Start-End	Start-End	Start-End	Start-End	Sprt-End	Start-End
DINGRAS	Cropping pattern	ED FFS			Jan-Dec	Apr-Mar			Jan
:		PAO			Oct-Dec	Jan-Mar			Oct-Dec
	Planted Areas (has.) I	Irrigated Rainfed			163.5	3.5			136.
SOLSONA	Crossing pattern	FDFFS			Jan-Dec	Apr-Mar			Dec-Jan
		PAO			Nov-Feb	Feb-May			Sep-Feb
	Planted Areas (has.)	Imigated		:				:	- : •
		Rainfed			19	613.5			422
NUEVA ERA	Cropping pattern	FDFFS							
		PAO			Oct-Dec	Jan-Mar			Sep-Dec
:	Planted Areas (has.)	Irr:gated							
-		Rainfed							
COTAL				16.5	2,0	2,001.5		1	3.68

Mar-Apr Dec-May

136.5

Start-End

Apr Jan-Mar Dec-Mar

422.5

1,682.0

COTAL STATE earlier sout; END: latest end.

<sup>1</sup>AO: Provincial Agriculture Office, Province of Bocos Norte

יייים אין המים	וויסוכ סלול במיסורים הווים במיסורים			CASSAVA	VAV		PEANUIS	SIO	
			Times Consider	1	Second Cropping	First C.	First Cropping	Second Cropping	Propping:
÷		•	PITSI CE	Spring	5	i		Disaction	Hanceling
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Planting Stort-End	Harvesting Start-End	Planting Harvesting Start-End Start-End	Planting Start-End	Harvesung Start-End	Start-End	Start-End
אוסטופ	Cropping pattern	FDFFS		: .		May	Aug	:	
•		PAO:							
	Planted Areas (has.)	Irrigated				·			<i>.</i>
		Rainfed				1		440	X
LAOAG CITY	Cropping pattern	FDFFS						6.50	Jan-Mar
•		PAO					: ;		
	Planted Areas (has.)	Irrigated		Control of the contro				Č	25.0
		Rainfed							
AN NICOLAS	SAN NICOLAS Cropping pattern	FDFFS			そのでは、小・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・				
		PAO							
	Planted Areas (has.)	Irrigated							٠
*		Rainfed							
SARRAT	Cropping pattern	FDFFS				ş	d X	i C	Jan-Mar
		PAO							
	Planted Areas (has.)	Irrigated					0.5		
		Rainted						Ģ	Mar
ESPIRITU	Cropping pattern	FDFFS			Car Man		•	Oct-Dec	Jan-Mar
		PAO			oction confide	٠			
	Planted Areas (has.)	Irrigated							2.5
		Rainfed						200	Dec-Mar
NARCOS	Cropping pattern	FDFFS						Ortho	Jan-War
		PAO							i i
	Planted Areas (has.)	Imigated							
		Rainfed							2:0
DINGRAS	Cropping pattern	FDFFS						Sep-Dec	Dec-Mar
	Planted Areas (has.)	Irrigated							
		2							

ושיוני פ(ו) רפששע	CASSAVA			CASS	CASSAVA			PEANCIS	SIS	
	- 1	1	12	Givet Cronning	Second Cropping	Cropping	Pirst C	First Cropping	Second Cropping	ropping
			Planting	Planting Harvesting	Planting Start-End	Harvesting Start-End	Planting Start-End	Harvesting Start-End	Planting Start-End	Harvesting Start-End
SOLSONA	- Propping pattern	FDFFS	May-Sep	Aug-Dec					May-Dec	Aug-Mar
C. C	Planted Areas (has.)	Imgated		•					Ħ	181.0
NUEVA ERA	Cropping pattern	FDFFS	 	0.450					Jan-Feb Oct-Dec	Apr-May Jan-Mar
:	Planted Areas (has.)	rAO Irrigated Rainfed								5.0
TOTAL				104.0				3.0	7	221.5

TOTAL
•START: earliest start; END: latest end.
•ADAO: Provincial Agriculture Office, Province of Ilocos Norte

(3)				COLL	COLTON		. !	NOINO	NC
		*	Pirst C	First Cropping	Second Cropping	ropping	First	First Cropping	Second Cropping
		•	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting	Planting Harvesting
			San-End	Surt-End	Sart-End	Start-End	Start-End	Start-End	Start-End Start-End
PIDDIG	Cropping pattern	FDFFS						÷,	
		PAO							
	Planted Areas (has.)	Irngated							
		Rainfed							
LAOAG CITY	Cropping pattern	FDFFS		-:		:			Feb-Nov May-reb
		PAO		:					
	Planted Areas (has.)	Imgated							
A section of Admission		Rainfed	: .						0.62
SAN NICOLAS	Cropping pattern	FDFFS		:					
		PAO						•	
	Planted Areas (has.)	Irrigated							
		Rainfed							The second secon
SARRAT	Cropping pattern	FDFFS							
		PAO			Sep-Dec	Dec-Mar			
	Planted Areas (has.)	Irrigated			3				
	The second secon	Rainfed	A record of the second of						
SPIRITU	Cropping pattern	FDFFS			Oct-Nov	Jan-Feb	1	•	
		PAO			Sep-Nov	Dec-Feb			
	Unnted Areas (has.)	Irrigated							
		Rainfed				25.0			
MARCOS	Cropping pattern	FDFFS			Sep-Nov	Dec-Feb			
		PAO			S S S S S S S S S S S S S S S S S S S	Jan-Mar			
a a	Manted Areas (has.)	Irrigated				465.0			
		Kamileo							

:				COTTON	NO.			ONION	ION	٠
			First Cropping	Zuiddo	Second Cropping	ropping	First C	First Cropping	Second Cropping	ropping
		•		Harvesting	Planting	Harvesting	Planting	Harvesting	Planting	Harvesting
			Start-End	Start-End	Sart-End	Start-End	Start-End	Start-End	Sart-End	Start-End
DINGRAS	Cropping pattern	FDFFS	:	100	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				Feb-Dec	May-Mar
		PAO			Oct-Jan	Jan-Mar		•		i
	Flanted Areas (has.)	Irrigated				*.				
		Rainfed							Š	50.0
SOLSONA	Cropping pattern	FDFFS				:				
		PAO	• .							
	Planted Areas (has.)	Irrigated					•.		;	
		Rainfed	.							
NUEVA ERA	Cropping partern	FDFFS				•				
		PAO			Oct-Dec	Jan-Mar				
	Planted Areas (has.)	Irrigated				:	:			٠
	The second secon	Rainfed								The second secon
TOTAL				 	49	490.0			7	75.0
*START: earlies	*START; earliest start; END: latest end.			: :					٠.	
PAO: Provincial	PAO: Provincial Agriculture Office, Province of Ilocos Norte	ipee of Ilocos	Norte							

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				SOUASE	E			OTRER CROES	CNORS	
			.: '							
			First Cropping	Sping	Second Cropping	Suiddo	First C.	First Cropping	Second Cropping	горрия
			Planting	Harvesting	Planting	Harvesting.	Planting	Harvesting	Planting	Harvesting
			Start-End	Sur-End	Sart-End	Start-End	Start-End	Start-End	Start-End	Start-End
PICDIG	Cropping pattern	FDFFS								÷
		PAO						,		•
	Planted Areas (has.)	Irrigated	: .						:	
		Rainfed								
LADAG CITY	Cropping pattern	FDFFS								
	ŧ,	PAO			Sep-Nov	Dec-Feb				
	Planted Areas (has.)	Irrigated							-	
	:	Rainfed								
SAN NICOLAS Cropping pattern		FDFFS								
		PAO	12							•
	Planted Areas (has.)	Imigated							-	
	The second of the second	Rainfed								
SARRAT	Cropping pattern	FDFFS	:							
i		PAO	. 4		Oct-Dec	Jan-Mar			. •	
	Planted Areas (has.)	Irrigated								:
		Rainfed								
ESPIRITU	Crupping pattern	FDFFS								
	:	240			Sep-Dec	Dec-Mar				-
	Planted Areas (has.)	Irrigated			÷					
		Rainfed			.					
MARCOS	Cropping pattern	FDFFS					:	:	Sep-Apr	Dec-Jul
		PAO			06-Dec	Jan-Mar				
	Planted Areas (has.)	Irrigated							74	27.0
		Kainred								

			HSYNÒS	SQUASH			OTHER	OTHER CROPS
			First Cropping	Second	Second Cropping	First C	First Cropping	Second
	The second secon				Harvesting	Planting	Harvesting	Planting
			Start-End Start-End	Start-End	Start-End	Start-End	Start-End	Sart-End
DINGRAS	Cropping pattern	FDFFS						
		PAO		Sep-Dec	Dec-Mar	:		
	Planted Areas (has.)	Imgated						
: : :		Rainfed						
SOLSONA	Cropping pattern	FDFFS		Oct	Jan			
		PAO		Oct-Jan	Jan-Apr	<u>.</u>		
	Planted Areas (has.)	Irrigated						
		Rainfed			5.0			
NUEVA ERA	Cropping pattern	FDFFS						
		PAO	The extractive artificions is a second of the second of th	Sep-Dec	Dec-Mar			
	Planted Areas (has.)	Imgated						
		Rainfed						
TOTAL					5.0			
* TART carlle	VIART - earlier gart END: latest end							

\*TART: earlies: start. END: latest end.
PAO: Provincial Agriculture Office, Province of Ilocos Norte

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		Y1	LAOAG	SAN		. *			SOL	NUEVA
		PIDDIG	CHT	NICOLAS	SARRAT	ESPIRITU	MARCOS	DINGRAS	SONA	ERA
TOBACCO	Ave. yield: FDFFS (MT/ha)					1.88				
	Ave. yield: 1991	1.8		8:1	1.50	8.1	8.	1.23	1.8	
	Ave. yield: PAO			1.00	2.00	1.70	16.0	1.10	1.8	1.32
	Ave. price: FDFFS (pesos/MT)					38,000.00		:		
	Ave. price: PAO			38,000.00	38,000.00	40,000.00	40,000,00	40,000.00	38,000.00	38,000,00
GARLIC	Ave. yield: FDFFS (MT/ha)			.*	2.81					
	Ave. yield: 1991	3.00	2.8	3.00	3,10	2.50	2.50	3.80		2.50
	Ave. yield: PAO	And the second of the second o		3.39	2.02	2.00	3.00	2.06		2.35
	Ave. pnce: FDFFS (pesos/MT)				110,000.00					
	Ave. price: PAO	100,000,00		100,000.00	100,000.00	100,000,001	100,000.00	99.570.00	٠	95,000.00
VEGETABLE	VEGETABLE Ave. yield: FDFFS (MT/ha)		:		10.00					
	Ave. yield: 1991	8.80	7.79	5.63	7.47	7,15	69.6	8.4	15.54	7.51
	Ave. yield: PAO	5.00	8.8	8.9		7.50	10.00	7.00.		8:8
	Ave. price: FDFFS (pesos/MT)				10,000.00			•		•
	Ave. price: PAO	10,500.00 9.80	9.800.00	10,000,00		10,500.00	10,000.00	10,000.00	10,500.00	10,000,00
COTTON	Ave. yield: FDFFS (MT/ha)					2.00	1			-
	Ave. yield: 1991		1.20	1.20	1.20	1.20	1.20	1.20		1.20
	Ave. yield: PAO			1.20	1.20					1.20
	Ave. price: FDFFS (pesos/MT)					17,000.00				
	CAC serve and				00 000 45	40 400 17				

Source of Ave. Yield: 1991: Socio-economic Profile: Province of Ilocos Norte Source of Ave. Yield: PAO: Provincial Agriculture Office

C	Table 10 Livernork production and average price per oarangly by type a	OCT COLUMNICAY OF LYD	Caracteristics of the co							
200			LAOAG	SAN				. 1	30t	NUEVA
		PIDDIG	CHIA	NICOLAS	SARRAT	ESPIRITU	MARCOS	DINGRAS	SONA	ERA
	TW 323 CB								13.80	
	CALLLE Ave. production: refer a (vil.)	6	<b>4</b>	, Ç. X.	894	05 02	20.40	25.50	27.30	12.70
	Ave. production: 1991*	38.20	<b>}</b>	21.0	2					: :
	Ave. production: PAO*		97.9	8.8	15.96	30.50	20.53	25.70	27.30	12.72
	A ve miner EDEBS (pesosOM)	158,300.00	166,700.00	150,000.00	160,000.00	156,500.00		156,500.00	128,600.00	200,000.00
	Ave price: PAO (pesos/MT)		110,000.00	100,000,00	100,000,001	100,000.00	100,000.00	100,000,00	100,000.00	100,000.00
	A Amoduration: EDEEN (MT)								10.80	
200	**************************************	4.50	3.60	8.8	8.70	13.60	9.20	17.50	11.10	5.80
	Ave. production: 1997		3.85	830	88.8	13.75	10.00	17.48	11.06	6.82
	Ave. producings and	٠.							80,000,00	:
	Ave. price: PDFPS (pesosital)		00 000 00	00 000 08	80 000 00	80 000 00	75,000.00	75,000,00	75,000.00	80,000.00
	Ave. phoe: PAO (pososym t)		20,000,00	20.000	200000				Ş	
CHICKIN	CHICKEN Ave. production: FDFFS (MT)								8:	•
	Ave. production: 1991*	0.25	0.45	0.47	0.62	0.48	1.35	00	0.83	0.40
	Ave production: PAO*		97.0	0.47	89.0	0.50	1.37	1.18	0.83	0.42
	Ave note: EDEES (nesoch)(T)	80.000.00	80,600,00	55,000.00	66,400.00	60,900.00		64,300.00	73,400,00	65,000.00
	Ave prine: PAO (nesos/MT)		65,000.00	65.000.00	65,000.00	65,000.00	65,000.00	65,000.00	60.000.00	65,000.00
	יייייייייייייייייייייייייייייייייייייי									

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Source of Ave, Production; 1991; Socio-economic Profile; Province of Ilocos Norte Source of Ave, Production; PAO; Provincial Agriculture Office

\* At municipal level

LAOAG   SAN	Toble 11	Table 11. High production and average price per banangay by type and by municipality.	nd by municipality.							
PIDDIG         CITTY         NICOLAS         SARRAT         ESPIRITU         MARCOS         D           10.00         2.40         0.93         0.40         2.50           65,000.00         65,000.00         65,000.00         65,000.00         65,000.00           50,000.00         300.00         50,000.00         65,000.00         65,000.00         65,000.00	, alle		LAOAG	SAN		:			SOL	NUEVA
10.00 2.40 0.93 0.40 2.50 65,000.00 65,000.00 65,000.00 65,000.00 10.00 50,000.00 300.00 50,000.00				NICOLAS	SARRAT	ESPIRITU	MARCOS	DINGRAS	SONA	ERA
10.00 2.40 0.93 0.40 2.50 65,000.00 65,000.00 65,000.00 65,000.00 10.00 50,000.00 300.00 50,000.00									0.66	
10.00 2.40 0.93 0.40 2.50 5.500.00 55,000.00 6	オスト	Ave. production: FDFFS (M.I.)								
10.00 2.40 0.93 0.40 2.20 2.20 2.20 2.20 2.20 2.20 2.20		Ave. production: 1991	1.				6		3	72.0
65,000,00 65,000,00 65,000,00 65,000,00 65,000,00 65,000,00 65,000,00 80,000,00 80,000,00 80,000,00 80,000,00		Ave. production: PAO*	0.01	2.40	0.93	9.0	06.2	, to	to: 000 yr	
65,000.00 65,000.00 65,000.00 65,000.00 65,000.00 05,000		Ave. price: FDFFS (pesos/MT)						00 000 37	000000000000000000000000000000000000000	W W 33
\$0,000.00 \$00.00 \$00.00		Ave. price: PAO (pesos/MT)	65,000.00	65,000.00	65,000.00	65,000.00	65,000.00	05,000,00	w.w.w	W.W.CO
\$0,000.00 300.00 65,000.00	BANGUS	Ave. production: FDFFS (MT)	10.00							
Ave. production: PAO*  Ave. price: PAO (pesos/MT)  Ave. production: FDFFS (MT)  Ave. production: FDFFS (MT)  Ave. production: PAO*  Ave. production: PAO*  Ave. price: FDFFS (pesos/MT)		Ave. production: 1991*								
Ave. pricu: FDFFS (pcsos/MT)  Ave. production: FDFFS (MT)  Ave. production: PAO*  Ave. production: PAO*  Ave. production: PAO*  Ave. production: PAO*  Ave. price: FDFFS (pcsos/MT)  Ave. price: FDFFS (pcsos/MT)  65,000.00		Ave. production: PAO*								
Ave. prioc: PAO (pesos/MT)  Ave. production: FDFFS (MT)  Ave. production: PAO*  Ave. prioc: FDFFS (pesos/MT)  Ave. prioc: FDFFS (pesos/MT)  65,000.00		Ave. pricu: FOFFS (pesos/MT)	\$0,000.00							
Ave. production: FDFFS (ALT)  Ave. production: 1991*  Ave. procuetion: PAO*  Ave. price: FDFFS (pessos/ALT)  65.000.00		Ave. price: PAO (pesos/MT)						37.70	80	
Ave. production: 1991*  Ave. production: PAO*  Ave. pries: FDFFS (pessos/MT)  Ave. pries: FDFFS (pessos/MT)  65.000.00	OTHER	Ave. production: FDFFS (MT)							200	
300.00 04/MT) 05.000.00	HSI	Ave. production: 1991*								
0,000,000 (%)		Ave. production: PAO*	300.00				-	i	75 000 00	
0200000		Ave. price: FDFFS (pesos/MT)						W 000 03	200000	
		Ave. price: PAO (pesos/MT)	65,000.00					20,000,00		

Source of Ave. Production: 1991; Socio-economic Profile: Province of Ilocos Norte Source of Ave. Production; PAO: Provincial Agriculture Office

· At municipal level

P     olde	Table 11. Fish production and average price per barangay by type and by	barangay by type and	by municipality							
			LAOAG	NAS			:		SOL	NUEVA
		PIDDIG	CITY	NICOLAS	SARRAT	ESPIRITU	MARCOS	DINGRAS	SONA	EXA
AIAPIA	TILAPIA Ave. production: FDFFS (MT)			:					99.0	
	Ave. production: 1991"		10.03	2.40	0.93	0,40	2.50	1.47	8.4	0.74
	Ave. production: FAU-		3						75,000.00	
	Ave, price: PAO (pesos/MT)		65,000.00	65,000.00	65,000.00	65,000.00	65,000.00	65,000.00	65,000.00	65.000.00
SUDNAS	BANGUS Ave. production: FDFFS (MT)		10.00					: : : : : : : : : : : : : : : : : : : :		
	Ave. production: 1991*									-
	Ave. production: PAO*									
	Ave. prioc: FDFFS (pesos/MT)		20,000,00					: .		
	Ave. price: PAO (pesos/ACT)							30,000.00		
OTHER	Ave. production: FDFFS (MT)					· .			09.0	
HSIH	Ave. production: 1991*				1				-	
	Ave. production: PAO*		300.00		: 1					
	Ave. price: FDFFS (pesos/MT)								75,000.00	
	Ave. price: PAO (pesos/MT)		00:000:59					60,000.00		

8

Ave. price: PAO (pesos/MT)

Source of Ave. Production: 1991: Socio-economic Profile: Province of Ilocos Norce
Source of Ave. Production: PAO: Provincial Agriculture Office

At manietyal level

6 11 210 600 001					000000		42C01C0	PDA PEMARKS
	NICOL	SV	SARRAT	ESPIRITU	MARCOS	DINGRAS	SOLSONA	O Ave mimber of classrooms
	210.600.0	22	00.009	210,600.00	210,600.00	210,600.00	210,600.00	210,600.00 Ave. cost/classroom (pesos)
	"	1	27	12		10	St.	3
353,600.00 353,600.00	00 353,600.00	353	00.009	353,600.00	353,600.00	353,600.00	353,600.00	353,600.00 Ave. cost/classroom (pesos)
						'n		organisation surveyor
	<b>1</b>					ed .	1	1 och: mimoer surveyed
			2					Total number surveyed
7 6	6	6	61	11	01	25	22	
120,714.00 290,000.00	.00 146,833.00	.00 121	00.057,1	360,910.00	105,560.00	129,333,00	154,350.00	440,000,00 Ave. unit cost (pesos)
2			9 250.00	\$ 00:000.56	80.000.00	73.333.00	8 90,857.00	3 Total number surveyed 73,333.00 Ave. unit cost (pesos)
	,,		8.7	2,2	2.9	1.7	2.6	Awe, length/brgy in kms
1.500.00 3.500.00	3.500.00	, 87.	3,500.00	3,500.00	3,500.00	3,500.00	3,500.00	3,500.00 Maintenance cost/km/yr (pesos)
		5.0	2.6	1.6	3.7	7	2.8	
3.500		3,500.00	3,500.00	3,500.00	3,500.00	3,500.00	3,500.00	3,500.00 Maintenance cost/km/yr (pesos)
		9.6	2.5	6		4.2	11	3.4 Ave. length/brgy in ions
3.500.00	3,500.00		3,500.00	3,500.00	3,500.00	3,500.00	3.500.00	3,500.00 Maintenance cost/km/yr (pcsos)
	١	اً	7	4.7	11.8	9.5	5,4	3.8 Ave. length/brgy in kms
4 133 30 4 13		4,133,30	4,133.30	4,133.30	4,133.30	4,133.30	4,133.30	4,133,30 Maintenance cost/km/yr (pesos)
						m	21	Total number surveyed
•								
			:				1	Total number surveyed
	0.483	0.5	1.4			4.457	28	Ave. length/brgy in kms
230,555,55	5.55 230,555.55		230,555.55			230,555.55	230,555,55	Cost/km (pesos)
7	11	6	æ	<b>7</b> 9	<b>6</b>	98	&	Total number surveyed

PIDDIG CITY NICOLAS SARRAT ESPIRITU MARCOS  5 1 1 153,333,33 2 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MARCOS	DINGRAS SOLSONA	ERA REMARKS
URE PIDDIG CITY MICOLA SAMENT 1 153,333,33 153,333,33 2 2 153,333,33 2 153,33 2 153,33 2 153,33 2 153,33 2 153,33 2 153,3			
Cchapel (chapel noffee	<b>S</b> 2		Total number surveyed
155,333,33  2			Total number surveyed
155,235,335		153,333,33 153,333,33	Ave. unit cost (pesos)
Agrarian office.  Justice hall		8	Total number surveyed
Agrarian office.  Justice hall			Total number surveyed
Justice hall	· · · · · · · · · · · · · · · · · · ·	•	
Justice hall		1	Total number surveyed
eview entitle			Total number surveyed
LONG PARION CONTRACTOR			
		1	Total number surveyed
Telephone office	· · · · · · · · · · · · · · · · · · ·	Service and the service of the servi	
		1	Total number surveyed
Penal court			
		1	1 Total number surveyed
Others 52,571.43 52,571.43 52,571.43 52,571.43 52,571.43 52,571.43	\$2,571.43 52,571.43	52,571.43 52,571.43	52,571.43 Ave. unit cost (2esos)

REFERENCE	Above the street level		Above the street level	Above the farmland	Above the farmland	Above the street level	Above the street level.	Above the street level	Above the street level.	Above the street level																					
		08.0	0.30		7 02.1				3.80	•	0.30	1.20	2.00	0.90	1.50	05.1 05.1	0.80	8.0	0.40	0,40	0.50	8.1	0.70	0.70	1.50	0.65	8.0	0.40	0.40	1.8	8.1
DATE OF OCCURRENCE	June 28-30, 1967	September 15-16, 1993	August 27-30, 1984	June 15-17, 1972	June 28-30, 1967	October 21-25, 1987	June 28-30, 1967	September 10, 1994	October 21-25, 1987	June 15-17, 1972	June 28-30, 1967	October 21-25, 1987	September 20, 1992	September 20, 1992	October 21-25, 1987	June 28-30, 1967	September 20, 1992	October 21-25, 1987	September 20, 1992	October 21-25, 1987	June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	September 20, 1992	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	September 20, 1992	September 20, 1992	October 21-25, 1987
TYPHOON	Gening	Yeyeng	Maring	Romahing	Gening	Pepang	Gening	Weling	Pepang	Romahing	Gening	Pepang	Maring	Maring	Pepang	Gening	Maning	Pepang	Maring	Pepang	Gening	Gening	Pepang	Maring	Gening	Gening	Gening	Pepang	Maring	Maring	Pepang
MUNI: TYPHOON DATE OF FLOODWATER CIBAL ITY BARANGAY NAME OCCURRENCE LEVEL (meters)	Bimmanga	Bimmanga	Bimmanga	Callusa	Callusa	Dupítac	Dupitac	Dupitac	Estancia	Gayamat	<b>Gayamat</b>	Libraoan	Libnaoan	Mangitayag	Mangitayag	1 San Lorenzo (Pob.)	1 San Lorenzo (Pob.)	1 San Lorenzo (Pob.)	30-a Suyo	30-a Suyo	30-a Suyo	30-6 Santa Maria	34-b Gabu Norte East	34-b Gabu Norte East	34-b Gabu Norte East	43 Cavit (4)	45 Tangid	45 Tangid	45 Tangid	51-a Nangalisan East	51-a Napralisan East
MUN:	Piddie	Piddig	Piddis	Piddig	Piddig	Piddin	Piddig	Piddig	Piddig	Piddig	Piddil	Piddig	Piddig	Piddiz	Piddig	Laoas City	Laoas City	Laoa; City	Laoa; City	Laoas City	Labar City	Laoar: City	Ladar: City	Labar: City	Caoss City	Laory City	Laos. Cig	Laos ; City	Laos ; City	Laon y City	And Ander

					4													٠									l arca	area		•	<b>"</b> ਹ			ŭ
		REFERENCE	Above the street level			Above the street level	Above the street level				Above the street level		1.20 Above the street level	Above the street level								Could not reach residential area	Could not reach residential area		Could not reach street level	Could not reach street level	<ol> <li>Above the street level</li> </ol>	-	Could not reach street level					
the survey area. (2/8)	FLOODWATER	LEVEL (meters)	0.80	0.50	0.70	0.40	0.50	8	8 6	0. % 0. %	0.80	1.50		1.20	1.20	1.20		1.20	8.1			8.:	0.30	0.30	0.30	0.70						93 0.30	1.20	
ation depth experienced in	DATE OF	OCCURRENCE	June 28-30, 1967	September 20, 1992	June 28-30, 1967	October 21-25, 1987	1,000 06.30	June 20-30, 1307	June 28-30, 1907	June 28-30, 1967	October 21-25, 1987	June 28-30, 1967	August 27-30, 1984	August 27-30, 1984	June 28-30, 1967	October 21-25, 1987	September 20, 1992	June 28-30, 1967	June 28-30, 1967	September 10, 1994	October 21-25, 1987	June 28-30, 1967	October 21-25, 1987	September 20, 1992	June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	July 20-26, 1977	June 28-30, 1967	June 28-30, 1967	August 27-30, 1984	September 15-16, 1993	September 10, 1989	June 28-30, 1967
boons and inund	TYPHOON	NAME	Gening	Maring	Genine	Penang	9 1111	gunag	Gening	Gening	Pepang	Gening	Maring	Maring	Gening	Pepang	Maring	Gening	Gening	Weling	Pepang	Gening	Pepang	Maring	Gening	Gening	Penang	Goring	Gening	Cening	Maring	Yeveng	Openg	Gening
2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	e and date of occurrence of ore 177	YADAAGAY	A. v. Namestican West	St. Dioena	Suboring to	53 Kioeng	53 Kideng	54-b Camangaan	1 San Francisco (Pob.)	24 Santa Monica (Nagrebean)	24 Santa Monica (Nagrebean)	San Baltazar (Bo.2) (Pob.)	San Baltizar (Bo.2) (Pob.)	San Barrolome (Bo.4) (Pob.)	San Barrolome (Bo.4) (Pob.)	San Barrolome (Bo.4) (Pob.)	San 11defonso (Bo.3) (Pob.)	San Ildefonso (Bo.3) (Pob.)	San Juan Bautista	San Agustin (Pob.)	San Agustin (Pob.)	San Agustin (Pob.)	San Andres	San Andres	San Andres	San Antonio	Cieccia A mars	San Antonio	Salar Annother	San Cristodai	Saul teripo	San Fempe Can Geometro (Pob.)	San Francisco (Pob.)	San Isidro
	Table 13 Name			racali Cir.	בייסמן ליוי	Laoas: City	Laoag City	Laoaj; City	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	San Nicolas	Sarra	. Eles	. 1.6%	Sarri C	Satists	Same		Salini	Sarrid	Sarrai	Sarrad	Sarru	Sarint	Sarret	Sarri

MUNE	ALOODWATER FLOODWATER	NOORAKL	DATE OF	FLOODWATER		
CIPA: JITY	BARANGAY	NAME	OCCURRENCE	LEVEL (meters)		
JELS.	San Joaquin (Pob.)	Gening	June 28-30, 1967	0	0.30 Above the street level	t level
ELS.	San Jose	Gening	June 28-30, 1967	ř	3.00 Above the farmland	land
Sarra	San Leandro (Pob.)	Gening	June 28-30, 1967	2.0	2.00 Above the street level	t level
Carra.	San Lorenzo	Gening	June 28-30, 1967	0	0.50. Above the street level	t level
Carra	San Lorenzo	Pepang	October 21-25, 1987		0.30 Above the street level	t level
Sarrai	San Manuel	Openg	September 10, 1989	0		incial road
Samar	San Manuel	Gening	June 28-30, 1967	0	0.70 Above the provincial road	incial road
Same	San Manuel	Pepang	October 21-25, 1987	0	0.30 Above the provincial road	incial road
Same	San Marcos	Pepang	October 21-25, 1987			
Sama	San Marcos	Gening	June 28-30, 1967	<b>ก่</b>	3.00 Above the street level	nt level
JEL 5	San Nicolas	Maring	September 20, 1992	Ó	0.20 Above the street level	st level
Saffat	San Nicolas	Pepang	October 21-25, 1987	0	0.50 Above the street level	et level
Sarra	San Roque	Pepang	October 21-25, 1987			
Same	San Vicente (Pob.)	Gening	June 28-30, 1967		1.00 Above the street level	et level
S. Land	Santa Barbara (Pob.)	Weling	September 10, 1994	0.	0.60 Above the street level	et level
E S	Santa Barbara (Pob.)	Pepang	October 21-25, 1987	0	0.60 Above the street level	et level
Same	Santa Barbara (Pob.)	Goring	July 20-26, 1977	**************************************	.00 Above the street level	et level
Sarrit	Santo Tomas	Gening	June 28-30, 1967	-	.00 Above the street level	et level
Remiria	Balioeg	Pepang	October 21-25, 1987		.00 Above the brgy road	y road
Tening.	Bugasi	Pepang	October 21-25, 1987		.00 Above the existing road	sting road
Femilian	Purasi	Gening	June 28-30, 1967	•	1.00 Above the existing road	sting road
n in its	Bugasi	Maring	August 27-30, 1984	•-7	1.00 Above the existing road	sting road
Separate Sep	Caestebanan	Gening	June 28-30, 1967	Ü	0.65 Above the street level	set level
Houring	Caribouib	Pepang	October 21-25, 1987		2.50 Above the farmland	mland
Septified	Cataviavien	Pepang	October 21-25, 1987	. :	0.70 Above the street level	eet level
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Hilario (Pob.)	Pepang	October 21-25, 1987		1.50 Above the brgy road	sy road
i (1)	Lorenzo (Pob.)	Pepang	October 21-25, 1987		0.30 Above the farmland	mland
	Масаусорусо	Pepang	October 21-25, 1987		0.50 Above the brgy road	gy road
Eco cit.	Sinamar	Pepang	October 21-25, 1987		0.65 Above the street level	eet level
Forrib	Tabtabaran	Pepang	October 21-25, 1987		2.00 Above the farmland	mland
						******

																			-				:											
		REFERENCE	į	Above the street level	Above the street level	Above the street level	Above the formiand	Accreting talking and	Above the tallingly				Above the existing road	Above the existing road	Above the existing road		Above the street level	Above the street level	Only farmland	Only farmland		-	Above the street level	•	-	-	-	-	Above the street level	-	-			O Above the provincial road
survey area. (4/8)	FLOODWATER	LEVEL (meters)	1.75	0.20	0.80	0.20	9,6	04.4	7.40	0.80	0.80	0.80	0.70	0.30	0.70	0.10	0.10	0.10	0.10	0.10	0.10	0.30	1.50	1.10	1.50	0.30	0.30	1.10	3.1	0.30	1.0	1.8	0.1	0.00
tion depth experienced in the	DATE OF	OCCURRENCE	Tune 28-30, 1967	Tuly 20-26, 1977	7mm 78-30 1967	October 21.25 1087	CC100C1 41*40, 1301	June 28-30, 1967	October 21-25, 1987	August 27-30, 1984	June 28-30, 1967	June 15-17, 1972	October 21-25, 1987	August 27-30, 1984	June 28-30, 1967	August 27-30, 1984	June 28-30, 1967	June 20-24, 1985	September 20, 1992	August 27-30, 1984	June 28-30, 1967	October 21-25, 1987	June 28-30, 1967	October 27, 1991	June 28-30, 1967	October 21-25, 1987	August 27-30, 1984	June 28-30, 1967	October 21-25, 1987	July 20-26, 1977	July 20-26, 1977	October 21-25, 1987	October 21-25, 1987	June 20-24, 1985
big syphoons and inunda	NOOHAXL	NAME		ocianis Control	301105	Control	Pepang	Gening	Pepang	Naring .	Gening	Romahing	Pepang	Maring	Gening	Maring	Gening	Kuring	Maring	Maring	Gening	Pepang	Gening	Trining	Gening	Pepang	Maring	Gening	Pepang	Goring	Goring	Pepang	Pepang	Kuring
13 Now and date of occurrence of big typhoons and inundation depth experienced in the survey area. (4/8)	ייל אוים משור כי סבים:		BAKANGA	Cacalcan	Daquioag	Daquioag	Daquioag	Elizabeth (Culao)	Elizabeth (Culao)	Escoda	Escoda	Escoda	Sendinand	Sendinand	Charlinger	Control of the contro	a mining	Torque Torque	Pacifico (Agunit)	Pacifico (Aguntt)	Pacifico (Arunit)	Cantingo	Contingo	Tokinago (Rapas)	Tabuchue (Ragas)	Tabuchuc (Ragas)	Tabuchuc (Rapas)	Valdez	Valdez	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Albano (Poh )	Albano (Pob.)	Bagnt	Parado(Bangay)
	ושמוב זי זימני	MUNI-	CIPALITY	Marcos	Marcos	Marcos	Marcos	Marcos	Marcos	Warcos	Xarrox	× 20.00	Mento.	Marcos	Marcos	Marcos	Marcos	Marcos	Vergor	Various A	- CONTRACT	Mar. CO.	Marcos	Waren	Various V	Name of	-00-00	Walco.	Watcu.	Variation	Marcos			SEL TO

KUM	MUNI. FLOODWATER	TYPHOON	DATE OF	FLOODWATER	The state of the s
CIPALITY	BARANGAY	NAME	OCCURRENCE	LEVEL (meters)	REFERENCE
Dingras	Baresbes	Miding	August 17-19, 1986	1.20	Above the ricefield behind the Brgy Cap.'s house
Dingras	Barestes	Kuring	June 20-24, 1985	1.20	Above the ricefield behind the Brgy Cap.'s house
Dingras	Barong	Rosing	July 19-21, 1971	1.20	Above the road level
Dingras	Bruscas	Goring	July 20-26, 1977	1,20	Above the national road
Dingras	Bungcag	Pepang	October 21-25, 1987	1.20	Above the national road
Dingras	Dancel	Pepang	October 21-25, 1987	1.00	Above the national road
Dingras	Zlizabeth	Coring	July 20-26, 1977	8.1	Above the farmland, can't reach on the road
Dingras	Elizabeth	Pepang	October 21-25, 1987	1.20	Above the farmland, can't reach on the road
Dingras	702	Trining	October 27, 1991	0.00	Above the road level
Dingras	Guerrero (Pob.)	Pepang	October 21-25, 1987	1.50	Above the national road
Dingras	Lans	Coring	July 20-26, 1977	0.80	Above the road level
Dingras	LAnas	Maring	August 27-30, 1984	08.0	Above the road level
Dingras	Lumbad	Goring	July 20-26, 1977	0.30	Above the national road
Dingras	Lumbad	Pepang	October 21-25, 1987	0.30	Above the national road
Dingras	Madamba (Pob.)	Goring	July 20-26, 1977	0.50	Above the national road
Dingras	Madamba (Pob.)	Pepang	October 21-25, 1987	0.50	Above the national road
Dingras	Madamba (Pob.)	Gening	June 28-30, 1967		
Dingras	Mandaloque	Сеппд	June 28-30, 1967	2.80	Above the street level
Dingras	Mandaloque	Kuring	June 20-24, 1985	09.1	Above the street level
Dingras	Mandaloque	Goring	July 20-26, 1977	1.10	Above the street level
Dingras	Medina	Pepang	October 21-25, 1987	0.60	Above the existing provincial road
Dingras	Peralu (Pob.)	Pepang	October 21-25, 1987	1.8	Above the national road
Dingrae	Puruganan (Pob.)	Genng	June 28-30, 1967		
Dingras	Puruganan (Pob.)	Pepang	October 21-25, 1987	0.45	Above the national road
Dingras	Root (Baldias)	Pepang	October 21-25, 1987	8:1	Above the barangay road
Dingras	Sagpatan	Goring	July 20-26, 1977	35.1	Above the road level
Din; ras	Sagpatan	Pepang	October 21-25, 1987	1.50	Above the road level
Din, ras	San Esteban	Pepang	October 21-25, 1987	8.1	Above the road level
Dingras	San Esteban	Goring	July 20-26, 1977	1.00	Above the road level
Dinvras.	Francisco	Kuring	June 20-24, 1985		Flood affected the farmlands along the river.
Dingras	Francisco	Maring	August 27-30, 1984	3	Flood affected the farmlands along the river.

		NOOHear	DATEOF	FLOODWATER	•
MONE-	>4000 404 b	NAME	OCCURRENCE	LEVEL (meters)	REFERENCE
Simmas	San Marcelino (Padong)	Maring	August 27-30, 1984		Flood water flow along the river bank
Dinertas	San Marcelino (Padong)	Kuring	June 20-24, 1985		Flood water flow along the river bank
Oineras	San Marcos	Coring	July 20-26, 1977	0.30	Above the road level.
Dingras	San Marcos	Pepang	October 21-25, 1987	0.30	Above the road level
Dingras	Sulquiano	Kuring	June 20-24, 1985	0.30	Above the road level
Dingras	Sulquiano	Pepang	October 21-25, 1987	0.30	Above the road level
Dingras	Suyo (3)	Pepang	October 21-25, 1987	1.20	Above the national road
Dingras	Ver	Maring	August 27-30, 1984	0.20	Above the road level
Dineras	207	Trining	October 27, 1991	0.20	Above the road level
Dineras	Ver	Gening	June 28-30, 1967		
Solsona	Aguiap	Gening	June 28-30, 1967	0.70	Above the groundfloor of barangay hall
Solsona	Aguiap	Coring	July 20-26, 1977	1.80	Above the groundfloor of barangay hall
Solsona	Aguiap	Pepang	October 21-25, 1987	8:1	Above the groundfloor of barangay hall
Solsona	Bagbag	Pepang	October 21-25, 1987	1.00	Above the barangay street
Solsona	Вадрадо	Pepang	October 21-25, 1987	0.65	Above the existing road
Solsona	Barrelona	Gening	June 28-30, 1967	2.00	Above the existing street level
Solsona	Barcelona	Herming	July 25-29, 1979	1.00	Above the existing street level
Solsona	Barcelona	Pepang	October 21-25, 1987	2.00	Above the existing street level
Solsuma	Bubuos	Pepang	October 21-25, 1987	1.00	Above the barangay toad
Solven	Capurictan	Pepang	October 21-25, 1987		Some portions of the barangay
Solvina	Catangraran	Pepang	October 21-25, 1987	1.50	Above the farmland
Solvana	Darasdas	Weling	September 10, 1994		
Solsona	Darasdas	Maring	September 20, 1992	0.13	0.15 Above the basketball court infront of B.H.
Solvona	Darasdas	Pepang	October 21-25, 1987		
Solsona	Juan (Pob.) (1)	Pepang	October 21-25, 1987	0.65	Above the existing road
Solsona	Laureta (Pob.)	Pepang	October 21-25, 1987	0.50	Above the street level
Solvena	Lipay	Miding	August 17-19, 1986	0.30	Above the groundfloor of barangay hall
Solsona	Lipay	Kuring	June 20-24, 1985	0.30	Above the groundfloor of barangay hall
Solvana	Lipay	Openg	September 10, 1989	0.30	_
Solvora	Lipay	Pepang	October 21-25, 1987	0.70	
Solvana	Maananteng	Miding	August 17-19, 1986		Flood affected only the farmlands.

Pepang October 21-25, 1987  Queing July 15, 1989  Queing July 15, 1989  Pepang October 21-25, 1987  Octing June 28-30, 1987  Pepang October 21-25, 1987  Oct	MUNI-		TYPHOON	DATE OF	FLOODWATER		
Pepang	EQ.	BARANGAY	NAME	OCCURRENCE	LEVEL (meters)	REFERENCE	- 1
Curing   July 15, 1889   Cotoo   Cot	۱4	Agananteng	Pepang	October 21-25, 1987		Flood affected only the farmlands.	
Pepang October 21-25, 1987 0.60 A Pepang October 21-25, 1987 0.30 A Gening June 28-30, 1967 0.30 A Triving October 22, 1987 0.30 A Adring September 20, 1982 0.70 A Pepang October 21-25, 1987 0.30 A Gening July 20-26, 1977 0.50 A Adring September 20, 1987 0.50 A Gening July 20-26, 1977 0.50 A Gening July 20-26, 1977 0.50 A Adring October 21-25, 1987 0.30 A Pepang October 21-25, 1987 0.30 A Pepang October 21-25, 1987 0.30 A Gening July 20-26, 1977 0.30 A August 29, 1987 0.30 A Pepang October 21-25, 1987 0.30 A Gening July 20-26, 1977 0.30 A Pepang October 21-25, 1987 0.30 A Pepang October 21-25, 1987 0.30 A Bepang October 21-25, 1987 0.30 A Pepang October 21-25, 1987 1.00 A	-	Kaananteng	Gunng	July 15, 1989		Flood affected only the farmlands.	
Pepang October 21, 25, 1987 0, 30 A  Gening June 28-30, 1967 0, 30 A  Trituing October 27, 1991 0, 30 A  Maring September 20, 1987 0, 30 A  Pepang October 21, 25, 1987 0, 30 A  Gening June 28-30, 1967 0, 50 A  Aaring September 20, 1987 0, 50 A  Gening June 28-30, 1967 0, 50 A  Trining October 21, 25, 1987 0, 30 A  Gening June 28-30, 1967 0, 30 A  Gening June 28-30, 1967 0, 30 A  Gening June 28-30, 1967 0, 30 A  Pepang October 21, 25, 1987 0, 30 A  Gening June 28-30, 1967 0, 30 A  Pepang October 21, 25, 1987 0, 30 A  Gening June 28-30, 1967 0, 30 A  Repang October 21, 25, 1987 1, 30 A  Repang October 21, 30 A  Repang October 21, 30 A  Repang October 21, 30 A  Repang Oct		Kanalpac	Pepang	October 21-25, 1987	0.60	Above the national road	
Centing   June 28-30, 1967   0.30     Triuing   October 27, 1991   0.30     Pepang   October 21-25, 1987   0.50     Gening   July 20-26, 1977   0.50     Maring   September 20, 1967   0.30     Trining   Cotober 27, 1991   0.30     Gening   June 28-30, 1967   0.30     Gening   June 28-30, 1967   0.30     Pepang   October 21-25, 1987   0.30     Pepang   October 21-25, 1987   0.30     Gening   June 28-30, 1967   0.30     August 29, 1967   0.30     Pepang   October 21-25, 1987   0.30     Gening   June 28-30, 1967   0.30     Pepang   October 21-25, 1987   0.30     Raning   September 20, 1967   1.20     Pepang   October 21-25, 1987   1.20     Pepang   October 21-25, 1987   1.20     Pepang   October 21-25, 1987   1.00		Vanquet	Pepang	October 21-25, 1987	0.30	Above the existing road	
Triung October 27, 1991 0.30 A  Maring September 20, 1987 0.30 A  Pepang October 21-25, 1987 0.30 A  Gering July 20-26, 1977 0.50 A  Gering July 20-26, 1977 0.50 A  Adring September 20, 1992 0.10 A  Pepang October 21-25, 1987 0.50 A  Gening July 20-26, 1977 0.30 A  Gening July 20-26, 1977 0.30 A  Gening July 20-26, 1977 0.30 A  Pepang October 21-25, 1987 0.30 A  Gening June 28-30, 1967 0.30 A  Sang August 29, 1992 0.30 A  Sang August 29, 1992 0.30 A  September 20, 1987 0.30 A  Maring August 20, 1987 0.30 A  Maring August 20, 1987 0.30 A  Maring August 21-25, 1987 0.30 A  Pepang October 21-25, 1987 0.30 A  Maring August 20, 1987 0.30 A  Pepang October 21-25, 1987 0.30 A  Maring September 20, 1987 1.20 A  Maring September 20, 1987 1.00 A  Maring September 20, 1987 1.00 A  Maring September 20, 1987 1.00 A  Maring September 10, 1984 1.00 A  Gening June 28-30, 1967 1.00 A  Maling September 10, 1984 1.00 A  Gening June 28-30, 1967 1.00 A  Meling September 10, 1984 1.00 A  Gening June 28-30, 1967 1.00 A  Meling September 10, 1984 1.00 A  Gening June 28-30, 1967 1.00 A  Meling September 10, 1984 1.00 A  Meling September 10, 1984 1.00 A  Gening June 28-30, 1967 1.00 A  Meling September 10, 1984 1.00 A  Meling September 10, 1984 1.00 A  Gening June 28-30, 1967 1.00 A  Meling September 10, 1984 1.00 A  Meling September 10, 1984 1.00 A  Meling September 10, 1984 1.00 A  Meling September 10, 1987 1.00 A  Meling September 10		Variquet	Gening	June 28-30, 1967	0.30	Above the existing road	
Maring September 20, 1987 0,30 Maring September 20, 1987 0,70 Maring September 20, 1987 0,70 Maring September 21,25, 1987 0,50 Maring September 20, 1987 0,30 Maring September 21,25, 1987 0,30 Maring Muly 20-26, 1977 0,30 Maring October 21,25, 1987 0,30 Maring Muly 20-26, 1977 0,30 Maring Muly 20-26, 1987 0,70 Maring Muly 20-26, 1987 0,70 Maring Muly 20-26, 1987 0,70 Maring Muly 20-26, 1987 1,20 Maring September 20, 1987 1,20 Maring Maring September 20, 1987 1,20 Maring September 21,25, 1987 1,20 Ma		Maniquet	Trining	October 27, 1991	00:30	Above the existing road	
Maring         September 20, 1992         0.70           Pepang         October 21-25, 1987         1.00           Pepang         October 21-25, 1987         0.50           Goring         July 20-26, 1977         0.50           Gering         June 28-30, 1967         0.50           Maring         September 20, 1987         0.50           Pepang         October 21-25, 1987         0.10           Trining         October 21-25, 1987         0.30           Gening         June 28-30, 1967         0.30           Pepang         October 21-25, 1987         0.30           Gening         June 28-30, 1967         0.30           August 27-30, 1987         0.30           Goring         June 28-30, 1987         0.30           August 27-30, 1987         0.30           Bepang         October 21-25, 1987         0.70           Pepang         October 21-25, 1987         0.70           Pepang         October 21-25, 1987         0.70           Repang         October 21-25, 1987         1.20           Gening         June 28-30, 1967         1.00           Bepang         October 21-25, 1987         1.00           Bepang         October 21-25, 1987		Nagpathatan	Pepang	October 21-25, 1987	0.30	Above the provincial road	
Pepang October 21-25, 1987 1.00 Pepang October 21-25, 1987 0.50 Gering July 20-26, 1977 0.50 Gering July 20-26, 1977 0.50 Matring September 20, 1992 0.10 Pepang October 21-25, 1987 0.30 Gering July 20-26, 1977 0.30 Gering June 28-30, 1967 0.30 Pepang October 21-25, 1987 0.30 Gering June 28-30, 1987 0.30 Matring August 27-30, 1987 0.30 Gering June 28-30, 1987 1.20 Repang October 21-25, 1987 1.20 Gering June 28-30, 1967 1.20 Weifing September 20, 1992 1.00 Gering June 28-30, 1967 1.00  Gering June 28-30, 1967 1.00		Natasin	Maring	September 20, 1992	0.70	Above the farmland	
Pepang   October 21-25, 1987   0.50     Goring   July 20-26, 1977   0.50     Gening   July 20-26, 1977   0.50     Maring   September 20, 1992   0.10     Pepang   October 21-25, 1987   0.30     Goring   July 20-26, 1977   0.30     Gening   July 20-26, 1977   0.30     Pepang   October 27, 1991   0.30     Pepang   October 21-25, 1987   0.30     Gening   June 28-30, 1967   0.30     Gening   June 28-30, 1987   0.30     Maring   October 21-25, 1987   0.30     Pepang   October 21-25, 1987   0.30     Gening   June 28-30, 1967   0.30     Gening   June 28-30, 1967   0.70     Pepang   October 21-25, 1987   0		Nalusin	Pepang	October 21-25, 1987	1.0	Above the farmland	
Gering July 20-26, 1977 0.50  Gening June 28-30, 1967 0.50  Maring September 20, 1992 0.10  Pepang October 21-25, 1987 0.30  Gening July 20-26, 1977 0.30  Gening June 28-30, 1967 0.30  Pepang October 21-25, 1987 0.30  Gening June 28-30, 1967 0.30  Pepang October 21-25, 1987 0.30  Goring June 28-30, 1967 0.30  Goring July 20-26, 1977 0.30  Goring June 28-30, 1987 0.30  Pepang October 21-25, 1987 0.30  Gening June 28-30, 1967 0.30  Pepang October 21-25, 1987 1.20  Gening June 28-30, 1967 1.20  Gening June 28-30, 1967 1.20  Weling September 10, 1994 1.00  Gening June 28-30, 1967 1.00		Puttao	Pepang	October 21-25, 1987	0.50	Above the road level	
Gerning June 28-30, 1967  Maring September 20, 1992  Pepang October 21, 1987  Gening June 28-30, 1967  Adaing June 28-30, 1967  Gening June 28-30, 1967  August 29, 1992  Maring August 29, 1992  Gening June 28-30, 1967  Maring September 20, 1992  Meling September 10, 1994  1.00  Gening June 28-30, 1967  1.00  Repang October 21-25, 1987  1.00  Gening June 28-30, 1967  1.00		Puttao	Goring	July 20-26, 1977	0.50	Above the road level	
Maring   September 20, 1992   0.10		Puttao	Gening	June 28-30, 1967	0.50	Above the road level	-
Pepang October 21-25, 1987 0.60  Trining October 27, 1991 0.30  Gening July 20-26, 1977 0.30  Gening June 28-30, 1967 0.30  Pepang October 21-25, 1987 0.30  Gening July 20-26, 1977 0.30  Isang August 29, 1992 0.30  Rating August 29, 1992 0.65  Maring October 21-25, 1987 0.30  Gening June 28-30, 1984 0.70  Pepang October 21-25, 1987 0.70  Pepang October 21-25, 1987 1.20  Gening June 28-30, 1967 1.00  Waring September 20, 1992 1.00  Weling September 10, 1994 1.00  Weling September 10, 1994 1.00		San Juan	Maring	September 20, 1992	0.10	Above the groundfloor of barangay hall	
Trining October 27, 1991  Goring July 20-26, 1977  Gening June 28-30, 1967  Pepang October 21-25, 1987  Gening June 28-30, 1967  August 29, 1967  August 29, 1977  Gening June 28-30, 1987  August 27-30, 1987  Gening June 28-30, 1987  Gening June 28-30, 1987  Gening June 28-30, 1987  Gening June 28-30, 1967  August 29-30, 1987  Gening June 28-30, 1967  August 29-30, 1987  Gening June 28-30, 1987  1.00  Weling September 10, 1994  1.00  Gening June 28-30, 1987  1.00		San Juan	Pepang	October 21-25, 1987	0.60	Above the groundfloor of barangay hall	
Gening July 20-26, 1977  Gening June 28-30, 1967  Pepang October 21-25, 1987  Gening June 28-30, 1967  Gering June 28-30, 1967  Sang August 29, 1992  Maring August 27-30, 1984  Gening June 28-30, 1967  Pepang October 21-25, 1987  Gening June 28-30, 1967  Pepang October 21-25, 1987  Gening June 28-30, 1967  Natring September 20, 1992  Natring September 20, 1992  Netling September 10, 1994  1.00  Gening June 28-30, 1967  Pepang October 21-25, 1987  Gening June 28-30, 1967  Pepang October 21-25, 1987  Gening June 28-30, 1967  1.00  Weiling September 10, 1994  1.00		San Juan	Trining	October 27, 1991	0:30	Above the groundfloor of barangay hall	
Gening         June 28-30, 1967         0.30           Pepang         October 21-25, 1987         0.70           Gering         June 28-30, 1967         0.30           Pepang         October 21-25, 1987         0.30           Goring         July 20-26, 1977         0.30           Isang         August 27-30, 1987         0.30           Maring         August 27-30, 1987         0.70           Pepang         October 21-25, 1987         1.20           Gening         June 28-30, 1967         1.20           Repang         October 21-25, 1987         1.00           Pepang         October 21-25, 1987         1.00           Weiling         September 20, 1992         1.00           Weiling         September 10, 1994         1.00           Gening         June 28-30, 1967         1.00		San Julian	Goring	July 20-26, 1977	0.30		
Pepang October 21-25, 1987 0.70  Gening June 28-30, 1967 0.30  Pepang October 21-25, 1987 0.30  Goring July 20-26, 1977 0.30  Isang August 29, 1992 0.65  Maring August 27-30, 1984 0.70  Pepang October 21-25, 1987 0.70  Pepang October 21-25, 1987 1.20  Maring June 28-30, 1967 1.20  Maring September 20, 1992 1.00  Welling September 10, 1994 1.00  Welling September 10, 1994 1.00		San Julian	Gening	June 28-30, 1967	0.30		
Cening   June 28-30, 1967   0.30		San Julian	Pepang	October 21-25, 1987	0.70	_	
Pepang         October 21-25, 1987         0.30           Goring         July 20-26, 1977         0.30           Isang         August 29, 1992         0.55           Maring         August 27-30, 1984         0.70           Pepang         October 21-25, 1987         1.20           Gening         June 28-30, 1967         1.20           Repang         October 21-25, 1987         1.00           Maring         September 20, 1967         1.00           Weling         September 10, 1994         1.00           Weling         September 10, 1994         1.00           Gening         June 28-30, 1967         1.00		Santa Ana	Gening	June 28-30, 1967	0.30	-	
Goring July 20-26, 1977  Jsang August 29, 1992  Maring August 27-30, 1984  Pepang October 21-25, 1987  Gening June 28-30, 1967  Maring September 20, 1992  Pepang October 21-25, 1987  October 21-25, 1987  Nating September 20, 1992  Pepang October 21-25, 1987  Maring September 10, 1994  1.00  Gening June 28-30, 1967  1.00  1.00		Senta Ana	Pepang	October 21-25, 1987	0.30		
1sang         August 29, 1992         0.65           Maring         August 27-30, 1984         0.70           Pepang         October 21-25, 1987         1.20           Gening         June 28-30, 1967         1.20           Pepang         October 21-25, 1987         1.00           Maring         September 20, 1967         1.00           Weling         September 10, 1994         1.00           Weling         September 10, 1994         1.00           Gening         June 28-30, 1967         1.00		Santa Ara	Goring	July 20-26, 1977	0.30	_	
Maring         August 27-30, 1984         0.70           Pepang         October 21-25, 1987         1.20           Gening         June 28-30, 1967         1.20           Pepang         October 21-25, 1987         1.20           Maring         September 20, 1967         1.00           Pepang         October 21-25, 1987         1.00           Weling         September 10, 1994         1.00           Gening         June 28-30, 1967         1.00		Santiago	Isang	August 29, 1992	0.65		
Pepang October 21-25, 1987 1.20 Gening June 28-30, 1967 Pepang October 21-25, 1987 Gening June 28-30, 1967 an Maring September 20, 1992 Pepang October 21-25, 1987 1.00 Weling September 10, 1994 1.00 Gening June 28-30, 1967 1.00		Taluethe	Maring	August 27-30, 1984	0.70		
Gening   June 28-30, 1967     Pepang   October 21-25, 1987     Gening   June 28-30, 1967     Iran   Maring   September 20, 1992     Pepang   October 21-25, 1987     Weling   September 10, 1994     1.00     Gening   June 28-30, 1967     1.00	1.1	Taluetoe	Pepang	October 21-25, 1987	1.20		
Pepang   October 21-25, 1987		. Acnam	Gening	June 28-30, 1967			
tran         Gening         June 28-30, 1967           bran         Maring         September 20, 1992           Pepang         October 21-25, 1987         1.00           Weling         September 10, 1994         1.00           Gening         June 28-30, 1967         1.00		Acram	Pepang	October 21-25, 1987			
Maring September 20, 1992  Pepang October 21-25, 1987  Weling September 10, 1994  1.00  Gening June 28-30, 1967  1.00		Cabittauran	Gening	June 28-30, 1967			
Pepang         October 21-25, 1987         1.00           Weling         September 10, 1994         1.00           Gening         June 28-30, 1967         1.00		Cabittauran	Maring	September 20, 1992			
Weling September 10, 1994 1.00 Gening June 28-30, 1967 1.00		Caray	Pepang	October 21-25, 1987	8.1		
Gening June 28-30, 1967 1.00		S S	Weling	September 10, 1994	1.00		
		Carav	Gening	June 28-30, 1967	8.1		

XIIVII.						
	MUNI. FLOODWATER	NOOMAAL	TYPHOON DATE OF	FLOODWATER		
CIPALITY	BARANGAY	NAME	OCCURRENCE	LEVEL (meters) REFERENCE	REFERENCE	
Nueva Era Poblacion	Poblacion	Pepang	October 21-25, 1987			
Nueva Em	Santo Nino	Waring	August 27-30, 1984	0.70	0.70 Above the street level	
Nueva Era Santo Nino	Santo Nino	Gening	June 28-30, 1967	1.30	1.30 Above the street level	
Nueva Era Santo Nino	Santo Nino	Pepang	October 21-25, 1987	0.60	0.60 Above the street level	

Table 14 Characteristies of big floods experienced in the surveyed barangays. (1/8)

					FLOOD					
					DURATION	FLOOD FLOW	PERCENTAGE	FLOODWATE	FLOODWATER LEVEL (meters) ABOVE	ABOVE
MUNI-		NOOHALL	DATEOF	CAUSE OF	IN THE	E VELOCITY	OF FARM.	FARM.	GROUND-	
CIPALITY	3ARANGAY	NAME	OCCURRENCE	FLOODING	BRGY (hrs)	IN THE BRGY	LAND FLOODED	LAND	FLOOR	ROAD
Piddig	Simmanga	Genng	June 28-30, 1967	Overflow of river		3 Flowing/very fast	1.00		1.20	1.20
Piddig	Callusa	Genng	June 28-30, 1967	Overflow of river	\$3	8 Flowing/moderate	0:1		1.20	1.20
Piddig	Ouplac	Gening	June 28-30, 1967	Overflow of river		3 Flowing/very fast	0.1		0.70	0.70 0.70
Picdig	Estancia	Pepang	October 21-25, 1987	Overflow of river	H	2 Flowing/very fast	1.00		0.30	, 00 0
Piddig	Gayamat	Gening	June 28-30, 1967	Overflow of river		1 Flowing/very fast	00.1	0.30	0.30	0°,0
Piddig	Libnaoan	Pepang	October 21-25, 1987	Overflow of river		2 Flowing/very fast	8:		8.1	8.7
Piddig	Mangitayag	Pepang	October 21-25, 1987	Overflow of river	4	8 Flowing/moderate	1.00		2.50	ধ্
Laoag City	San Lorenzo (Pob.)	Gening	June 28-30, 1967	Overflow of river		7 Flowing/very fast	8.1		2.50	8:1
Lacag City	30-a Suyo	Cening	June 28-30, 1967	Overflow of river	••	2 Flowing/very fast	1.00		0.50	0,50
Lacas City	30-b Santa Maria	Gening	June 28-30, 1967	Overflow of river	<b>H</b>	2 Flowing/very fast	1.00		1.80	8:
Laoag City	34-b Gabu Norte East	Gening	June 28-30, 1967	Overflow of river	4	8 Flowing/moderate	1.00		1.20	0.70
Labag City	43 Cavit (4)	Gening	June 28-30, 1967	Overflow of river		3 Flowing/very fast	8:1	·	1.30	0.65
Lacag City	45 Tangid	Gening	June 28-30, 1967	Overflow of river		3 Flowing/very fast	1,00		0.30	9.6
Lacag City	51-a Nangalisan East	Pepang	October 21-25, 1987	Overflow of river		1 Flowing/very fast	1.00	•	1.8	8.
Lacag City	51-b Nangalisan West	Gening	June 28-30, 1967	Overflow of river	•	3 Flowing/very fast	1.00		0.80	0.80
Lacas City	33 Rioeng	Gening	June 28-30, 1967	Overflow of river	**	2 Flowing/very fast	8:1		0.70	0.70
Lucag City	.4-ь Сатапраал	Gening	June 28-30, 1967	Overflow of river		3 Flowing/very fast	1.00		1.8	0.50
San Nicolas	1 San Francisco (Peb.)	Gening	June 28-30, 1967	Poor drainage system	H	2 Flowing/very fast	1.00		4.00	3.0
San Nicolas	24 Santa Monica (Nagrebean)	Sening	June 28-30, 1967	Overflow of river	#	2 Flowing/very fast	1.00		1.40	0.80
San Nicolas	San Baltazar (Bo.2) (Pob.)	Gening	June 28-30, 1967	Poor drainage system	H	2 Flowing/very fast	1.00		1.80	8
San Nicolas	.3an Bartolome (130.4) (Pob.)	Gening	June 28-30, 1967	Poor drainage system	H	2 Flowing/very fast	1.00		1.20	8
San Nicolas	San Ildefonso (Eo.3) (Pob.)	Gening	June 28-30, 1967	Poor drainage system		3 Flowing/very fast	1.8		1.50	1.20
San Nicolas	San Juan Bartista	Gening	June 28-30, 1967	Overflow of river	<b>H</b>	2 Flowing/very fast	0.70	:	8.1	8
Sarrat	San Agustin (Pols.)	Gening	June 28-30, 1967	Overflow of river		3 Flowing/very fast	8.1		1.50	1.00
Sarrat	San Andres	Gening	June 28-30, 1967	Overflow of river.	- 4.	3 Flowing/very fast	1.00		0.30	0.30
Sarrat	San Antonio	Gening	June 28-30, 1967	Overflow of river	4	8 Flowing/moderate	1.80		0.70	0.70
Sarrat	San Cristobal	Gening	June 28-30, 1967	Overflow of river	<b>#</b>	<ol> <li>Flowing/very fast</li> </ol>	8:1		4,50	4.8
Sarrat	San Felipe	Gening	June 28-30, 1967	Overflow of river		1 Flowing/very fast	00.1		2.00	5.8
Sarrat	San Francisco (Pob.)	Openg	September 10, 1989	Overflow of river	•	3 Flowing/very fast	8.1		1.20	1.20
					:					

Table 14 Characteristics of big 6:00ds experien (2/8)

GAY LANDS AREAS  GRA Gravel gravel  sand sand  sand sand  sand sand  sand silt  tr sand silt  bur Norte East silt  silt silt  silt silt  bur Norte East silt  silt silt  silt silt  bur Norte East silt  silt silt  silt silt  silt silt  bur Norte East silt  silt silt  silt silt  bur Norte East silt  silt si			· · · · · · · · · · · · · · · · · · ·		SEDDMENT DEPOSITS AT RESIDENTIAL	SITS AT	
ga gravel gravel  sand sand  tt sand sitt  tt sand sitt  tr (4)  an Maria  bu Norte East  sit (4)  a. Monica (Nob.)  sand  sitt  sitt  sund  sitt  sitt  sund  sitt  sitt  sund  sitt  a. Monica (Nob.)  sand  sitt  sitt  sand  sitt  sitt  sand  sitt  sitt  sitt  sund  sitt  sund  sitt  sund  sitt  sitt  sund  sitt  sitt  sund  sitt  sund  sitt  sund  sitt  sund  sitt  sund  sitt  sund  sitt  sitt  sund  sitt  sitt  sitt  sund  sitt  sitt  sund  sitt  sit	ñ	BARANGAY		LANDS	AREAS	ROADS	
sand sand  sand sand  sand sand  sand silt  it sand silt  orenzo (Pob.) silt  silt silt  ob Nore East silt  silt silt  sund  silt silt  sund  silt silt  sund  silt silt  rang  sund sand  sund	æ	mmanga		gravel	gravel	gravel	
gravei sand sand silt sand silt sand silt serzo (Pob.) silt silt ou Norte East silt silt mangaan silt silt mangaan silt silt t. Monica (Pob.) sand silt silt silt mangaan silt silt t. Monica (Pob.) sand silt tolome (Eo.4) (Pob.)	Ü	Callusa		Sand	purs	Sand	
sand silt  sand silt  gravel gravel  gravel gravel  gravel gravel  silt silt  Morte East silt silt  lisan West silt silt  silt silt  lisan West silt silt  silt silt  silt silt  conica (Netterbean) sand silt  autisto me (Eo.24) (Pob.) sand silt  suc (Ro.2) (Pob.) sand silt  suc (Ro.2) (Pob.) sand silt  autisto sand silt  so (Ro.2) (Pob.) sand silt  ome (Eo.24) (Pob.) sand silt  autisto sand silt  so (Ro.2) (Pob.) sand silt  silt silt  so (Pob.) silt silt  so (Pob.) silt silt  so (Pob.) silt silt	F-1	Lupitac		gravei	sand	pues	. ;
sand silt gravel gravel gravel gravel gravel gravel silt silt Maria silt silt Nore East silt silt lisan East silt silt ngaan sand sand silt silt conca «Negrebean) sand silt silt silt nore (Bo.) (Pob.) sand silt nore (Bo.) (Pob.) sand silt sun (Eo.) (Pob.) sand silt sun (Eo.) (Pob.) sand silt sun (Eo.) (Pob.) sand silt so (Bv.) (Pob.) sand silt sun (Eo.) (Pob.) sand silt sun (Pob.) silt silt silt silt sun (Pob.) silt silt sun (Pob.) silt silt silt silt	ш	Estancia	:	Sand	silt	) Silt	:
gravel gravel  gravel gravel  gravel gravel  silt silt  Maria silt silt  Morte East silt silt  Isan East silt silt  Isan East silt silt  Isan West silt silt  cisco (Pob.) sand silt  tr (Bo.) (Pob.) sand silt  autist sand silt  n (Pob.) sand silt  so (Bc	v	Cayamat		purs	silt	캶	,
gravel gravel  zo (Pob.)  silt silt  Maria  silt silt  Morte East silt silt  Norte East silt silt  lisan East gravel  silt silt  lisan West silt silt  coice (Pob.)  sand silt  vr (Bo.2) (Pob.)  sand silt  sund silt  sund silt  on (Pob.)  sand silt  sund silt	1-1	Libnaoan	;	gravel	gravel	gravel	*.1
sift silt  Marin silt silt  Marin silt silt  Norte East silt silt  such silt silt  alisan East silt silt  alisan West silt silt  alisan West silt silt  mgaan silt silt  ar (Bo 2) (Pob.) sand silt  mso (Bv.3) (Pob.) sand silt  mso (Bv.3) (Pob.) sand silt  mso (Bv.3) (Pob.) sand silt  inn (Pob.) sand silt  silt silt  such sand silt  silt silt  silt silt  silt sand  such sand  such silt  silt silt  such sand  such silt silt  silt silt	4	Mangitayag		8rave!	gravel	gravel	
silt silt  Maria silt silt  Norte East silt silt  sand sand  silt silt  alisan Vest silt silt  alisan Vest silt silt  angaan silt silt  Aonica (Negrebcan) sand silt  ar (Bo. 2) (Pob.) sand silt  fome (Eo. 4) (Pob.) sand silt  max (Bo. 2) (Pob.) sand silt  inn (Pob.) sand silt  in (Pob.) sand silt  sand sand  cs silt  til (Pob.) sand silt  sand silt  cs sand sand  obal sand  obal sand  silt  silt silt  silt silt  silt silt  silt silt  silt silt  silt silt  sand  obal sand  san		I San Lorenzo (Pob.)	٠.	Ħ	silt	silt	
sait silt silt salt sand sand sand sand sand sand sand silt silt silt silt silt silt silt silt	n	33-a Suyo		silt	rigi Tigi	silt	
Vorte East siit silt sand sand sand silt silt silt silt silt silt silt silt	6.3	32-b Santa Maria		iş.	zit	şį;	•
sand sand silt silt isan East gravel gravel lisan West silt. silt. silt. silt. silt. silt. silt. onica (Pob.) sand silt. c (Bo.2) (Pob.) sand silt. so (Bc.3) (Pob.) sand silt. sunista sand silt. sand silt. sand silt. silt. silt. sand sand salt. sand sand silt. silt. silt. silt.	6.3	34-b Gabu Norte East		Sit	sit	Sit	
silt silt gravel gravel silt silt silt silt sum sund silt yrebean) sand silt yrebean) sand silt yrebean) sand silt yrebean sand silt yrebean sand silt yrebean sand silt gravel sand	4	43 Cavit (4)		bas	sand	- pura	
gravel gravel silt silt silt silt sund silt (Pob.) sand silt (Pob.) sand silt (Pob.) sand silt gravel silt silt silt silt silt sand silt	4	45 Tanged	-	silt	मुह	zi.	
silt silt silt silt silt silt stand silt yrebean) sand silt bob.) sand silt (Pob.) sand silt (Pob.) sand silt sand silt silt silt sand silt silt	٧,	51-a Nangalisan East		gravel	gravel	gravel	· .
silt silt silt silt silt silt silt silt (Negrobcan) sand silt (Oob.) sand silt (Oob.) sand silt (Oob.) sand silt (Oob.) sand silt sand silt silt silt sand	٧,	51-b Nangalisan West	Ş: -	sit	silt	nis His	
silt silt  sund silt  (Negrebcan) sand silt  () (Pob.) sand silt  () (Pob.) sand silt  () (Pob.) sand silt  () sand silt  () sand silt  () silt  () silt  () silt  ()	٠,	53 Riceng		sit	silt	Sili	
sand silt sand silt sand silt sand silt sand silt gravel gravel silt silt sand sand sand sand sand sand sand silt	• 1	54-b Camangaan		ijs Jas	silt	sit	
sand silt sand silt sand silt sand silt sand silt gravel gravel silt silt sand sand sand sand sand sitt silt	-	San Francisco (Pob.)		sand	silt	Ħ	
sand silt sand silt sand silt sand silt gravel gravel silt silt sand sand sand silt silt	• • •	21 Santa Monica (Negre	(pcan)	purs	silt	iis	
sand silt sand silt sand silt gravel silt silt gravel sand sand sand gravel silt silt silt	-	Sin Baltazar (Bo 2) (Pol	<b>a</b>	purs	silt	뱛	
sand silt sand silt gravel gravel silt silt sand sand gravel gravel sitt silt		San Bartolome (E.2.4) ()	Pob.)	purs	SŲ.	sit	
sand silt gravel gravel silt silt sand sand gravel gravel silt silt		San Ildefonso (Bo.3) (Po	ob.)	Sand	silt	silt	
gravel gravel silt silt gravel sand sand sand gravel gravel silt silt		San Juan Bautisto		purs	Silt	silt	1
stavel sand sand sand sand sand sand site		San Agustin (Pob.)		gravei	gravel	sit	
sand sand sand sand sand sand sand silt silt		San Andres		şţţ	Nic.	Sit	
sand sand gravel gravel		San Antonio	:	gravel	sand	Sand	
gravel gravel silt		Sun Cristobal		sand	pues	Sand	
silt		Sın Felipe		gravel	gravel	भूष	
		San Francisco (Pab.)		sift	silt	븒	

Table 14 Characteristics of big floods experienced in the surveyed barangays. (3/8)

						FLOOD					
		:					DOD FLOW		FLOODWATE	FLOODWATER LEVEL (meters) ABOVE	ABOVE
MUN-			TYPHOON	DATE OF	CAUSE OF	IN THE VE	VELOCITY	OF FARM-	FARM-	GROUND-	
CIPALITY	BARANGAY		NAME	OCCURRENCE	FLOODING	BRGY (hrs) IN	IN THE BRGY	LAND FLOODED	LAND	FLOOR	ROAD
Sarrat	San Isidro		Gening	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	3.3		2:00	2.00
Sarrat	San Joaquin (Pob.)		Graing	June 28-30, 1967	Overflow of river	1 月0	Flowing/very fast	1.00		1.30	0.30
Sarra	San Jose		Gening	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	1.8		3.00	3.00
Sarrac	San Leandro (Pob.)		Cening	June 28-30, 1967	Overflow of river	ě.	Flowing/very fast	1.80		2.00	5.8
Sarrat	San Lorenzo		Sering	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	8.1	,	1.50	0.50
Sarrac	San Manuel		Sering	June 28-30, 1967	Overflow of river	3 Fig.	Flowing/very fast	1.8		0.70	0.70
Sarrat	San Marcos		Gening	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	8:		3.50	3.00
Sarrat	San Nicolas	:-	Pepang	October 21-25, 1987	Overflow of river	3 Flo	Flowing/very fast	1.8		2.50	0.50
Sarrat	San Roque		Pepang	October 21-25, 1987	Overflow of river	3 Flo	Flowing/very fast	1.8			8.1
Sarrar	San Vicente (Pob.)		Gening	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	no farmland	٠.	1.65	8
Sarrac	Santa Barbara (Pob.)		Goring	July 20-26, 1977	Overflow of river	6 Flo	Flowing/very fast	8.1		1.30	1.20
Samat	Santo Tomas		Gening	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	1.8		8.1	1.8
Espiritu	Balioeg	i Si	Pepang	October 21-25, 1987	Overflow of river	3 Flo	Flowing/very fast	8.1		1.30	8
Espirio	Bugasi		Pepang	October 21-25, 1987	Overflow of river	12 Fig.	Flowing/very fast	8:		1.50	8.0
Espiritu	Caestebanan	: :	Gening	June 28-30, 1967	Overflow of river	3 FJ0	Flowing/very fast	8.1		0.95	0.65
Espiritu	Caribquib		Pepang	October 21-25, 1987	Overflow of river	12 Flo	Flowing/very fast	0.30	2.50	below	below
Espiritu	Citagaguen		Pepang	October 21-25, 1987	Overflow of river	12 Flo	Flowing/very fast	1.8		8	0.70
Espiritu	Hilario (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	12 Flo	Flowing/very fast	1.8		1.50	33
Espirm	Lurenzo (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	12 50	Flowing/very fast	1.00		0.80	6.3
Espiria	Macayepyep		Pepang	October 21-25, 1987	Overflow of river	12 Flo	Flowing/very fast	8.1		0.50	0.50
Espiritu	Siramar		Pepang	October 21-25, 1987	Overflow of river	12 Flo	Flowing/very fast	1.8	٠	030	0.65
Espiritu	Tabagan		Рерапв	October 21-25, 1987	Overflow of river	12 Flo	Howing/very fast	1.00	2.00	0.30	0.60
Espiritu	Videz		Gening	June 28-30, 1967	Overflow of river	3 190	Howing/very fast	1.0		0.83	0.50
Marcos	Cicafean		Gening	June 28-30, 1967	Overflow of river	48 Flo	Flowing/moderate	1.00		1.75	1.75
Marcos	Daquioag		Gening	June 28-30, 1967	Overflow of river	48 Flo	Flowing/moderate	8		0.80	0.80
Marcos	Elizabeth (Culao)		Cening	June 28-30, 1967	Poor drainage system	12 Flo	Flowing/very fast	1.8	2,40	Sciow	below
Marcos	Escoda		Gening	June 28-30, 1967	Overflow of river	168 Flo	Flowing/slow	1.8			0.80
Marcos	Ferdinand	. •	Gening	June 28-30, 1967	Overflow of river	12 Flo	Flowing/very fast	8:1		0.70	0.70
Marcos	Fortuna		Gening	June 28-30, 1967	Overflow of river	12 刊	Flowing/very fast	1.8		0.10	0.10
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		FARM.	SEDIMENT DEPOSITS AT RESIDENTIAL	TS AT	
BARA	BARANGAY	SCNYT	AREAS	ROADS	
San Isidro	orpis	gravel	silt	sit	
San	San Joaquin (Pob.)	gravel	gravel	sand	:
San Jose	950	silt	श्रुद	silt	
San	San Leandro (Pob.)	gravel	silt	pues	
San	San Lorenzo	gravel	silt.	sand	
San	San Manuel	gravel	pues	purs	
San	San Marcos	Sit	silt	sit	
Sza	Szn Nicolas	gravel	silt	gravel	
S	Sen Roque	<b>D</b>	gravel	bus	
S	Sen Vicente (Pob.)	מסני	silt	silt	
Szn	Santa Barbara (Pol).)	Sand	burs	sand	, i
San	Santo Tomas	silt	silt	sit	
B	Baliocg	gravel	silt	žķ	
Sug	Buyasi	gravel	purs	pues	
Õ	Chestebanan	gravel	silt	silt	
Ö	Curibçuib	gravel	none	none	
ö	C:ವಶ್ವವಜ್ಞಾರು	Z S	भूद	या	
X	H lario (Pob.)-	gravel	Sand	sand	:
ۮٙ	Lirenzo (Pob.)	gravel	કહેર	調	
ž	N.acayepyep	grave	sand	sand	
Š	Sinamar	gravel	purs	pas -	
Ë	Tiblabagan	gravel	stit	silt	
ž	V ildez	gravel	purs	pues	•
ű	Cicafean	gravei	gravel	gravel	5.
Ω	Daquioag	Sand	sit	ង្គ	
ш	E izabeth (Culao)	gravel	none	none	
ញ	Exceda	gravei	sand	pues	
ιž	Ferdinand	gravei	puss	pues	
(Ľ,	Fyrura	gravel	none	none	:

Table 14 Characteristics of big floods experienced in the surreyed barangays. (5/8)

5						FLOOD		:			
						DURATION	DURATION FLOOD FLOW	PERCENTAGE	FLOODWATE	FLOODWATER LEVEL (meters) ABOVE	ABOVE.
WUNI-			TYPHOON	DATE OF	CAUSE OF	SHT N	IN THE VELOCITY	OF FARM-	FARM-	GROUND-	
CIPALITY	BARANGAY		NAME	OCCURRENCE	FLOODING	BRGY (hrs)	IN THE BRGY	LAND FLOODED	CANAL	FLOOR	KOAD
Marcos	Pacifico (Agunit)		Gening	June 28-30, 1967	Overflow of river	120	Flowing/slow	1.00		0,10	0.10
Marcos	Santiago		Gening	June 28-30, 1967	Overflow of river	r r	Flowing/very fast	1.00			1.50
Marcos	Tabucbuc (Ragas)		Gening	June 28-30, 1967	Overflow of river		Flowing/moderate	8.1		1.50	05.1
Marcos	Valdez		Genng	June 28-30, 1967	Overflow of river	84	: Flowing/moderate	8:18		1.10	1.10
Dingras	Albano (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	6	Flowing/very fast	0.1	1.60	1.60	8
Dingras	Eagut		Pepang	October 21-25, 1987	Overflow of river	n	Flowing/very fast	1.8		0.1	8.
Dingras	Parado(Bangay)		Kuring	June 20-24, 1985	Overflow of river		Flowing/very fast	8:		0.60	0.60
Dingras	Earesbes		Miding	August 17-19, 1986	Overflow of river	<b>(1)</b>	Flowing/very fast	1.00	1.20	2.65	2.65
บัญการ	Barong		Rosing	July 19-21, 1971	Overflow of niver		: Flowing/very fast	0.22		1.20	87
Dingras	Pungcag		Pepang	October 21-25, 1987	Overflow of river	r)	3 Flowing/very fast	0,70	1.80	1.80	1.35
Dingras	Lancel		Pepang	October 21-25, 1987	Overflow of river	22	Flowing/very fast	1.00	1.75	3.75	8
	Flizabeth		Coring	July 20-26, 1977	Overflow of niver	<b>3</b>	Flowing/moderate	1.00	3.50	below	below
	F02		Trining	October 27, 1991	Overflow of river	. 63	3 Flowing/very fast	1.00		09'0	0.60
Service Solvers	Guerrero (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	<b>(1)</b>	3 Flowing/very fast	1.00	2:00	05.1	87.
Dingras	Lanas		Maring	August 27-30, 1984	Overflow of river	**	Flowing/fast	1.00		0.30	0.80
Dingras	Lumbad		Pepang	October 21-25, 1987	Overflow of river		3 Flowing/very fast	1.8	0.60	0.60	0.30
Dingras	Madamba (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	12	2 Flowing/very fast	1.8	1.10	1.10	050
Dingras	Mandaloque		Gening	June 28-30, 1967	Overflow of river	ជ	2 Flowing/very fast	1.00	2.20	2.8	2.00
Dingras	Medina	•	Pepang	October 21-25, 1987	Poor drainage system		3 Flowing/very fast	1.00		0.60	9.0
Dingras	Peralta (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	ជ	2 Flowing/very fast	1.00	1.45	1.45	5.3
Dingras	Puruganan (Pob.		Pepang	October 21-25, 1987	Overflow of river	<b>11</b>	2 Flowing/very fast	00:1	1.05	1.05	0.75
Dingras	Foot (Baldias)		Pepang	October 21-25, 1987	Overflow of river		3 Flowing/very fast	0.98	1.65	1.65	8:
Dingras	Sagpatan	:	Pepang	October 21-25, 1987	Overflow of river	<b>13</b>	2 Flowing/very fast	1.8		85.1	3.1
Dingras	San Esteban		Pepang	October 21-25, 1987	Overflow of river	13	2 Flowing/very fast	1.00		8:	8:
Dingras	Francisco	1	Maring	August 27-30, 1984	Overflow of river		3 Flowing/very fast	9.0			no data
Dingras	San Marcelino (Fydong)	- (8)	Maring	August 27-30, 1984	Overflow of river	***	3 Flowing/very fast	0.17			मध्य विद्या
Dingras	San Marcos		Pepang	October 21-25, 1987	Overflow of river	13	2 Flowing/very fast	1.00		0.30	0.30
Dingras	Sulquiano		Pepang	October 21-25, 1987	Overflow of river	87	8 Flowing/moderate	0.30		0.30	0.30
Dingras	Suyo (3)		Pepang	October 21-25, 1987	Overflow of river		3 Flowing/very fast	0.90	1.95	1.95	1.20
-											

		SE	SEDIMENT DEPOSITS AT	IS AT	;
- INTEX		FARM.	RESIDENTIAL		
Y11 1401	BARANGAY	LANDS	AREAS	ROADS	
Karos	Pacifico (Agunit)	Sand	sand	pues	
X <sub>2</sub> mor	Captiago	sand	puss	pues	
Marcos	Tabuchue (Ragas)	gravel	sit	silt	
Marror .	Valdez	Sand	silt	silt	
Ciperas	Albano (205.)	sit	silt	ક્યા	
Dineras	Barut	Sţţ.	silt	silt	
Dineras	Parado(Bangay)	Şij	sik	sit	: '.
Dingras	Baresbes	debris	debris	debris	
Dingras	Sarong	debris	debris	debris	
Dingras	Bungcag	ğ	Silt	sir	
Dingras	Dancel	sit	silt	sit	
Dingras	Elizabeth	debris	none	none	٠.
:	Poz	Silt	sik	sit	
Dingras	Guerrero (Pob.)	sit	silt	silt	
Dingras	Lanas	gravel	gravel	gravel	
Dingras	Lumbad	SĘK	Silt	silt	,
Dingras	Madamba (Pob.)	Silt	silt	silt	
Dingras	Mandaloque	gravei	pures	sand	
Dingras	Medina	ij	siit	sit	
Dingras	Peralta (Pob.)	Nik Si	silt	Jig	
Dingras	Puruganan (Pol).)	sit	silt	) Tik	
Diagras	Root (Baldias)	iş.	Salt	Ħ	
Diagras	Sagpatan	શાહ	sik	ડાં!	
Dingras	San Esteban	gravel	gravel	gravel	
Dingras	Francisco	debns	none	notic	
Dingras	San Marcelino (Patong)	debris	Done	none	
Dingras	San Marcos	gravel	gravei	gravei	! !
Dingras	Sulquiano	Sand	sand	sand	:
Dingras	Suyo (3)	silt	silt	ij	

14. Characteristics of big 1) oods experienced in the surveyed barangays. (7/8)

Part	Table 14 Ch	Table 14 Characteristics of big Hoods experienced in the surveyed balangays.	Hoods experience	איזוו מוכ אוו אבאני	A Cataloga Joseph		GOO.F.					
PARAMIGANY   NAME   OCCURENCE   ELOCOTING   SEGOTOMS   LAND FLOODS   LAND FLOOD   LAND FLOOD FLOOD   LAND FLOOD							DURATION	FLOOD FLOW	PERCENTAGE	FLOODWATE	R LEVEL (meter	s) ABOVE
ΤΥ         \$AAAMOAY         NAME         OCCURRENCE         FLOODING         BROY CRED         INTERESTORY         LAND         FLOOD         ROO           Ayar         Ayar         Ayar         Ayar         Condex 12.25, 1987         Overflow of river         13 Flowing/very flat         1.00	N. I.		* * * * * * * * * * * * * * * * * * *	NOOHEYL	DATEOF	CAUSE OF	N THE	VELOCITY	OF FARM-	FARM-	GROUND-	
Ver         Marines         August 72-03, 1984         Operation of river         3 Proving/very fast         100         0.00           Bagbage         Pepanse         Control-21,23, 1987         Operation of river         3 Proving/very fast         1,00         1,00         1,00           Bagbage         Pepanse         Control-21,23, 1987         Operation of river         3 Proving/very fast         1,00	CIPALITY	BARANGAY		NAME	OCCURRENCE	FLOODING	BRGY (hrs)	IN THE BRGY	LAND FLOODED	LÀND	FLOOR	ROAD
Aguings         Pepang         Corober 21.25, 1887         Overflow of river         12 Powings/very fast         1.00	Diagras	Ver		Maring	August 27-30, 1984	Overflow of river	69		1.00		0.20	0.20
Bagings         Pigang         October 21-25, 1987         Overflow of river         3 Rowinglyvery fast         1.00	Solson	Acutao		Pepang	October 21-25, 1987	Overflow of river	12		1.00		8.1	8.
Bagings         Pepping         Conclor 21,25, 1887         Overflow of river         120 Rowing/very flat         150         2.00           Bareciona         Peping         October 21,25, 1887         Overflow of river         12 Rowing/very flat         0.60         1.50         1.50           Chancian         Peping         October 21,25, 1887         Overflow of river         12 Rowing/very flat         0.60         1.50         1.50           Chancian         Peping         October 21,25, 1887         Overflow of river         15 Rowing/very flat         0.60         1.50         0.50           Laureta (Pob.)         Peping         October 21,25, 1887         Overflow of river         15 Rowing/very flat         0.60         1.50         0.50           Linar, Pob.)         Peping         October 21,25, 1887         Overflow of river         15 Rowing/very flat         0.60         0.50         0.50           Linar, Pob.)         Peping         October 21,25, 1887         Overflow of river         15 Rowing/very flat         0.60         0.50         0.50           Linary         Peping         October 21,25, 1887         Overflow of river         15 Rowing/very flat         0.60         0.50         0.50           Manajanc         Peping         October 21,25, 1887	Solsona	Ваграк		Pepang	October 21-25, 1987	Overflow of river	m	Flowing/very fast	1.8		8.1	1.8
Backboas         Popping         Corober 21.25, 1987         Ownerlow of river         12 Rowing/very fast         1.00         2.00         2.00           Babboas         Popping         Corober 21.25, 1987         Ownerlow of river         12 Rowing/very fast         0.00         1.20         1.00           Caugariana         Popping         Corober 21.25, 1987         Ownerlow of river         3 Rowing/very fast         0.40         1.50         0.90         1.20         1.20           Lancidas         Matring         September 20, 1987         Ownerlow of river         3 Rowing/very fast         0.40         1.50         0.90         0.15         0.90         0.15         0.90         0.15         0.90         0.15         0.90         0.15         0.90         0.15         0.90         0.15         0.90         0.15         0.90         0.15 <td>Solsons</td> <td>Васрако</td> <td></td> <td>Pepang</td> <td>October 21-25, 1987</td> <td>Overflow of river</td> <td>120</td> <td></td> <td>1.8</td> <td></td> <td>1.50</td> <td>0.65</td>	Solsons	Васрако		Pepang	October 21-25, 1987	Overflow of river	120		1.8		1.50	0.65
Bubboss         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         0.70         1.00           Caparican         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         0.70         1.20         1.00           Lameza, Casangeran         Antiring         September 20, 1982         Overflow of river         3 Flowing/very fast         0.60         1.20         0.50           Lameza, (Pob.)         Pepang         Conober 21-25, 1987         Overflow of river         3 Flowing/very fast         0.60         1.20         0.50           Lipay         Pepang         Conober 21-25, 1987         Overflow of river         12 Flowing/very fast         0.60         0.30         0.70           Lipay         Pepang         Conober 21-25, 1987         Overflow of river         12 Flowing/very fast         0.60         0.30         0.70           Mananamer         Pepang         Conober 21-25, 1987         Overflow of river         12 Flowing/very fast         0.60         0.30         0.70           Mananamer         Pepang         Conober 21-25, 1987         Overflow of river         12 Flowing/very fast         0.60         0.30         0.70           Mananamer         Pepang         October 21-25, 1987	Solsona	Parcelona		Pepang	October 21-25, 1987	Overflow of river	23	Flowing/very fast	1.00		2.00	2.8
Capurican         Pepang         Cencher 21-23, 1987         Overflow of river         3 Flowing/very fast         0.66         1.20         1.20           Lamedas         Agang         Cencher 21-23, 1987         Overflow of river         3 Flowing/very fast         0.40         1.20         0.90           Lamedas         Agang         Cencher 21-23, 1987         Overflow of river         3 Flowing/very fast         0.00         0.13         0.90           Limaca (Pob.) (1)         Pepang         Cencher 21-23, 1987         Overflow of river         2 Flowing/very fast         0.00         0.30         0.30           Lipsy         Pepang         Cencher 21-23, 1987         Overflow of river         12 Flowing/very fast         0.30         0.30         0.30           Mananaters         Pepang         Cencher 21-23, 1987         Overflow of river         12 Flowing/very fast         0.80         0.30         0.30           Mananaters         Pepang         Cencher 21-23, 1987         Overflow of river         12 Flowing/very fast         0.80         0.20         0.30           Mananaters         Pepang         Cencher 21-23, 1987         Overflow of river         12 Flowing/very fast         0.40         1.20         0.30           Majassin         Pepang         Cencher	Solsons	Bubuos		Pepang	October 21-25, 1987	Overflow of river	# #		0.70		8:1	8:1
Canaganan	Solsona	Capurician		Pepang	October 21-25, 1987	Overflow of river		Flowing/very fast	0.60		1.20	1.20
Laural (200.) (1)   Pepuig   September 20. 1992   Overflow of river   2 Flowing/very fast   0.90   0.15   0.30	Solsona	Caungram		Pepang	October 21-25, 1987	Overflow of river	<b>C</b>	Flowing/very fast	0,40	1.50	0.8	0.30
Juan (Pob.) (1)         Pepang         October 21-25, 1987         Poor drainage system         12 Flowing/very fast         1.00         0.30         0.20           Laurea (Pob.)         Pepang         October 21-25, 1987         Yoor drainage system         3 Flowing/very fast         0.05         0.20         0.20           Manatamene         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         0.80         P.20         0.70           Manatamene         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         0.80         P.20         1.20           Manatamene         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         0.80         P.20         1.20           Manatamene         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         0.40         1.80         1.80           Malasin         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30           San Juan         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30           San Juan         Pepang         October 21-25, 1987	Solsona	Larasdas		Maring	September 20, 1992	Overflow of river	e	Flowing/very fast	0.90		0.15	0.15
Lipay  Lipay  Popang  Ocnober 21:-25, 1987  Overflow of river  Manananeng  Popang  Ocnober 21:-25, 1987  Overflow of river  San Julian  Popang  Ocnober 21:	Solsona	Juan (Pob.) (1)		Pepang	October 21-25, 1987	Poor drainage system	12	Flowing/very fast	0.1		0.30	99.0
Lipay         Pepang         October 21:25, 1987         Overflow of river         48         Flowing/moderate         0.30         0.70         no           Maananeerg         Pepang         October 21:25, 1987         Overflow of river         120         Flowing/slow         0.40         no         no           Mainquet         Pepang         October 21:25, 1987         Overflow of river         12         Flowing/very fast         1.00         1.20         1.20           Naixain         Pepang         October 21:25, 1987         Overflow of river         18         Flowing/very fast         0.40         1.80         1.80         1.80           Naixain         Pepang         October 21:25, 1987         Overflow of river         168         Flowing/very fast         1.00         1.00         0.50           San Juan         Pepang         October 21:25, 1987         Overflow of river         10         Flowing/very fast         1.00         0.50         0.50           San Juan         Pepang         October 21:25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.50         0.50           San Juan         Pepang         October 21:25, 1987         Overflow of river         12         Flowing/very fast         1.0	Solsona	Laureta (Pob.)		Pepang	October 21-25, 1987	Poor drainage system	en.	Flowing/very fast	0.05		0.50	0.50
Manipue         Populg         October 21:-25, 1987         Overflow of river         120 Flowing/stow         0.40         no           Manipue         Pepang         October 21:-25, 1987         Overflow of river         3 Flowing/very fast         0.40         h.20         1.20           Manipue         Pepang         October 21:-25, 1987         Overflow of river         12 Flowing/very fast         0.40         1.80         1.20           Nalasin         Pepang         October 21:-25, 1987         Overflow of river         18 Flowing/very fast         0.40         1.80         1.80           Nalasin         Pepang         October 21:-25, 1987         Overflow of river         18 Flowing/very fast         1.00         1.00           San Juan         Pepang         October 21:-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.50           San Juan         Pepang         October 21:-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.50           San Juan         Pepang         October 21:-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           San Roam         Pepang         October 21:-25, 1987         Overflow of river         3 Flowing/	Solsona	Lipay		Pepang	October 21-25, 1987	Overflow of river	***	Flowing/moderate	0.30		0.70	0.70
Manipac         Pepang         October 21:25, 1987         Overflow of river         3 Flowing/very fast         0.80         7:20         1.20           Mariquet         Pepang         October 21:25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           Najzapatan         Pepang         October 21:25, 1987         Overflow of river         1.8 Flowing/very fast         0.40         1.80         1.30           Najzacin         Pepang         October 21:25, 1987         Overflow of river         1.8 Flowing/very fast         1.00         1.00         0.30           San Julian         Pepang         October 21:25, 1987         Overflow of river         1.2 Flowing/very fast         1.00         0.30         0.30           San Julian         Pepang         October 21:25, 1987         Overflow of river         1.2 Flowing/very fast         1.00         0.30         0.30           Santiago         Pepang         October 21:25, 1987         Overflow of river         1.8 Flowing/very fast         1.00         0.30         0.30           Santiago         Pepang         October 21:25, 1987         Overflow of river         1.8 Flowing/very fast         1.00         0.30         0.30           Santiago         Pepang         Oct	Solsona	Maananteng	٠	Pepang	October 21-25, 1987	Overflow of river	120		0.40	•	-	no data
Maniquet         Pepang         October 21:25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           Naggetpalan         Pepang         October 21:25, 1987         Overflow of river         168 Flowing/slow         1.00         1.00         1.00         1.00           Nalasin         Pepang         October 21:25, 1987         Overflow of river         168 Flowing/slow         1.00         1.00         0.50           San Juan         Pepang         October 21:25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.50         0.50           San Julian         Pepang         October 21:25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           Sanna Ana         Pepang         October 21:25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           Talvigoo         Pepang         October 21:25, 1987         Overflow of river         168 Flowing/very fast         1.00         0.70         0.70           En         Acmain         Pepang         October 21:-25, 1987         Overflow of river         18 Flowing/very fast         1.00         0.70         0.70           En         Camp	Solsona	Manalpac		Pepang	October 21-25, 1987	Overflow of river	n	Flowing/very fast	080	1,20	1.20	27
Naggarphann         Pepang         October 21-25, 1987         Overflow of river         168         Flowing/very fast         0.40         1.80         1.80         1.80           Nalasin         Pepang         October 21-25, 1987         Overflow of river         168         Flowing/very fast         1.00         1.00         1.00           San Juan         Pepang         October 21-25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.50           San Juan         Pepang         October 21-25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.30         0.50           Sanna Ana         Pepang         October 21-25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.30         0.30           Saniago         Pepang         October 21-25, 1987         Overflow of river         18         Flowing/very fast         1.00         0.30         0.30           Fra         August 29, 1987         Overflow of river         18         Flowing/very fast         1.00         0.70         0.70           Fra         Cabitaguran         Gening         June 28-30, 1967         Overflow of river         3         Flowing/very fast         1.00 <td< td=""><td>Solsona</td><td>Manquet</td><td></td><td>Pepang</td><td>October 21-25, 1987</td><td>Overflow of river</td><td>23</td><td></td><td>1.00</td><td></td><td>0.30</td><td>0.30</td></td<>	Solsona	Manquet		Pepang	October 21-25, 1987	Overflow of river	23		1.00		0.30	0.30
Nalasin         Pepang         October 21-25, 1987         Overflow of river         168         Flowing/slow         1.00         1.00         1.00         0.50           Putato         Pepang         October 21-25, 1987         Overflow of river         100         Flowing/very fast         1.00         0.50         0.50           San Juan         Pepang         October 21-25, 1987         Overflow of river         1.2         Flowing/very fast         1.00         0.50         0.50           San Julian         Pepang         October 21-25, 1987         Overflow of river         1.2         Flowing/very fast         1.00         0.30         0.50           Santiago         Isang         August 29, 1987         Overflow of river         1.2         Flowing/very fast         1.00         0.30         0.30           Fra         Acriam         Pepang         October 21-25, 1987         Overflow of river         1.88         Flowing/very fast         1.00         0.30         0.30           Fra         Acriam         Pepang         October 21-25, 1987         Overflow of river         2         Flowing/very fast         1.00         0.30         0.30           En         Cabitauran         Gening         June 28-30, 1987         Overflow of river	Solsona	Nagpathatan		Pepang	October 21-25, 1987	Overflow of river	t.	Flowing/very fast	0,40	1.80	1.80	0.30
Puttage         Pepang         October 21-25, 1987         Overflow of river         100         Flowing/very fast         1.00         0.50           San Juan         Pepang         October 21-25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.50         0.50           San Julian         Pepang         October 21-25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.50         0.50           San Julian         Pepang         October 21-25, 1987         Overflow of river         12         Flowing/very fast         1.00         0.30         0.30           Santiago         Isang         Acuser 21-25, 1987         Overflow of river         18         Flowing/very fast         1.00         0.70         1.65           Acriam         Pepang         October 21-25, 1987         Overflow of river         3         Flowing/very fast         1.00         0.70         0.70           San         Cabitrauran         Gening         June 28-30, 1987         Overflow of river         3         Flowing/very fast         1.00         0.70         0.70           San         Caray         Pepang         October 21-25, 1987         Overflow of river         3         Flowing/very fast <t< td=""><td>Solsona</td><td>Natasin</td><td></td><td>Pepang</td><td>October 21-25, 1987</td><td>Overflow of river</td><td>83</td><td></td><td>871</td><td>1.8</td><td>1.8</td><td>8.1</td></t<>	Solsona	Natasin		Pepang	October 21-25, 1987	Overflow of river	83		871	1.8	1.8	8.1
San Juan         Pepang         October 21:-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.50         0.70           San Julian         Pepang         October 21:-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.70           Saniago         Isang         August 29, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           Talugtog         Pepang         October 21:-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.70         0.70           San         Acham         Pepang         October 21:-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.70         0.70           San         Cabitauran         Pepang         October 21:-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.70         0.70           San         Cariny         Pepang         October 21:-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.70         0.70           San         Poblacion         Pepang         October 21:-25, 1987         Poor drainage system         1.00         0.70         0.70           San	Solsona	Puttao		Pepang	October 21-25, 1987	Overflow of river	8		1.00		0.50	0.50
San Julian         Pepang         October 21:25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.70           Santa Ana         Pepang         October 21-25, 1987         Overflow of river         12 Flowing/very fast         1.00         0.30         0.30           Talugrog         Santago         Leang         August 29, 1987         Overflow of river         168 Flowing/very fast         1.00         0.70           Fra         Acnam         Gening         June 28-30, 1987         Overflow of river         3 Flowing/nety fast         1.00         0.70           En         Cabitauran         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/nety fast         1.00         0.70           En         Pepang         October 21-25, 1987         Poor drainage system         168 Flowing/slow         1.00         1.00           En         Poblacion         Pepang         October 21-25, 1987         Poor drainage system         1.00         1.30           En         Poblacion         Gening         June 28-30, 1967         Overflow of river         2 Flowing/very fast         1.00         1.30	Solsona	San Juan		Pepang	October 21-25, 1987	Overflow of river	•	Flowing/very fast	1.00		0.60	09:0
Santa Ana         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.30         0.30           Santiago         Isang         August 29, 1992         Overflow of river         12 Flowing/very fast         1.00         0.70           Talugtog         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.70           En         Cabitauran         Gening         June 28-30, 1987         Overflow of river         3 Flowing/very fast         1.00         1.00           En         Pepang         October 21-25, 1987         Poor drainage system         168 Flowing/slow         1.00         1.00           En         Poblacion         Pepang         October 21-25, 1987         Poor drainage system         168 Flowing/slow         1.00         1.30           En         Poblacion         Gening         June 28-30, 1967         Overflow of river         2 Flowing/slow         1.00         1.30	Solsona	San Julian		Pepang	October 21:25, 1987	Overflow of river	12	Flowing/very fast	1.8		0.70	0.70
Santiago         Isang         August 29, 1992         Overflow of river         12 Flowing/very fast         1.00         1.65           Talugog         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         1.00         0.70           Sra         Acnam         Gening         June 28-30, 1967         Overflow of river         48 Flowing/very fast         1.00         no           Sra         Cabitauran         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         1.00         1.00           Sra         Pepang         October 21-25, 1987         Poor drainage system         168 Flowing/stow         1.00         1.00           Sra         Santo Nino         Gening         June 28-30, 1967         Overflow of river         2 Flowing/very fast         1.00         1.30	Solsona	Santa Ana		Pepang	October 21-25, 1987	Overflow of niver	<b>.</b>	Flowing/very fast	8.1	0.30	0.30	0.30
Talugtog   Pepang   October 21-25, 1987   Overflow of river   168   Flowing/stow   1.00   0.70     Acnam   Pepang   October 21-25, 1987   Overflow of river   3   Flowing/wery fast   1.00   mo     Cabitauran   Gening   June 28-30, 1967   Overflow of river   3   Flowing/wery fast   1.00   mo     In Poblacion   Pepang   October 21-25, 1987   Poor drainage system   168   Flowing/stow   1.00   mo     Santo Nino   Gening   June 28-30, 1967   Overflow of river   3   Flowing/stow   1.00   mo     Canal	Solsona	Santiago		Isang	August 29, 1992	Overflow of river	12		0.1		1.65	1.8
Sta         Acram         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         1.00         no           Sta         Cabitauran         Gening         June 28-30, 1967         Overflow of river         48 Flowing/moderate         1.00         no           Sta         Catray         Pepang         October 21-25, 1987         Poor drainage system         168 Flowing/slow         1.00         no           Sta         Poblacion         Gening         June 28-30, 1967         Overflow of river         2 Flowing/very fast         1.00         1.30	Solsona	Talugiog		Pepang	October 21-25, 1987	Overflow of niver	168	. :	1.00		0.70	0.70
Cabitauran         Gening         June 28-30, 1967         Overflow of river         48         Flowing/moderate         1.00         no           Carray         Pepang         October 21-25, 1987         Overflow of river         3         Flowing/very fast         1.00         1.00           Poblacion         Pepang         October 21-25, 1987         Poor drainage system         168         Flowing/slow         1.00         no           Santo Nino         Gening         June 28-30, 1967         Overflow of river         2         Flowing/very fast         1.00         1.30	Nueva Era	Acnam		Pepang	October 21-25, 1987	Overflow of river		Flowing/very fast	1.8			no data
Caray         Pepang         October 21-25, 1987         Overflow of river         3 Flowing/very fast         1.00         1.00           Poblacion         Pepang         October 21-25, 1987         Poor drainage system         168 Flowing/slow         1.00         no           Santo Nino         Gening         June 28-30, 1967         Overflow of river         2 Flowing/very fast         1.00         1.30	Nucva Era	Cabitauran	:	Gening	June 28-30, 1967	Overflow of river			8.1			no data
Poblacion Pepang October 21-25, 1987 Poor drainage system 168 Flowing/stow 1.00 no no santo Nino Gening June 28-30, 1967 Overflow of river 2 Flowing/very fast 1.00 1.30	Nucva Era	Caray	•	Pepang	October 21-25, 1987	Overflow of river	(T)	Howing/very fast	1.8		1.00	2.0
Santo Nino Gening June 28-30, 1967 Overflow of river 3 Flowing/very fast 1.00 1.30	Nucva Era	Poblacion		Pepang	October 21-25, 1987	Poor drainage system	168		8:		•	no data
	Nucva Era	Santo Nino		Gening	June 28-30, 1967	Overflow of river	¢1		1.00		1.30	1.30

e 14. Characteristics of big floods experien(8/8)

MADNIT.         PARMAL         RESIDENTIAL           CIPALITY         9ARANGAY         LANDS         AREAS         ROADS           Dingras         Ver         debris         debris         debris           Solsona         Aguiapo         gravel         gravel         gravel         gravel           Solsona         Bagbago         gravel         gravel         gravel         gravel           Solsona         Bagbago         gravel         gravel         gravel         gravel           Solsona         Caapurictan         git         gravel         gravel         gravel           Solsona         Jauren (Pob.) (1)         git         gravel         gravel         gravel           Solsona         Jauren (Pob.) (1)         git         git         git         git           Solsona         Jauren (Pob.) (1)         git         git         git         git           Solsona         Janananteng         gravel         gravel         gravel         gravel           Solsona         Janananteng         gravel         gravel         gravel         gravel           Solsona         Janananteng         gravel         gravel         gravel         gravel				SE	SEDIMENT DEPOSITS AT	SITS AT	
TY     SARANGAY     LANDS     AREAS       Ver     debris     debris       Aguiap     gravel     gravel       3agbago     gravel     gravel       3acoclona     gravel     gravel       3aroclona     gravel     gravel       3aroclona     gravel     gravel       3aroclona     gravel     gravel       Subnos     gravel     gravel       Catangranan     gravel     gravel       Catangranan     gravel     gravel       Juan (Pob.) (1)     silt     silt       Lipay     debris     gravel       Vaniquet     gravel     gravel       Sand     Julian     debris     silt       Sand     Julian     debris     silt       Sand     sand     sand       Janiquet     gravel     proce	MUNI.	:	:		RESIDENTL	ļ	
Ver     debris     debris       Aguiap     gravel     gravel       3agbag     gravel     gravel       3acolona     gravel     gravel       3acolona     gravel     gravel       Subuos     gravel     gravel       Capurictan     gravel     gravel       Capurictan     gravel     gravel       Canagaran     gravel     gravel       Juan (Pob.) (1)     silt     silt       Lipay     debris     gravel       Varalpac     gravel     gravel       Varalpac     gravel     gravel       Varalpac     gravel     gravel       Varian     gravel     gravel       Varian     gravel     gravel       Varian     gravel     gravel       San Julian     debris     silt       San Julian     debris     silt       San Julian     sand     silt       Sand     sand     silt       Gra     canay     sand       Gra     canay     gravel     mone       Gra     canay     gravel     mone       Gra     canay     gravel     mone       Gra     canay     gravel     mone       Gra	CIPALITY	BARANGAY		LANDS	AREAS	ROADS	- Line with
Aguido gravel wandpac gravel g	Dingras	Ver		debris	debris	debris	  :
Sagbago gravel gravel Sarbago gravel gravel Sarcelona gravel gravel Subvos gravel gravel Subvos gravel gravel Subvos gravel gravel Capurictan gravel gravel Capurictan gravel gravel Capurictan gravel gravel Canagraran gravel gravel Canagraran gravel gravel Canagrapan gravel gravel Capurict gravel Capuri	Solsona	Aguida .		gravel	gravel	gravel	
Sagbago     gravel     gravel       Sarcelona     gravel     gravel       Subvos     gravel     gravel       Capurictan     silt     silt       Canagraran     gravel     gravel       Jansdas     gravel     gravel       Juan (Pob.) (1)     silt     silt       Juan (Pob.) (1)     silt     gravel     gravel       Variapa     gravel     gravel     gravel       Variapo     gravel     gravel     gravel       Variao     gravel     gravel     gravel       Variao     gravel     gravel     gravel       Variao     gravel     gravel     gravel       San Julian     gebris     silt       Anuan     sand     silt       Sand     silt     sand       Anuan     sand     silt       Anuan     sand     silt       Sand     sand     sone       Gray     gravel     poblacion       gravel     gravel     poblacion       gravel	Solsona	Sagbag		gravel	gravei	gravei	
Sarcelona gravel gravel  Subboos gravel gravel  Caburictan silt silt  Caburictan gravel gravel  Janasdas gravel gravel  Juneta (Pob.) (1) silt silt  Lipay debris silt silt  Lipay debris debris  Mananteng gravel gravel  Variquet gravel gravel gravel  Variquet gravel gravel gravel  Variquet gravel gravel gravel  Valasin debris debris  San Juan sand sand sand  San Julian debris debris  San Julian debris debris  San Julian debris silt  San Julian debris silt  Santiagog sand silt  Cabittauran gravel none  Era Cabittauran gravel sand  Santo Nino Ravel sand	Solsona	3agbago		gravel	gravel	gravel	,
Subboos gravel gravel Caburictan Catangracan Survel Mannanteng Mannanteng Mannanteng Mananteng Mananteng Mananteng Mananteng Mananteng Mananteng Mananteng Mannanteng Mannan Mannanteng Mannan Mannanteng Mannan Mann	Solsona	Barcelona		gravel	gravei	gravel	
Capunictan Catangraran Gatangraran Gatangraran Gatangraran Sarasdas Sarasdas Saravel Sanantena Wanalpac Wariquet Wariquet Wariquet Wariquet Wariquet Wariquet Wariquet Saravel	Solsona	Subuos		gravel	gravel	gravel	· · ·
Catangraran gravel gravel  Jarasdas gravel gravel  Jaun (Pob.) (1) silt silt  Lipay debris debris  Mananteng debris none  Mananteng gravel gravel  Variquet gravel gravel  Variquet gravel gravel  Valasin debris debris  An Juan Ana sand sand  San Julian debris silt  Santiago sand silt  Actaam sand sand  San Gebris silt  Santiago debris silt  Santiago debris silt  Santiago gravel gravel  Sand sand  Santiago sand  Sand silt  Santiago geavel silt  Santiago sand  Santiago sand  Santiago geavel silt  Santiago sand  Santiago sand  Santiago sand  Santiago sand  Santiago sand  Santo Nino gravel none  Era Soblacion gravel sand	Solsona	Capurictan		sit	silt	N.	
Jansdas     gravel       Juan (Pob.) (1)     silt       Lipay     debris       Manapac     gravel       Manapac     gravel       Manapac     gravel       Manapac     gravel       Manapac     gravel       Mapay     debris       Mangact     gravel       Malasin     debris       Malasin     debris       Malasin     debris       Malasin     debris       Mangac     gravel       San Juian     gebris       San Julian     debris       San Julian     debris       Sand     sand       Sand     sand       San Julian     gebris       Sand     silt       Sand     silt       Sand     silt       Sand     silt       Sand     sand       Sand     silt       Sand     sand       Sand     silt       Sand     silt       Sand     sand	Solsona	Catangraran		gravei	gravel	gravel	
Junn (Pob.) (1) silt silt silt silt (Lipay) debris debris debris mone gravel sand sand sand sand sand sand sand silt sand sand silt gravel some gravel mone gravel mone gravel gravel mone gravel gravel gravel gravel gravel sand gravel sand gravel sand gravel sand	Solsona	Darasdas		gravel	gravel	gravel	:
Lipay debris silt debris  Mannanteng debris debris none  Mannalpac gravel san Juan debris debris and Julian debris debris sand sand sand sand sand sand sand cone gravel cabitauran gravel none gravel none gravel soblacion gravel sand sand none gravel sand sand sand sand sand sand sand sand	Solsona	Suan (Pob.) (1)	:	Silt.	silt	silt	
Lippay debris debris  Mananteng debris none  Manalpac gravel gravel  Variquet gravel gravel  Valasin debris debris  Putrao gravel gravel  San Juan and sand sand  San Julian debris silt  Santago sand silt  Acnam sand silt  Acnam sand silt  Cabittauran gravel none  Era Cabittauran gravel none  Era Cabittoion gravel none  Era Cabittoion gravel none  Era Soblacion gravel sand  Era Soblacion gravel sand	Solsona	Laureta (Pob.)		silt	silt	Sit	: :
Mananteng debris none Manalpac gravel gravel Variquet gravel gravel Valasin debris debris Putao gravel gravel San Juan Gebris gravel San Julian debris gravel San Julian debris sand San Julian debris sand San Julian debris silt Santiago sand silt Cabittauran gravel none Gra Cabittauran gravel none Gra Cabitton silt Gra Cabitton sand sand Gravel sand Santo Nino Ravel sand	Solsona	Lipay		debris	debris	debris	;
Manalpac gravel gravel Variquet gravel gravel Nalasin debris debris Sun Juan sand sand San Julian debris gravel San Julian debris silt Santiago sand silt Talugiog debris sand Gra Cabittauran gravel none Gra Caray silt Silt silt Gra Caray gravel sand Gravel sand Gravel sand Santo Nino gravel sand Gravel sand Santo Nino gravel sand	Solsona	Maananteng		debris	none	none	
Variquet     gravel       Valasin     gravel       Sutrao     gravel       Putrao     gravel       San Juan     gravel       San Juan     gravel       San Juan     gravel       San Juan     gravel       San Julian     debris       Sana Ana     sand       Sana Acnam     sand       Gra     Acnam       Gra     Cabittauran       Gra     Catray       Gra     Sand       Gra     Soblacion       Gra     Sancel       Gra     Sancel <t< td=""><td>Solsona</td><td>Wanalpac</td><td></td><td>gravel</td><td>gravel</td><td>gravel</td><td></td></t<>	Solsona	Wanalpac		gravel	gravel	gravel	
Nagasapatan     gravel     gravel       Nalasin     debris     debris       Aurao     gravel     gravel       San Juan     sand     sand       San Juan     debris     sand       Santa Ana     sand     silt       Santiago     debris     silt       Gra     Acnam     sand     none       Gra     Cabittauran     gravel     none       Gra     Catay     silt     silt       Gra     Cobbacion     gravel     none       Gra     Santo Nino     gravel     sand	Solsona	Mariquet	. :	gravel	gravel	gravel	
Valasin     debris     debris       Putrao     gravel     gravel       San Julan     sand     sand       San Julan     debris     debris       Santa Ana     sand     silt       Santiago     debris     silt       Gra     Acnam     sand     none       Gra     Cabittauran     gravel     none       Gra     Poblacion     gravel     none       Gra     Santo Nino     gravel     sand	Solsona	Vagpatpatan	:	gravei	gravel	gravel	
Autao     grave!       San Juan     sand       San Julian     debris       San Julian     debris       Santiago     sand       Silt     silt       Sand     silt       Sta     Acnam     grave!     none       Sta     Cabittauran     grave!     none       Sta     Cabittauran     grave!     none       Sta     Santo Nino     grave!     sand       Sta     Santo Nino     grave!     sand	Solsona	Valasin		debris	debris	debris	:
San Juan sand sand San Julian debris debris debris Santa Ana debris sand silt Talugtog debris debris Sta Acnam sand nonc Sta Caray silt silt Sta Caray stravel none Sta Santo Nino gravel sand	Solsona	Puttao		grave	gravei	gravel	
San Julian     debris     debris       Santa Ana     debris     silt       Santiago     sand     silt       Talugtog     debris     debris       Sta     Acnam     sand     none       Sta     Caray     silt     silt       Sta     Coblacion     gravel     none       Sta     Coblacion     gravel     sand	Solsona	San Juan	:	Sand	sand	pars	
Santiago sand Ana debris silt Santiago sand silt Talugiog debris debris Sta Acnam sand none Sta Cabittauran gravel none Sta Caray silt silt Sta Poblacion gravel none Sta Santo Nino gravel sand	Solsona	San Julian		debris	debris	debris	
Santiago sand silt Talugtog debris debris dra Acnam sand none dra Cabittauran gravel none dra Caray silt silt dra Poblacion gravel none dra Poblacion gravel sand	Solsona	Santa Ana		debris	silt	is	
Talugiog debris debris Acnam sand none Cabittauran gravel none Caray silt silt Poblacion gravel none	Solsona	Santiago		pus	silt	silt .	
Acnam sand none Cabitauran gravel none Caray silt silt Poblacion gravel none Santo Nino gravel sand	Solsona	Tatugtog.		debris	debris	debris	
Caray silt silt Poblacion gravel none Santo Nino gravel sand	Nueva Era	Acnam.		Sand	none	none	: :
Caray silt Silt Poblacion gravel none Santo Nino Rravel sand	Nueva Era	Cabittauran		gravel	none	топе	:
Poblacion gravel none Sand Sand	Nueva Era	Caray		silt	silt	Ħ	
Santo Nino	Nueva Era	Poblacion		gravel	none	none	
	Nueva Era	Santo Nino		gravel	sand	puzs	· · · · · ·

this 14. Ones dismage and livestock damage in terms of percentage of total production, (1/4)

MANTE         TYPPHOON         DATE OF         CROP           Piddig         Birmnange         Cening         June 28-30, 1967         1.00           Piddig         Diminange         Cening         June 28-30, 1967         1.00           Piddig         Callusa         Gening         June 28-30, 1967         1.00           Piddig         Dupliac         Gening         June 28-30, 1967         0.40           Piddig         Evancia         Gening         June 28-30, 1967         0.40           Piddig         Libmaoan         Gening         June 28-30, 1967         0.40           Piddig         Libmaoan         Gening         June 28-30, 1967         0.20           Laoag City         1 San Lorenzo (Pob.)         Gening         June 28-30, 1967         0.05           Laoag City         3 San Lorenzo (Pob.)         Gening         June 28-30, 1967         0.40           Laoag City         3 San Lorenzo (Pob.)         Gening         June 28-30, 1967         0.40           Laoag City         45 Tangid         Gening         June 28-30, 1967         0.40           Laoag City         45 Tangid         Gening         June 28-30, 1967         0.40           Laoag City         45 Tangid         Gening </th <th>LIVESTOCK (meters) ABOVE OF FAR  DAMAGED FARMLAND ROAD LAND FLOOD  1.00 0.30 0.10 0.30 0.30 0.30 0.30 0.3</th> <th>DEPOSITS AT PERMILANDS sand sand sand sand sand sand sand sand</th>	LIVESTOCK (meters) ABOVE OF FAR  DAMAGED FARMLAND ROAD LAND FLOOD  1.00 0.30 0.10 0.30 0.30 0.30 0.30 0.3	DEPOSITS AT PERMILANDS sand sand sand sand sand sand sand sand
DAMAGAY   NAME   COCCURRENCE   DAMAGA   DAMAGA   Damanaga   Cening   June 28-30, 1867   1.	DAMAGED FARMLAND ROAD LAND FLOOD 1.00 0.30 0.10 0.30 0.30 0.30 0.30 0.30	
Binmangs	1.00 0.30 0.10 0.10 0.30 0.30 0.70 0.15 0.50 0.00 0.00 0.00	
Callusa         June 28-30, 1967           Dupliac         Gening         June 28-30, 1967           Evtancia         Pepang         October 21-25, 1987           Gnyamat         Gening         June 28-30, 1967           Libnaoan         Pepang         October 21-25, 1987           Mangitayag         Pepang         October 21-25, 1987           1 San Lorenzo (Pob.)         Gening         June 28-30, 1967           30-b Santa Maria         Gening         June 28-30, 1967           43 Cavit (4)         Gening         June 28-30, 1967           45 Cavit (5)         Gening         June 28-30, 1967           45 Cavit (6)         Gening         June 28-30, 1967           51 a Nangalisan West         Gening         June 28-30, 1967           52 b Santa Monica (Magrebean)         Gening         June 28-30, 1967           53 San Baliazar (Bo.2) (Pob.)         Gening         June 28-30, 1967           54 San Marista         Gening	0.30 0.70 0.10 0.10 0.30 0.30 0.30 0.70 0.15 0.15 0.50 0.00 0.00 0.00	
Dispince Evancia Pepang June 28-30, 1967  Evancia Gening June 28-30, 1967  Libnaoan Pepang October 21-25, 1987  Libnaoan Pepang October 21-25, 1987  Son Santa Maria Gening June 28-30, 1967  Son Mangitayag Gening June 28-30, 1967  Son Mangitayag Gening June 28-30, 1967  Gening June 28-30, 1967  Gening June 28-30, 1967  Gening June 28-30, 1967  Son Baliazar (Bo.2) (Pob.)  Gening June 28-30, 1967  Son Baliazar (Bo.2) (Pob.)  Gening June 28-30, 1967  Son Mattefonso (Bo.3) (Pob.)  Gening June 28-30, 1967  Son Matter (Bo.2) (Pob.)  Gening June 28-30, 1967  Son Mattefonso (Bo.3) (Pob.)  Gening June 28-30, 1967  Son Mattefonso (Bo.3) (Pob.)  Gening June 28-30, 1967  Son Mattefonso (Bo.3) (Pob.)  Gening June 28-30, 1967  Son Andres Gening June 28-30, 1967	0.10 0.70 0.30 0.30 0.30 0.30 0.30 0.30 0.3	
Estancia Gening Pepang October 21-25, 1987  Gayamat Gening June 28-30, 1987  Libnaoan Pepang October 21-25, 1987  Libnaoan Pepang October 21-25, 1987  Soa Suyo Gening June 28-30, 1967  30-b Santa Maria Gening June 28-30, 1967  43 Cavit (4) Gening June 28-30, 1967  45 Cavit (4) Gening June 28-30, 1967  51-a Nangalisan Bast Gening June 28-30, 1967  51-b Nangalisan West Gening June 28-30, 1967  51-b Nangalisan West Gening June 28-30, 1967  52-b Santa Monica (Nagrebean) Gening June 28-30, 1967  53-b Santa Monica (Nagrebean) Gening June 28-30, 1967  54-b Camangaan Gening June 28-30, 1967  55-b Santa Monica (Nagrebean) Gening June 28-30, 1967  56-b Santa Monica (Nagrebean) Gening June 28-30, 1967  57-b Santa Monica (Nagrebean) Gening June 28-30, 1967  58-n Juan Bautista Gening June 28-30, 1967  58-n Andres Gening June 28-30, 1967	0.30 0.30 0.70 0.30 2.00 0.15 1.50 0.50 0.60 1.50 0.70	
Gayamat         Gening         June 28-30, 1967           Libnaoan         Pepang         October 21-25, 1987           Mangitayag         Pepang         October 21-25, 1987           1 San Lorenzo (Pob.)         Gening         June 28-30, 1967           30-a Suyo         Gening         June 28-30, 1967           30-b Santa Maria         Gening         June 28-30, 1967           4-b Gabu Norte East         Gening         June 28-30, 1967           4-c Tangid         Gening         June 28-30, 1967           51-a Nangalisan East         Pepang         October 21-25, 1987           51-b Nangalisan West         Gening         June 28-30, 1967           55 Riceng         June 28-30, 1967         Gening           54-b Camangaan         Gening         June 28-30, 1967           55 Riceng         Gening         June 28-30, 1967           55 Riceng         Gening         June 28-30, 1967           55 Rin Bartolome (Bo.4) (Pob.)         Gening         June 28-30, 1967           55 San Idefonso (Bo.3) (Pob.)         Gening         June 28-30, 1967           55 San Anderes         Gening         June 28-30, 1967           55 San Anderes         Gening         June 28-30, 1967           55 San Anderes         Genin	0.30 0.30 0.70 1.30 0.15 0.50 0.60 1.50 0.70 0.70	
Libnaoan  Mangiayag  Mangiayag  1 San Lorenzo (Pob.)  20-a Suyo  30-b Santa Maria  34-b Gabu Norte East  43 Cavit (4)  51-a Nangalisan East  51-a Nangalisan West  51-b Camangaan  52-b Camangaan  52-b Camangaan  53-b Canta Monica (Nagrebean)  54-b Camangaan  55-b Camangaan  56-b Camangaan  56-b Camangaan  57-b Camangaan  58-b Camangaan  68-aning  7 June 28-30, 1967  58-an Juan Bautista  58-an Juan Bautista  58-an Juan Bautista  58-an Juan Bautista  68-aning  7 June 28-30, 1967  8 June 2	2.00 0.70 1.50 0.15 0.50 0.60 1.50 0.70	** **
Mangitayag  I San Lorenzo (Pob.)  Gening  June 28-30, 1967  30-a Suyo  Gening  June 28-30, 1967  30-b Santa Maria  Gening  June 28-30, 1967  June 28-30, 1967  Gening  June 28-30, 1967  San Battazar (Bo.2) (Pob.)  Gening  June 28-30, 1967  San June 38-30, 1967  San June 38-30, 1967  San Agustin (Pob.)  Gening  June 28-30, 1967  Gening  June 28-30, 1967  San Agustin (Pob.)  Gening  June 28-30, 1967  San Andres  Gening  June 28-30, 1967  June 28-30, 1967  San Andres  Gening  June 28-30, 1967  June 28	0.70 0.15 0.50 0.60 0.70 0.70	
1 San Lorenzo (Pob.)  1 San Lorenzo (Pob.)  20-a Suyo  20-b Santa Maria  24-b Gabu Norte East  43 Cavit (4)  51-a Nangalisan East  51-a Nangalisan East  51-a Nangalisan West  51-a Nangalisan West  51-b Camangaan  52-b Camangaan  52-b Camangaan  53-b Camangaan  54-b Camangaan  55-b Camangaan  55-b Camangaan  56-ning	0.15 0.50 0.60 0.70 0.70	
30-a Suyo       Gening       June 28-30, 1967         30-b Santa Maria       Gening       June 28-30, 1967         34-b Gabu Norte East       Gening       June 28-30, 1967         45 Cavit (4)       Gening       June 28-30, 1967         45 Tangid       Gening       June 28-30, 1967         51-a Nangalisan East       Pepang       October 21-25, 1987         51-b Nangalisan West       Gening       June 28-30, 1967         55 Riceng       Gening       June 28-30, 1967         55 Rin Balazar (Bo.2) (Pob.)       Gening       June 28-30, 1967         55 San Juan Bautista       Gening       June 28-30, 1967         55 San Juan Bautista       Gening       June 28-30, 1967         55 San Andres       Gening <td< td=""><td>0.50 0.60 1.50 0.70 0.05</td><td></td></td<>	0.50 0.60 1.50 0.70 0.05	
30-b Santa Maria Gening June 28-30, 1967 34-b Gabu Norte East Gening June 28-30, 1967 43 Cavit (4) 45 Tangid 51-a Nangalisan East Gening June 28-30, 1967 51-b Nangalisan West Gening June 28-30, 1967 55 Riceng June 28-30, 1967 57 Riceng June 28-30, 1967 58-b Camangaan Gening June 28-30, 1967 58-b Camangaan Gening June 28-30, 1967 59 Santa Monica (Nagrebean) Gening June 28-30, 1967 50 San Batrazar (Bo.2) (Pob.) Gening June 28-30, 1967 50 San Juan Bautista Gening June 28-30, 1967 50 San Juan Bautista Gening June 28-30, 1967 50 San Andres Gening June 28-30, 1967	0.00	
34-b Cabu Norte Eaut Gening June 28-30, 1967 43 Cavit (4) 45 Cavit (4) 65 Tangid 51-a Nangalisan East Pepang June 28-30, 1967 51-b Nangalisan West Gening June 28-30, 1967 55 Riceng June 28-30, 1967 56 San Francisco (Pob.) 51 San Francisco (Pob.) 52 Santa Monica (Nagrebean) Gening June 28-30, 1967 53 San Baltazar (Bo.2) (Pob.) 54 Gening June 28-30, 1967 55 San Juan Bautista Gening June 28-30, 1967 56 San Juan Bautista Gening June 28-30, 1967 56 San Anderes Gening June 28-30, 1967	0.70	
43 Cavit (4) 45 Tangid 51-a Nangalisan East 51-a Nangalisan East 51-b Nangalisan West 52-b Camangaan 54-b Camangaan 54-b Camangaan 55- Rioeng 56-b Camangaan 56-b Camangaan 56-b Camangaan 57-b Camangaan 58-30, 1967 59-6-b Caming 58-30, 1967 59-6-b Caming 59-7 59-7 59-7 59-7 59-7 59-7 59-7 59-7	0.02	
45 Tangid 51-a Nangalisan East 51-a Nangalisan East 51-b Nangalisan West 51-b Nangalisan West 52-b Camangaan 54-b Camangaan 64-ning 74-57-50-7-50-7-50-7-50-7-50-7-50-7-50-7		
51-a Nangalisan East         Pepang         October 21-25, 1987           51-b Nangalisan West         Gening         June 28-30, 1967           55 Riceng         Gening         June 28-30, 1967           54-b Camangaan         Gening         June 28-30, 1967           5 L Santa Monica (Nagrebean)         Gening         June 28-30, 1967           5 Santa Monica (Nagrebean)         Gening         June 28-30, 1967           5 Santa Monica (Nagrebean)         Gening         June 28-30, 1967           5 San Batrolome (Bo.4) (Pob.)         Gening         June 28-30, 1967           5 San Juan Bautista         Gening         June 28-30, 1967           5 San Juan Bautista         Gening         June 28-30, 1967           5 San Andres         Gening         June 28-30, 1967           5 San Andres         Gening         June 28-30, 1967           5 San Andres         Gening         June 28-30, 1967	0.10	
51-b Nangalisan West         Gening         June 28-30, 1967           55 Riceng         Gening         June 28-30, 1967           54-b Camangaan         Gening         June 28-30, 1967           54-b Camangaan         Gening         June 28-30, 1967           5 I San Francisco (Pob.)         Gening         June 28-30, 1967           5 San Baltazar (Bo.2) (Pob.)         Gening         June 28-30, 1967           5 San Baltazar (Bo.2) (Pob.)         Gening         June 28-30, 1967           5 San Judefonso (Bo.3) (Pob.)         Gening         June 28-30, 1967           5 San Juan Bautista         Gening         June 28-30, 1967           5 San Andres         Gening         June 28-30, 1967           5 San Andres         Gening         June 28-30, 1967           5 San Andres         Gening         June 28-30, 1967	0.01	
55. Riceng  54b Camangaan  1 San Francisco (Pob.)  24. Santa Monica (Nagrebean)  25. Santa Monica (Nagrebean)  26. Santa Monica (Nagrebean)  26. Santa Monica (Ro.4) (Pob.)  27. Santa Monica (Ro.4) (Pob.)  28. San June 2830, 1967  29. San Idefonso (Bo.3) (Pob.)  29. Gening  29. San June 2830, 1967  29. San June Bautista  29. San June 2830, 1967  29. San Andres  29. San Andres  29. San June 2830, 1967  29. San Andres  29. San Andres  30. San Andres  30. San Andres  30. San Andres  30. San Andres	0.90 0.30 0.30 1.00	
54-b Camangaan       Gening       June 28-30, 1967         1 San Francisco (Pob.)       Gening       June 28-30, 1967         24. Santa Monica (Magrebean)       Gening       June 28-30, 1967         San Baltazar (Bo.2) (Pob.)       Gening       June 28-30, 1967         San Juan Bautista       Gening       June 28-30, 1967         San Juan Bautista       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Antonio       Gening       June 28-30, 1967	0.75 0.50 0.50 1.00	o silt
1 San Francisco (Pob.) Cening June 28-30, 1967 24. Santa Monica (Nagrebean) Gening June 28-30, 1967 San Baltazar (Bo.2) (Pob.) Cening June 28-30, 1967 San Jacrone (Bo.2) (Pob.) Cening June 28-30, 1967 San Juan Bautista Cening June 28-30, 1967 San Andres Cening June 28-30, 1967	0.65 0.35 0.50 1.00	S sit
24. Santa Monica (Nagrebean) Gening June 28-30, 1967  San Baltazar (Bo.2) (Pob.) Gening June 28-30, 1967  San Bartolome (Bo.4) (Pob.) Gening June 28-30, 1967  San Juan Bautista Gening June 28-30, 1967  San Agustin (Pob.) Gening June 28-30, 1967  San Andres Gening June 28-30, 1967  San Andres Gening June 28-30, 1967  San Andres Gening June 28-30, 1967	1.00 0.30 3.00 1.00	pars or
San Baltazar (Bo.2) (Pob.)       Gening       June 28-30, 1967         San Bartolome (Bo.4) (Pob.)       Gening       June 28-30, 1967         San Idefonso (Bo.3) (Pob.)       Gening       June 28-30, 1967         San Juan Bautista       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Antonio       Gening       June 28-30, 1967	0.95 0.80 0.80 1.00	o sand
San Bartolome (Bo.4) (Pob.)       Gening       June 28-30, 1967         San Idefonso (Bo.3) (Pob.)       Gening       June 28-30, 1967         San Juan Bautista       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967	1.00 0.50 1.50 1.00	o sand
Sun Idefonso (Bo.3) (Pob.)       Gening       June 28-30, 1967         Sun Juan Bautista       Gening       June 28-30, 1967         Sun Agustin (Pob.)       Gening       June 28-30, 1967         San Andres       Gening       June 28-30, 1967         San Antonio       Gening       June 28-30, 1967	1.00 0.05 1.00	X sand
San Juan Bautista         Gening         June 28-30, 1967           San Agustin (Pob.)         Gening         June 28-30, 1967           San Andres         Gening         June 28-30, 1967           San Antonio         Gening         June 28-30, 1967	0.10	S sand
San Agustin (Pob.) Gening June 28-30, 1967 San Andres Gening June 28-30, 1967 San Antonio Gening June 28-30, 1967	0.63 0.20 0.70	70 sand
San Andres Gening June 28-30, 1967 San Andres Gening June 28-30, 1967	0.10 0.05 1.00 1.00	30 gravel
San varionio Gening June 28-30, 1967	0.50	S silt
	1.00 0.15 0.70 1.00	00 gravel
San Cristobal	0.70 0.10 1.00	pars 00
	0.90 0.50 1.00	% gravei
San Francisco (Pob.)	0.60 0.03 1.20 1.00	S silt

ble 15 Crow damage and livestock damage in terms of percentage of total production. (2/4)

		· · · · · · · · · · · · · · · · · · ·		PERCENTAGE OF	32 OF	FLOODWATER LEVEL		PERCENTAGE	SEDIMENT
MINI-		TYPHOON	DATEOF	CROP 1	LIVESTOCK	(meters) ABOVE		OF FARM-	DEPOSITS AT
CIPALITY	BARANGAY	NAME	OCCURRENCE	DAMAGED	1	FARMLAND R	ROAD LAND	LAND FLOODED	FARMLANDS
Sarrat	San Isidro	Gening	June 28-30, 1967	05.0	•		2.00	1.8	gravel
Sarrat	San Joaquin (Pob.)	Gening	June 28-30, 1967	0.0	0.05		0.30	1.80	gravel
Sarrat	San Jose	Gening	June 28-30, 1967	0.1	•		3.00	8.	silt
Sarrat	San Leandro (Pob.)	Gening	June 28-30, 1967	0.60	0.40		2.00	1.8	gravel
Sarrat	Sna Lorenzo	Gening	June 28-30, 1967	0.80	0.10		0.50	8.1	gravel
Sarrat	San Marruel	Gening	June 28-30, 1967	•	0.10		0.70	1.8	gravel
Sarrat	San Marcos	Gening	June 28-30, 1967	0.50	0.10		3.8	8:	řá
Sarrat	San Nicolas	Pepang	October 21-25, 1987	0.40			0.50	8.1	gravel
Samat	San Roque	Pepang	October 21-25, 1987	0.20	0.05	2	no data	8.1	pues
Sarrat	San Vicente (Pob.)	Gening	June 28-30, 1967	•	0.50		1.00	no farmland	none
Sarrat	Santa Barbara (Pob.)	Goring	July 20-26, 1977	0.80	0.40		1.20	1.00	purs
Sarrat	Santo Tomas	Gening	June 28-30, 1967	0.60	0.05		1.8	8.1	sit
Espiritu	Ballocg	Pepang	October 21-25, 1987	0.80	0.05		1.8	1.8	gravel
Espiritu	Bugasi	Pepang	October 21-25, 1987	0.75	0.70	•	0.50	8,	gravel
Espirin	Caestebanan	Gening	June 28-30, 1967	0.50	0.05		0.65	1.8	gravel
Espiritu	Caribquib	Pepang	October 21-25, 1987	0.30	•	2.50	below	0.30	gravel
Espiritu	Catagaguen	Pepang	October 21-25, 1987	0.75	0.03		0.70	8.	purs
Espiritu	Hilano (Pob.)	Pepang	October 21-25, 1987	09:0	0.20		S.	8.1	gravel
Espiritu	Lyrenzo (Pob.)	Pepang	October 21-25, 1987	0.60	0.10		0.30	8.	gravel
Espiritu	Масаусруср	Pepang	October 21-25, 1987	0.60	0.20		0.50	8:	gravel
Espiritu	Sinamar	Pepang	October 21-25, 1987	0.60	0.10		0.65	1.00	gravel
Espiritu	Tubtabagan	Pepang	October 21-25, 1987	1.00	0.50	2.00	0.60	1.00	gravel
Espiritu	Valdez	Gening	June 28-30, 1967	0.60	0.30		0.50	1.8	gravel
Marcos	Cacafean	Gening	June 28-30, 1967	8:1	•		1.75	1.00	gravel
Marcos	Daquioag	Gening	June 28-30, 1967	08.0	0.05		08.0	1.00	sand
Marcos	Elizabeth (Culao)	Gening	June 28-30, 1967	1.8	0.05	2.40	below	8.1	gravel
Marcos	Bacoda	Gening	June 28-30, 1967	8.1	0.10		08.0	8.1	gravel
Warcos	Ferdinand	Gening	June 28-30, 1967	8:1	0.10		0.70	1.8	gravel
Marcos	Fortuna	Gening	June 28-30, 1967	1.8	0.30		0.10	0.1	gravel

"able 15 Crop camage and livestock damage in terms of percentage of total production, (3/4)

1.00 0.30 1.50 1.00 1.00 stard 1.00 stard 1.00 stard 1.00 stard 1.00 1.00 stard 1.00 sta	TYPHOON DATE OF NAME OCCURRENCE Gening June 28-30, 1967
0.05	
0.10 0.60 0.60 0.60 0.60 0.60 1.20 0.25 1.20 0.10 1.35 0.11 0.10 1.75 1.50 0.60 0.10 0.15 0.10 0.15 0.10 0.10 0.10 0.1	
0.25 1.20 below 1.00 0.22 0.70 0.22 0.70 0.20 0.10 1.75 1.50 0.70 0.20 0.10 0.10 0.10 0.10 0.10 0.10 0.1	
0.25 0.10 1.80 1.35 0.01 0.01 1.75 1.50 0.00 0.10 0.15 0.00 0.05 0.00 0.00	
0.01 1.50 0.60 1.00 0.50 0.50 0.50 0.50 0.60 1.00 0.50 0.60 1.50 1.00 0.60 0.00 0.00 0.00 0.00 0.00 0.0	
0.10	
0.15 2.00 1.50 1.00 1.00 0.65 0.65 0.65 0.65 0.80 1.20 1.20 0.80 1.00 1.00 0.05 0.05 0.05 0.05 0.05 0.0	
0.05 0.05 0.05 0.05 0.05 0.05 0.10 0.10	:
0.05 0.60 0.30 1.00 0.10 1.10 0.50 1.00 0.15 2.20 2.00 1.00 0.50 0.05 1.05 1.30 0.05 1.05 0.75 1.00 0.05 1.65 1.00 0.98 0.00 1.65 1.00 0.98 0.00 0.01 no data 0.04 0.05 0.05 1.05 0.30 0.30 0.00 0.10 1.95 0.30 0.30	
0.10 0.50 1.00 1.00 0.50 1.00 0.50 0.15 2.20 2.00 1.00 0.50 0.05 0.05 0.05 0.05 0.05 0	
0.15 2.20 2.00 1.00 1.00 0.50 0.50 0.50 0.50 0.00 1.00 0.00 0	1
0.50 0.10 0.10 1.45 1.30 1.00 0.05 1.05 0.05 1.65 1.00 0.10 0.05 1.00 1.00 1.00 0.01 0.01	
0.05 1.05 0.75 1.00 0.09 0.10 0.10 0.10 0.09 0.98 0.10 0.00 0.00 0.00 0.00 0.00 0.00 0.0	
0.05 1.65 1.00 0.98 0.10 0.05 1.50 1.00 0.05 1.00 1.00 0.01 no data 0.04 0.05 0.30 0.30 0.00 0.30 0.30	
0.10 1.50 1.00 1.00 0.05 0.01 0.04 0.04 0.04 0.05 0.30 0.30 0.30 0.30 0.30 0.30 0.30	
0.05 1.00 1.00 1.00 1.00 0.04 0.05 no data 0.04 0.17 0.05 0.30 1.00 0.00 0.00 0.10 0.10 0.30 0.30	
0.05 no data 0.04  0.05 0.30 0.30  0.00 0.30 0.30  0.10 1.95 1.20	
0.05 0.30 0.30 0.30 0.30 0.30 0.30 0.30	
0.05 0.30 1.00 0.03 0.30 0.30 0.10 1.95 1.20 0.90	
0.03 0.30 0.30 0.30	
0.10 1.20 0.90	

Table 15 Cms damage and livestock damage in terms of nementage of total production (4/4)

		•			PERCENTAGE OF		FLOODWATER LEVEL	LEVEL	PERCENTAGE	SEDIMENT
NON-			NOOHALL	DATEOF	CROP LIN	LIVESTOCK	(meters) ABOVE	Ξ. Σ.	OF FARM-	DEPOSITS AT
CIPALITY	BARANGAY		NAME	OCCURRENCE	DAMAGED D.		FARMLAND	ROAD	LAND FLOODED	FARMLANDS
Dingras	Ver		Maring	August 27-30, 1984	0.1	0.10		0.20	1.00	debris
Salsona	Aguiap	÷	Pepang	October 21-25, 1987	0.30	0.10		1.00	1.8	gravel
Scisona	Baybag		Pepang	October 21-25, 1987	0.30	0.05		1.8	1.00	gravel
Solsona	Barbago		Pepang	October 21-25, 1987	0.70	0.30		0.65	1.8	gravel
Solsona	Barcelona		Pepang	October 21-25, 1987	0.1	•		2.00	1.00	gravel
Solsona	Bubuos	÷	Pepang	October 21-25, 1987	0.70	0.10		1.8	0.70	gravel
Solsona	Capurician		Pepang	October 21-25, 1987	0.00	0.05		1.20	09:0	sit
Solsona	Catungnana		Pepang	October 21-25, 1987	0.40		1.50	0.30	0.40	gravel
Solsona	Darasdas		Магіпд	September 20, 1992	0.75	0.10		0.15	8.0	gravel
Solsona	Juan (Pob.) (1)		Pepang	October 21-25, 1987	0.1	0.05		0.65	1.00	sit
Soisona	Laureta (Pob.)		Pepang	October 21-25, 1987	0.05	0.01		0.50	0.05	sit
Solsona	Lipny		Pepang	October 21-25, 1987	0,27	0.10		0.70	0.30	debris
Solsona	Maananteng		Pepang	October 21-25, 1987	0.40	0.10		no data	0.40	debris
Solsona	Manaipac	* .	Pepang	October 21-25, 1987	0.80	0.10	1.20	1.20	0.80	grave!
Solsona	Mariquet		Pepang	October 21-25, 1987	0.90	0.10		0.30	1.00	gravel
Solsona	Nagpatpatan		Pepang	October 21-25, 1987	07.0	0.30	1.80	0.30	0.40	gravel
Solsona	Nalusin	:	Pepang	October 21-25, 1987	0.80	0.25	8:	8	1.8	debris
Solsona	Purito		Pepang	October 21-25, 1987	0.75		-	0.50	1.8	gravel
Solsona	San Juan		Pepang	October 21-25, 1987	0.75	0.05		0.60	1.8	purs
Sol sona	San Julian		Pepang	October 21-25, 1987	0.70	0.05		0.70	1.00	debris
Solvona	Santa Ana		Pepang	October 21-25, 1987	3.0	0.10	0.30	.:	1.00	debris
Solvona	Santiago		Isang	August 29, 1992	0.70	0.10		8	1.00	pues
Solvona	Talugteg		Pepang	October 21-25, 1987	0.20	0.02		0.70	1.00	debris
Nurva Era	Acram		Pepang	October 21-25, 1987	0.30	0.05	ď.	no data	1.00	purs
Nueva Era	Cabittauran		Gening	June 28-30, 1967	1.00	0.03		no data	1.00	gravei
Nurva Era	Carry		Pepang	October 21-25, 1987	1.8	0.20		8	1.00	ક્યુંદ
Nueva Era	Poblacion		Pepang	October 21-25, 1987	8:	0.05	:	क्ष्यक व्य	1.8	gravel
Nurva Era	Santo Nino		Gening	June 28-30, 1967	1.0	0.20		1.30	1.00	gravel
					3 .					

ile 16. Building damage in terms of percentage of tors mimber of houses (1/4)

						FLOOD
				PERCENTAGE OF	FLOODWATER LEVEL	DURATION FLOOD FLOW
MUNI-		TYPHOON	DATEOF	HOUSES DAMAGED	(meters) ABOVE	IN THE VELOCITY
CIPALITY	BARANGAY	NAME	OCCURRENCE	TOTALLY PARTIALLY	LLY GROUNDFLOOR	BRGY (Arr.) IN THE BRGY
Piddig	Simmanga	Gening	June 28-30, 1967	0.40	0.28	
Picdig	Callusa	Gening	June 28-30, 1967	• • •	1.2	48 Flowing/moderate
Piddig	Dupitac	Gening	June 28-30, 1967	•	. 0.7	3 Flowing/very fast
Piddig	Estancia	Pepang	October 21-25, 1987		- 0.3	12 Flowing/very fast
Piddig	Gayamat	Gening	June 28-30, 1967	•	0.3	1 Flowing/very fast
Piddig	Libraoan	Pepang	October 21-25, 1987	0.09		12 Flowing/very fast
Piddig	Mangitayag	Pepang	October 21-25, 1987	•	2.5	48 Flowing/moderate
Lacag City	I San Lorenzo (Pob.)	Gening	June 28-30, 1967	0.03	. 2.5	7 Flowing/very fast
Laoag City	30-a Suyo	Gening	June 28-30, 1967		0.04	2 Flowing/very fast
Lacag City	30-b Santa Maria	Gening	June 28-30, 1967	0.02	8:1	12 Flowing/very fast
Laoag City	34-b Gabu Norte East	Gening	June 28-30, 1967	0.82		48 Flowing/moderate
Laoag City	43 Cavit (4)	Gening	June 28-30, 1967	•	<b>1</b>	3 Flowing/very fast
Laoag City	45 Tangid	Gening	June 28-30, 1967	•	. 0.3	3 Flowing/very fast
Laoag City	51-a Nangalisan East	Pepang	October 21-25, 1987	•	1.0	1. Flowing/very fast
Laoag City	51-b Nangalisan West	Gening	June 28-30, 1967	•	- 0.8	3 Flowing/very fast
Lacag City	53 Riceng	Gening	June 28-30, 1967	:	. 0.7	12 Flowing/very fast
Laoag City	S4-b Camangaan	Gening	June 28-30, 1967	0.10	0.08	3 Flowing/very fast
San Nicolas	: San Francisco (Pob.)	Gening	June 28-30, 1967		0.4	12 Flowing/very fast
San Nicolas	24 Santa Monica (Nagrebean)	Gening	June 28-30, 1967	0.07	1.4	12 Flowing/very fast
San Nicolas	San Baltazar (Bo.2) (Pob.)	Gening	June 28-30, 1967	•	1.8	12 Flowing/very fast
San Nicolas	San Bartolome (Bo.4) (Pob.)	Gening	June 28-30, 1967	•	. 1.2	12. Flowing/very fast
San Nicolas	San Ildefonso (Bo.2) (Pob.)	Gening	June 28-30, 1967	•	5.7	3 Flowing/very fast
San Nicolas	Nan Juan Bautista	Cening	June 28-30, 1967	0.01	1.0	12 Flowing/very fast
Sarrat	San Agustin (Pob.)	Gening	June 28-30, 1967	•		3 Flowing/very fast
Sarrat	San Andres	Gening	June 28-30, 1967	•	0.3	3 Flowing/very fast
Sarrat	San Antonio	Gening	June 28-30, 1967		- 0.7	48 Flowing/moderate
Sarrat	San Cristobal	Gening	June 28-30, 1967	0.01	5.4	12 Flowing/very fast
Sarrat	San Felipe	Gening	June 28-30, 1967	0.05	2.0	1 Flowing/very fast
Sarrat	San Francisco (Pob.)	Openg	September 10, 1989	•	1.2	3 Flowing/very fast
				:		

able 16. Buildir : damage in terms of percentage of total number of houses. (2/4)

			*	PERCENTAGE OF	FLOODWATER LEVEL	DURATION FLOOD FLOW
NICK		NOOHULL	DATE OF	HOUSES DAMAGED	(meters) ABOVE	IN THE VELOCITY
CIPALITY	BARANGAY	NAME	OCCURRENCE	TOTALLY PARTIALLY	Y GROUNDFLOOR	BRGY (hrs) IN THE BRGY
Sarrat	San Isidro	Cening	June 28-30, 1967		2.0	12 Flowing/very fast
Sarrat	San Joaquin (Pob.)	Sering	June 28-30, 1967	•	 	1 Flowing/very fast
Sarrat	San Jose	Gening	June 28-30, 1967	•	3.0	12 Flowing/very fast
Sarrat	Sun Leandro (Pob.)	<b>Sening</b>	June 28-30, 1967	•	2.0	6 Flowing/very fast
Sarrat	San Lorenzo	Gening	June 28-30, 1967	•	1.5	12 Flowing/very fast
Sama	San Mamei	Gening	June 28-30, 1967		0.7	3 Flowing/very fast
Sura	Sun Marcos	Gening	June 28-30, 1967	•	3.5	12 Flowing/very fast
Sirrat	Sun Nicolas	Pepang	October 21-25, 1987	•	2.5	3 Flowing/very fast
Sarrat	San Roque	Pepang	October 21-25, 1987			3 Flowing/very fast
Sarrat	San Vicente (Pob.)	Gening	June 28-30, 1967	•	(7)	12 Flowing/very fast
Surrat	Santa Barbara (Pob.)	Goring	July 20-26, 1977	•	1.3	6 Flowing/very fast
Sarrat	Santo Tomas	Gening	June 28-30, 1967		0.1	12 Flowing/very fast
Espiritu	Baliceg	Pepang	October 21-25, 1987	0.01	1.3	3 Flowing/very fast
Espiritu	Bugasi	Pepang	October 21-25, 1987	90.00	2.1	12 Flowing/very fast
Espiritu	Chestebanan	Gening	June 28-30, 1967	•	1.0	3 Flowing/very fast
Espiritu	Caribquib	Pepang	October 21-25, 1987	•	below	12 Flowing/very fast
Espiritu	Chagaguen	Pepang	October 21-25, 1987	•	1.0	12 Flowing/very fast
Espirito	Hilano (Pob.)	Pepang	October 21-25, 1987		1.5	12 Flowing/very fast
Espira	Lyrergo (Pob.)	Pepang	October 21-25, 1987		0.8	12 Flowing/very fast
Espiritu	Мисауеруер	Pepang	October 21-25, 1987		0.5	12 Flowing/very fast
Epiritu	Sitanar	Pepang	October 21-25, 1987	0.01	0.3	12 Flowing/very fast
Espiritu	Tabesbagan	Pepang	October 21-25, 1987	0.62	0.3	12 Flowing/very fast
E spiritu	Valdez	Gening	June 28-30, 1967	•	8.0	3 Flowing/very fast
Warcos	Cicafean	Gening	June 28-30, 1967	0.08	1.8	48 Flowing/moderate
Varcos	Diduioig	Gening	June 28-30, 1967	. 10.0	8.0	48 Flowing/moderate
Narcos.	Elizabeth (Culao)	Gening	June 28-30, 1967	•	below	12. Flowing/very fast
Narcos	Etoka	Gening	June 28-30, 1967	0.02	-	168 Flowing/slow
N. arcos	Ferdinand	Gening	June 28-30, 1967		0.7	12 Flowing/very fast
Marcos	Fortuna	Cening	June 28-30, 1967	. 10.0	0.1	12 Flowing/very fast

the 16. Antidang damage in terms of percentage of total number of houses. (3/4)

			ı																														
FL00D	DURATION FLOOD FLOW	IN THE VELOCITY	BRGY (hrs) IN THE BRGY	120 Flowing/slow	3 Flowing/very fast	48 Flowing/moderate	48 Flowing/moderate	3 Flowing/very fast	3 Flowing/very fast	3 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	48 Flowing/moderate	3 Flowing/very fast	3 Flowing/very fast	24 Flowing/fast	3 Flowing/very fast	12 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	48 Flowing/moderate	3 Flowing/very fast	
***			BRG			ю		:	^	<b>S</b>	4	~	<b>~</b>	<b>6</b> 5.		9	\$1	<b></b>	v	' <sub>гч</sub>	0	9	1.5		7	1.5	Q.			·Μ.	E.	2.0	:
	R LEVEL	(meters) ABOVE	FLOOR	0.1		7	7	1.0	); 	9.0				1.8	below	9.0	7	0.8	9.0		2.0	9.0	.i.		1.7	₩	<b>.</b>			0.3	0.3	ri	
	FLOODWATER LEVEL	(meters)	GROUNDFLOOR	-							٠											•	:										
	F.O	. 1	<b>.</b>				e.				ä																						
	E OF	(AGED	PARTIALLY		•	•	•	•	•	•	0.0		•	•	•	•	•	•	•		•			•	•	•		•		•		•	
	PERCENTAGE OF	HOUSES DAMAGED		•		0.01		0.02	•	•	0.05	0.04	: • .	•	•		0.03	0.10	0.05	•		· .	0.01	: .	•		0.10	•		0.03	•		
	PER	HOU	TOTALLY		:		-		:			-		:	٠,٠														i	•			:
	: -				7.	7	7	1881	1361	S	986		1987	1987		=	1987	286	1987	1881	1.5	1987	1987	1987	1987	1881	1987	1984	1984	1987	1987	1987	
		0 ب	OCCURRENCE	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	October 21-25, 1987	June 20-24, 1985	August 17-19, 1986	July 19-21, 1971	October 21-25, 1987	October 21-25, 1987	July 20-26, 1977	October 27, 1991	October 21-25, 1987	August 27-30, 1984	October 21-25, 1987	October 21-25, 1987	June 28-30, 1967	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	August 27-30, 1984	August 27-30, 1984	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	
		DATE OF	8	June 2	June 2	June 2	June 2	Octob	Octob	June 2	Augus	July 1	Octo	Octob	July 2	Octob	Octo	Augus	Octo	Octob	June 2	Octo	Octo	Octob	Octo	Octo	Octo	Augu	Augu	Octo	Octo	Octo	
:		YPHOON	NAME	Gening	Gening	Gening	Gening	Pepang	Pepang	uring.	Miding	Suiso	Pepang .	cpang	Joring	rimng	cpang	Aaring	cpang	epang	sening	chang	cpang	Sunga	cpang	Pepang	cpang	Maring	Maring	Pepang	Pepang	Pepang	-
l		ţ.	ž	ပိ	Š	ၓ	ઉ	. A	Pe	χ	Σ̈́	2	F.	2	Ğ	Ĕ	ď	Ž	Ž,	Pe	<b>ড</b>	ດ	Ã	ă	ř.	ជ	ŭ	Σ	Σ	ሏ	Ă	Ă	
																. 1.				,			e.						(Suo	•			
			Α̈́	(gunit)		(Ragas)		\$5.5		ngay)	, ,	:		: :			(Pob.)	:		(Pob.)	မ္ဘ		09.)	(Pob.)	dias)		ng.		ian Marcelino (Padong)	S			
			BARANGAY	Pacifico (Agunit)	Santiago	Tabucbuc (Ragas)	Valdez	Albano (Pob.)	Bagut	Parado(Bangay)	Baresbes	Вагопд	Bungcag	Dancel	Elizabeth	F02	Guerrero (Pob.	Lanas	Jumbad.	Madamba (Pob.)	Mandaloque	Vedina	Peralta (Pob.)	Puruganan (Pob.)	Root (Baldias)	Sagpatan	San Esteban	i-rancisco	ian Marc	San Marcos	Susquiano	Suyo (3)	
	• .		ř	1 .		·				* *	•																				8.6		
		XCNI	CIPAL	Marcos	Marcos	Marcos	Marcos	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	ı

THOUSE OF THE PARTY.				•		FL00D
				PERCENTAGE OF	FLOODWATER LEVEL	DURATION FLOOD FLOW
		TYPHOON	DATE OF	HOUSES DAMAGED	(meters) ABOVE	IN THE VELOCITY
CTO AT THY	PARANGAY	NAME	OCCURRENCE	TOTALLY PARTIALLY	GROUNDFLOOR	BRGY (hrs) IN THE BRGY
Circuit 1	1	Maring	August 27-30, 1984	20.0	0.2	3 Flowing/very fast
Catana	o de la company	Penang	October 21-25, 1987	0.02	1.0	12 Flowing/very fast
Coleman	The chort	Pepang	October 21-25, 1987	•	0.1	3 Flowing/very fast
and and	010000000000000000000000000000000000000	Penang	October 21-25, 1987	. 0.25	2.1	120 Flowing/slow
Selection .	1 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Penang	October 21-25, 1987	•	2.0	12 Flowing/very fast
Solsona		Perano	October 21-25, 1987	0.18	1.0	12 Flowing/very fast
Elosios Francis	משונושט	Penans	October 21-25, 1987	•	1.2	3 Flowing/very fast
Solson		Penane	October 21-25, 1987		6.0	3 Flowing/very fast
Solsona	Calaties at all	North C	Sentember 20 1902	•	0.2	3 Flowing/very fast
Solsona	Darastas	Describe	October 21-25 1987		0.3	12 Flowing/very fast
Solsona	Juan (2002) (1)	repair.	October 21 25 1097	•	5.0	3 Flowing/very fast
Solsona	Laureta (Pob.)	repang	October 21-25, 1981			40 Danimalania
Solsona	Lipay	Pepang	October 21-25, 1987	0.34	).'\	to rioung mountain
Solsona	Maananteng	Pepang	October 21-25, 1987			120 Flowing/slow
Solvers	Manalpac	Pepang	October 21-25, 1987	•	1.2	3 Flowing/very fast
Sississ	Mariquet	Pepang	October 21-25, 1987		0.3	12 Flowing/very fast
Colsons	resentation	Pepang	October 21-25, 1987	0.43	1.8	3 Flowing/very fast
and sold	Variation .	Prinane	October 21-25, 1987	•	1.0	168 Flowing/slow
Solvens	Tritho	Perpane	October 21-25, 1987	1	0.5	100 Flowing/slow
Coleges	לאה לוים	Pepang	October 21-25, 1987	0.12	9.0	3 Flowing/very fast
Coleman	Con Inlian	Pepang	October 21-25, 1987	•	0.7	12 Flowing/very fast
Coleman	Santa Arta	Pepang	October 21-25, 1987	0.01	0.3	3 Flowing/very fast
Colega	Cartingo	Kane	Aurust 29, 1992	•	1.7	12 Flowing/very fast
Solsons	Talustos	Penang	October 21-25, 1987		0.7	168 Flowing/slow
Niews Ki	Accent	Pepang	October 21-25, 1987	•		3 Flowing/very fast
	Cabina a	Gening	June 28-30, 1967	•		48 Flowing/moderate
Number Fire	, aca.)	Pepang	October 21-25, 1987	0.02	1.0	3 Flowing/very fast
	Toblacion	Penang	October 21-25, 1987			168 Flowing/slow
Nucva Lin		Cening	June 28-30, 1967	20.00	1.3	3 Flowing/very fast
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F100D	R LEVEL DURATION FLOOD FLOW	(meters) ABOVE IN THE VELOCITY	GROUNDFLOOR BRGY (Arr) IN THE BRGY	1.20 3 Flowing/very fast	1.20 48 Flowing/moderate	0.70 3 Flowing/very fast	0.30 12 Flowing/very fast	0.30 1 Flowing/very fast	1,50 12 Flowing/very fast	2.50 48 Flowing/moderate	2.50 7 Flowing/very fast	0.50 2 Flowing/very fast	1.80 12 Flowing/very fast	1.20 48 Flowing/moderate		m	<b></b>	0.80 3 Flowing/very fast	<b>.</b>				1.80 12 Flowing/very fast	1.20 12 Flowing/very fast	1.50 3 Flowing/very fast	1.00 12 Flowing/very fast	1.50 3 Flowing/very fast	0.30 3 Flowing/very fast	0.70 48 Flowing/moderate	4.50 12 Flowing/very fast	2.00 I Flowing/very fast	1.20 3 Flowing/very fast
	TAGE FLOODWATER LEVEL	ω	٠.	0,40	•	0.15		•		0.20	0.30		0.20	0.30	•	•	1 · ·	0.30	•	0.20	0.40	0.60	0.05	0.10	0.05	0.20	•			0,40	1	
	PERCENTAGE		NCE		June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	June 28-30, 1967	October 21-25, 1987	October 21-25, 1987	lune 28-30, 1967	June 28-30, 1967	fune 28-30, 1967	June 28-30, 1967	lune 28-30, 1967	June 28-30, 1967	October 21-25, 1987	June 28-30, 1967	June 28-30, 1967	lune 28-30, 1967	June 28-30, 1967	fune 28-30, 1967	June 28-30, 1967	func 28-30, 1967	tune 28-30, 1967	lune 28-30, 1967	June 28-30, 1967	June 28-30, 1967	tene 28-30, 1967	June 28-30, 1967	June 28-30, 1967	Centember 10 1089
		TYPHOON DATE OF	13.									- <b>•</b>			Gening June 28			Gening June 28	-			Gening June 2	Gening June 2		- •							
			OADANGAV	Birmanes	(a)(i):2	Omittee	Copier	Estancia	Cayantat	Lionagen	( Pob.)	Tota Stryn	30-b Santa Maria	34-b Gabu Norte East	43 Cavit (4)	45 Tangid	51-a Nangalisan East	51-5 Nangalisan West	S3 Rioeng	54-5 Camangaan	1 San Francisco (Pob.)	24 Santa Monica (Nagrebean)	San Baltazar (30,2) (Pob.)	San Barrolome (Bo.4) (Pob.)	San Ildefonso (Bo.3) (Pob.)	San Juan Bautista	San Agustin (Pob.)	San Apdres	San Antonio	San Cristobal	San Felipe	
			ST CALL	Divisio	3, 0,00	r roung	ricolly states	F100(g	310017	716618	ייוכטואַ אַנייטיי	1000 CIC	Lange City	Laoae City	Laoas Ciry	Laoag City	Laoaz City	Lange City	Laoar Civ	Laoar City	San Nicolas	San N'colas	San N colas	San N.co. as	San N colas	Nan N.co.as	Sarrat	Į.	Same		ELLES	

 $10^{-17}$  Earliding contents damage in terms of nercentage of total number of houses.  $10^{14}$ 

ļ.				PERCENTAGE	FLOODWATER LEVEL	FLOOD  DURATION FLOOD FLOW
	\$ .*	NOOHALL	DATEOF	OF FURNITURE	(meters) ABOVE	IN THE VELOCITY
BARANGAY	<b>&gt;</b>	NAME	OCCURRENCE	DAMAGED	GROUNDFLOOR	BRGY (hrs) IN THE BRGY
San Isidro		Gening	June 28-30, 1967		2.00	12 Flowing/very fast
San Joaquin (Pob.)	in (Pob.)	Gening	June 28-30, 1967		1.30	i Flowing/very fast
San Jose		Gening	June 28-30, 1967		3.00	12 Flowing/very fast
San Leandro (Pob.)	Iro (Pob.)	Gening	June 28-30, 1967	•	2.00	6 Flowing/very fast
San Lorenzo	027	Gening	June 28-30, 1967	•	1.50	12 Flowing/very fast
San Marruel	ซ	Gening	June 28-30, 1967	•	0.70	3 Flowing/very fast
San Marcos	86	Gening	June 28-30, 1967	0.10	3.50	12 Flowing/very fast
San Nicolas	S. C.	Pepang	October 21-25, 1987		2.50	3. Flowing/very fast
San Roque	, , , , , , , , , , , , , , , , , , ,	Pepang	October 21-25, 1987	0.05		3 Flowing/very fast
San Vicente (Pob.)	ne (Pob.)	Gening	June 28-30, 1967	07.0	1.65	12 Flowing/very fast
Santa Ba	Santa Barbara (Pob.)	Coring	July 20-26, 1977		1.30	6 Flowing/very fast
Santo Tomas	mas	Gening	June 28-30, 1967	0.10	1.00	12 Flowing/very fast
Ballocg		Pepang	October 21-25, 1987	0.15	1.30	3 Flowing/very fast
Bugasi		Pepang	October 21-25, 1987	0.30	1.50	12 Flowing/very fast
Caestebanan	กลก	Gening	June 28-30, 1967	0.05	0.95	3 Flowing/very fast
Canbouib		Pepang	October 21-25, 1987	•••	below	12 Flowing/very fast
Catagtaguen	nen	Pepang	October 21-25, 1987	0100	87.7	12 Flowing/very fast
Hilario (Pob.)	Pob.)	Pepang	October 21-25, 1987	0.02	1.50	12 Flowing/very fast
Lorenzo (Pob.	(Pob.)	Pepang	October 21-25, 1987		0.80	12 Flowing/very fast
Macayepyep	уср	Pepang	October 21-25, 1987	0.05	05.0	12 Flowing/very fast
Sinamar		Pepang	October 21-25, 1987	0.10	0.30	12 Flowing/very fast
Tabtabagan	gan	Pepang	October 21-25, 1987	0.05	0.30	12 Flowing/very fast
Valdez		Gening	June 28-30, 1967	0.10	0.83	3 Flowing/very fast
Cacafean		Gening	June 28-30, 1967	8.0	1.75	48 Flowing/moderate
Daquioag	•60	Gening	June 28-30, 1967	0.05	0.30	48 Flowing/moderate
Elizabet	Elizabeth (Culao)	Gening	June 28-30, 1967	•	below	12 Flowing/very fast
Escoda		Gening	June 28-30, 1967	•		168 Flowing/slow
Ferdinard	72	Gening	June 28-30, 1967	•	0.70	12 Flowing/very fast
Fortuna		Gening	June 28-30, 1967	0.03	0.10	12 Flowing/very fast
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Table 17 Building contents damage in terms of percentage of total number of houses. (3/4)

į	<b>≱</b>	, KGX		try fast	oderate	oderate	iry fast	ny fast	ity fast	ग्रे किस	iry fast	iry fast	ny fast	oderate	ity fast	Ty tast	Ħ	गर) विका	ity fast	ity fast	ity fast	ity fest	ity fast	ग्र किश	ity fast	ity fast	ווץ לפמ	ry fast	iy fast
FLOOD	DUKATION FLOOD FLOW	IN THE PELOCITY BRGY (hrs) IN THE BRGY	120 Flowing/slow	3 Flowing/very fast	48 Flowing/moderate	48 Flowing/moderate	3 Flowing/very fast	3 Flowing/very fast	3 Flowing/very fast	3 Howing/very fast	12 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	48 Flowing/moderate	3. Flowing/very fast	3 Flowing/very tast	24 Flowing/fast	3 Flowing/very fast	12 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	12 Flowing/very fast	12 Flowing/very fast	3 Flowing/very fast	3 Flowing/very fast	 12 Flowing/very fast
			L		1.50	1.10	1.60	8:	0.60	2.65	1.20	1.80	1.75	below	09:0	1.50	0.80	0.60	1.10	2.00	09:0	1.45	50:1	1.65	1.50	8:1			0:30
	COCOMALEX LEVEN	GROUNDFLOOR												::`									,						
STATISTICS OF STATES	OF FIRMITIBE	DAMAGED	0.01	. • • • • • • • • • • • • • • • • • •	0.25	0.85	0.10	0.10	0.45	0.05	9.0	0.05	0.30	•	•	0.10	8.0	0.10	0.15	0.03	0,40	0.10	0.05	0.10	0.10	0.10	•		09:0
ú	i C		1967	292	28.	2967	1987	1987	285	9861	7	. 1987	. 1987	777	991	, 1987	1984	1, 1987	. 1987		. 1987	. 1987	1, 1987	. 1987	. 1987	. 1987	1984	1984	. 1987
	DATEOF	OCCURRENCE	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	October 21-25, 1987	June 20-24, 1985	August 17-19, 1986	July 19-21, 1971	October 21-25, 1987	October 21-25, 1987	July 20-26, 1977	October 27, 1991	October 21-25, 1987	August 27-30, 1984	October 21-25, 1987	October 21-25, 1987	June 28-30, 1967	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	October 21-25, 1987	October 21-25, 198;	August 27-30, 1984	August 27-30, 1984	October 21-25, 1987
	TYPHOON	NAME	Gening	Gening	Gening	Gening	Pepang	Pepang	Kuring	Miding	Rosing	Pepang	Pepang	Goring	Trining	Pepang	Maring	Pepang	Pepang	Gening	Pepang	Pepang	Pepang	Pepang	Pepang	Pepang	Maring	Maring	Pepang
			(i)		( <del>2</del>										· · · · · · · · · · · · · · · · · · ·	^			•				?					(Padong)	
		CIPALITY BARANGAY	Pacifico (Agunit)	Santiago	Tabucbuc (Ragas)	Valdez	Albano (Pob.)	Bagut	Parado(Bangay)	Baresbes	Barong	Bungcag	Dancel	Elizabeth	Foz	Guerrero (Pob.)	Lanas	Lumbad	Madamba (Pob.,	Mandaloque	Medina	Peralta (Pob.)	Puruganan (Pob.	Root (Baldias)	Sagpatan	San Esteban	Francisco	San Marcelino (Padong)	San Marcos
	-iXIX	CIPALITY	Marcos	Marcos	Marcos	Marcos	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras	Dingras

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Pepang October 21-23, 1987
Pepang October 21-25, 1987
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MUNI-		TYPHOON	DATE OF	NUMBER OF
CIPALITY	BARANGAY	NAME	OCCURRENCE	CASUALTIES
San Nicolas	24 Santa Monica (Nagrebean)	Gening .	June 28-30, 1967	5
Marcos	Fortuna	Gening	June 28-30, 1967	2
Marcos	Tabucbuc (Ragas)	Gening	June 28-30, 1967	2
Marcos	Valdez	Gening i	June 28-30, 1967	4
Dingras	Bagut	Pepang	October 21-25, 1987	3
Solsona	Bagbag	Pepang	October 21-25, 1987	. 5
Solsona	Bubuos	Pepang	October 21-25, 1987	2
Solsona	Catangraran	Pepang	October 21-25, 1987	1
Solsona	Lipay	Pepang	October 21-25, 1987	2
Solsona	Nagpatpatan	Pepang	October 21-25, 1987	9
Solsona	Nalasin	Pepang	October 21-25, 1987	1
Solsona	Santa Ána	Pepang	October 21-25, 1987	6

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	Taile 19 Number of days farm and road operations suspended

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	IT DEPOS	:	ROADS	gravel	Sand	Sand	sit	ii.	gravel	gravel	şţţ	햜	sit	siţ	purs	silt	gravel	Ħ	sile	Sit	N.	Sit	silt	sit	Silt	silt	S.	ig.	sand	Sand	Ħ
	SEDIMENT DEPOSITS AT	FARM-	LANDS	gravel	pers	gravel	pars	cand	gravel	gravel	žįs	sitt	sģt	sijt	para		gravel	rig Hig	SE.	Sir	sand	poss	Sand	Sand	Sand	Sand	gravel	横	grave!	Sand	grave!
	百	<u> </u>	ROAD	1.20	1.20	0.70	0.30	0.30	2.8	8.1	ક્ષુ	0.50	8	0.70	0.65	9.0	8.	0.80	0.70	0.50	3.8	0.80	ଝୁ	1.20	1.20	8:1	1.8	0.30	0.70	8,3	5.00
	FLOODWATER LEVEL	(meters) ABOVE	AND					0.30								-									:						
	FLOOD	Œ)	FARMLAND			1																	· .				: :.		·	ė,	<b>.</b>
	NOL	m	(STIC)	3	\$4	m	2	H	12	\$	7	14	77	\$	m	m	7	n	Ħ	; :	23	27	12	21	6,	77	•		₹	. 11	
FL00D	DURATION	IN THE	BRGY (hrs)			:			_		_		62	_	0	H	0	6)	c	7		0	0	7	ri	0	0	7	m		∞
	AYS	ENDED	ROAD	<b>7</b>	1	551	7	:	R	ጸ	Č		••		Ť				m		;	r.				m					
	NUMBER OF DAYS	OPERATION SUSPENDED	FARM	30	. 14	71	Ö	٠ جا		8	8	8	8	7	စ္တ	en en	8	7	15.	7	<b>t</b> :	8	8	7	1	7	0	m	7	-	8
	NUMB	OPERATI	FA						•															÷			٠				
			:	73	£3		1987		1987	1987	22	22		22	23	63	1987	. 19	67			. 29	. 29	79	267	290		200			. 296
		30E	OCCURRENCE	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	October 21-25, 1987	June 28-30, 1967	October 21-25, 1987	Actober 21-25, 1987	une 28-30, 1967	une 28-30, 1967	une 28-30, 1967	une 28-30, 1967	une 28-30, 1967	une 28-30, 1967	Actober 21-25, 1987	une 28-30, 1967	une 28-30, 1967	tune 28-30, 1967	une 28-30, 1967	une 28-30, 1967	June 28-30, 1967	rune 28-30, 1967	June 28-30, 1967	June 28-30, 1967	June, 28-30, 1967	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967	June 28-30, 1967
	1	N DATE OF	-1	June ,	June	June	Octo	June	Octo	Octo	June	June	June	June	June	June	O C	June	June	June	June	June	Jane	June	Jun	Jun	June	Can	m.	June	Jun
		TYPHOON	NAME	Sening	Gening	Sening	Pepang	Gening	Perpang	Pepang	Serving	Gening	Gening	Gening	Gening	Genng	Pepang	Gening	Gening	Gening	Sening	Sening	Gening	Cening	Genung	Gening	Gening	Gening	Gening	Gening	Gening
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											(Pob.)	: . :	렫	te East	; .		n East	in West	٠.	¥	(Pob.)	ca (Nagre	Bo.2) (Pol	(Bo.4) (F	(Bo.3) (Pe	nsi	Pob.)				
			BARANGAY	02002		ប្ដ	613 2013	, E	aoan	Materiayag	San Lorenzo (Pob.	30-a Suyo	30-b Santa Maria	34-b Gabu Norte East	43 Cavit (4)	45 Tangid	51-0 Nangalisan East	51-b Nangalisan West	53 Riving	54-1: Cumangaan	1 S'in l'rancisco (Pob.)	24 Sama Monica (Nagrebean)	San Baltazar (Bo.2) (Pob.)	San Barrolome (Bo.4) (Pob.)	San Ildefonso (Bo.3) (Pob.)	San Juen Bautista	San Agustin (Pob.	San Andres	San Antonio	San Cristobal	San Feline
1					Caltura	During	Estrocia	Gavamat	Libnaoan	Mari				_				:	1				. :			٠,		San	San	Sar	San
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•				NUMBER OF DAYS	AYS	DURATION	FLOOD	FLOODWATER LEVEL		SEDIMENT DEPOSITS AT
XCN:		TYPHOON	DATE OF	OPERATION SUSPENDED	CEUDED	IN THE	<b>.</b>	(meters) ABOVE		
CIPALITY	BARANGAY	NAME	OCCURRENCE	FARM	ROAD	BRGY (hrs)	FARMLAND	ND :	ROAD LANDS	S ROADS
Sarrat	San Isidro	Gening	June 28-30, 1967	20	3		23		2.00 gravel	sût
Sarrat	San Josquin (Pob.)	Genung	June 28-30, 1967	8	7		<b>.</b> 4.		0.30 gravel	pues
Sarrac	San Jose	Gening	June 28-30, 1967		0	-	12		3.00 silt	sift
Sarrat	San Leundro (Pob.)	Gening	June 28-30, 1967	• · · · · · · · · · · · · · · · · · · ·	8		. •		2.00 gravel	pars
Sarrat	San Lerenzo	Gening	June 28-30, 1967	m			ដ	•	0.50 gravel	sand
Sarrat	San Manuel	Gening	June 28-30, 1967	•	-		M		0.70 gravel	purs
Sarrat	San Marcos	Gening	June 28-30, 1967	(1	7	•	12		3.00 silt	Silt
Sarrat	San Nicolas	Pepang	October 21-25, 1987	7.			60		0.50 gravel	gravel
Sarrat	San Roque	Pepang	October 21-25, 1987	64	7	_:	77		1.00 sand	pures
Sarrat	San Vicente (Pob.)		June 28-30, 1967	0	-		12		1.00 none	silt
Sarrat	Santa Barbara (Pob.)		July 20-26, 1977	<b>v</b> a			9		1.20 sand	pors
Sarrat	Santo Tomas	Gening	June 28-30, 1967	0	4		12		1.00 silt	silt
Espiritu	Baliocg		October 21-25, 1987	m	S		Ę,		1.00 gravel	silt
Espiritu	Bugasi	Pepang	October 21-25, 1987	7	0		12		0.50 gravely	bons :
Spirin	Caestehanan		June 28-30, 1967	7	7		m	-	0.65 gravel	sit
Espirit	Caribonib	1	October 21-25, 1987	73	0		12	2.50	below gravel	
Espiri u	Canguan	Pepang	October 21-25, 1987	<b>1 1</b>			12		0.70 sand	sit
Espiriu	Hilaric (Pob.)	Pepang	October 21-25, 1987	73	150		12		1.50 gravel	sand
Espiri u	Lorento (Pob.)	Pepang	October 21-25, 1987	**************************************	0	*	12.		0.30 gravel	भंड
Espiri u	Жасаунруср		October 21-25, 1987	7	ၔ္က		12		0.50 gravel	purs
Espiritu	Sinamur		October 21-25, 1987	ત્મ :		3	. 21		0.65 gravel	purs 1
Espiri u	Tabmengan	Pepang	October 21-25, 1987	0			12	2.00	0.60 gravel	l sit
Espiri u	Valdex	Sering	June 28-30, 1967	7			60		0.50 gravel	purs 1
Marces	Cacafein	Gening	June 28-30, 1967	*	8		\$		1.75 gravel	l gravel
Marces	Daquinag	Sening.	June 28-30, 1967	365	8		<b>&amp;</b>		0.80 sand	आंद्र
Marcc s	Elizabeth (Culao)	Gening	June 28-30, 1967		0		12	2.40	below gravel	1 none
Marce s	Escodi	Gening	June 28-30, 1967	4	٥		8		0.80 gravel	purs 1
Marces	Ferdinand	Gening	June 28-30, 1967	0	2		12	.*	0.70 gravel	purs 1
Marces	Fortura	Gening	June 28-30, 1967	365	<b>6</b>		ដ		0.10 gravel	none
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ושליוכ וא יאנו	Latele 19 intimoer of days farm and road operation	יום אמאלמומים כו								
						FLOOD				
				NUMBER OF DAYS	P DAYS	DURATION	FLOODWATER LEVEL	er level	SEDDMENT	SEDIMENT DEPOSITS AT
MINI-		TYPHOON	DATEOF	OPERATION SUSPENDED	SPENDED	N THE	(meters	(meters) ABOVE	FARM-	
CIPALITY	BARANGAY	NAME	OCCURRENCE	FARM	ROAD	BRGY (hrs)	FARMLAND	ROAD	LANDS	ROADS
Marcos	Pacifico (Agunit)	Gening	June 28-30, 1967		1	12	120	0.10	purs (	pars
Marcos	Santiago	Gening	June 28-30, 1967	7	7		<b>6</b>	1.50	pars (	sand
Marcos	Tabucbuc (Ragas)	Gening	June 28-30, 1967	30	8	•	<b></b>	1.50	gravel	sijt
Marcos	Valdez	Gening	June 25-30, 1967	7	2	4	48	1.10	Sand	silt
Dingras	Albano (Pob.)	Pepang	October 21-25, 1987	180	7		3 1.60	1.8	報(	silt
Dingras	Bagut	Pepang	October 21-25, 1987	8	1460		en '	1.00	, SA	silt
Dingras	Parndo(Bangay)	Kuring	June 20-24, 1985	7	7		33	0.60	, Sit	silt
Dingras	Baresbes	Miding	August 17-19, 1986	0	14		3 1.20	2.65	5 debris	debris
Dingras	Bareng	Rosing	July 19-21, 1971	m	<b>6</b> 9		12	1.20	debris	debris
Dingras	Bunileag	Pepang	October 21-25, 1987		•		3 1.80	1.35	S sit	sit
Dingras	Dancel	Pepang	October 21-25, 1987	365	7		1.75	1.50	S SH	sit
Dingras	Elizabeth	Goring	July 20-26, 1977	365	Q	. •	48 1.50	Delow	debris	none
Dingras	Foz	Trining	October 27, 1991.	0	0		m	0.60		silt
Dingras	Guerrero (Pob.)	Pepang	October 21-25, 1987	120	7		3 2.00	1.50	<b></b> ラ 芸 ロ	sit
Dingras	Lanas	Maring	August 27-30, 1984	1080	45		77	0.80	Stavel .	gravel
Dingras	Lunibad	Pepang	October 21-25, 1987	21	4		3 0.60	0.30	o site	sit
Dingras	Madamba (Pob.)	Pepang	October 21-25, 1987	71	en		12 1.10	0.50	1 1 1 1 1	silt
Dingras	Mandaloque	Sening	June 28-30, 1967	m	. 77		12 2.20	2.00	0 gravel	sand
Dingras	Medina	Pepang	October 21-25, 1987	ଛ	21		3	0.60	o silt	silt
Dingras	Peruta (Pob.)	Pepang	October 21-25, 1987	<b>r</b>	<b>7</b>		12 1.45	1.30	o silt	zit.
Durgras	Puniganan (Pob.)	Pepang	October 21-25, 1987	m	<b>m</b>		12 1.05	5. 0.75	5 sit	silt
Dingras	Rooi (Baldias)	Perpang	October 21-25, 1987	ч	7	•	3 1.65	1.00	## O	sit
Dingras	Sag: atan	Pepang	October 21-25, 1987	•	R		12	1.50	० खुर	silt
Dingras	San Esteban	Рерапд	October 21-25, 1987	30			12	1.00	O gravel	gravel
Dingras	Francisco	Maring	August 27-30, 1984	4	0		m	मक्ष्र ००	debris	none
Dingras	San Marcelino (Padong)	Maring	August 27-30, 1984	8	0		ų	no data	debris	none
Dingras	San Marcos	Pepang	October 21-25, 1987	14	21		12	0.30	O gravel	gravel
Dingras	Suk jiano	Pepang	October 21-25, 1987	0	0		48	0.30	purs 0	Sand
Dingras	Suy. (2)	Pepang	October 21-25, 1987	7	7		3 1.95	5 1.20	o silt	sift
							,			

SEDIMENT DEPOSITS AT debris debris gravel debris gravei gravel gravel 27.62 gravel gravel Sand none FARMno data gravel ROAD LANDS STAVE gravel 0.70 debris 0.30 debris 0.70 debris 0.30 gravel 1.00 debris LOS sand no data sand 0.20 debris 1.00 gravel gravel 0.70 debri no data debrir 1.00 grave 0.50 sit 8,0 83 8 0.30 0.15 0.65 0.65 ग्रं देशक 8 8.8 FLOODWATER LEVEL (meters) ABOVE 6.30 FARMLAND 8 DURATION BRGY (hrs.) N THE FL000 **20AD** OPERATION SUSPENDED NUMBER OF DAYS FARM October 21-25, 1987 September 20, 1992 August 27-30, 1984 June 28-30, 1967 August 29, 1992 une 28-30, 1967 OCCURRENCE DATEOF Tabe 19 Number of days farm and road operations suspended. (4/4) LYPHOON Pepang Pepang chang Gening Pepang CDang Pepang epang Maring Pepang. Pepang cpang Pepang Pepang NAME Pepang Pepang Pepang Sang Maring uan (Pob.) (1) Juren (Pob.) BARANGAY Nagpaquatan Pob. acrim Cabittauran Catangraran Maananteng Santo Nino San . ulian Capurictan Santa Aria Talt : tog Oarasdas , pay Kanijac Mariquet San . uad Santiages Sarcelona Bagbago Aguinap All in Acn:m Guid Subros Puttio 322022 Nucva Era Nuc va Era New En CO S SON Nut va Era CIP4LITY Solvona Sol: ona So: ona Sol. ona Solsona Solona Sol: ona Solsona Solvona Sol: ona Solsona Dingras Solsona Solsona

MUNI-	tarage and present land use of river v	TYPHOON	DATE OF	RIVER WASHED AREA
CIPALITY	BARANGAY	NAME	OCCURRENCE	HECTARAGE PRESENT LAND USE
Piddig	Bimmanga	Gening	June 28-30, 1967	30.00 Watercourse
Piddig	Callusa	Gening	June 28-30, 1967	5.00 Rivercourse
Piddig	Dupitac	Gening	June 28-30, 1967	15.00 Rivercourse
Piddig	Estancia	Pepang	October 21-25, 1987	•
Piddig	Gayamat	Gening	June 28-30, 1967	5.00 Rivercourse
Piddig	Libasoan	Pepang	October 21-25, 1987	•
Piddig	Mangitayag	Pepang	October 21-25, 1987	10.00 Watercourse
Laoag City	1 San Lorenzo (Pob.)	Gening	June 28-30, 1967	•
Laoag City	30-a Suyo	Gening	June 28-30, 1967	2.00 Bare
Laoag City	30-b Santa Maria	Gening	June 28-30, 1967	5.00 Bare
Lacag City	34-b Gabu Norte East	Gening	June 28-30, 1967	1.50 Fishpond
Laoag City	43 Cavit (4)	Gening	June 28-30, 1967	0.04 Watercourse
Laoag City	45 Tangid	Gening	June 28-30, 1967	•
Lacag City	51-a Nangalisan East	Pepang	October 21-25, 1987	1.00 Bare
Laoag City	51-b Nangalisan West	Gening	June 28-30, 1967	e de la <del>la</del> companya de la companya
Laoag City	53 Riceng	Gening	June 28-30, 1967	
Lacag City	54-b Camangzan	Gening	June 28-30, 1967	
San Nicolas	1 San Francisco (Pob.)	Gening	June 28-30, 1967	
San Nicolas	24 Santa Monica (Nagrebean)	Gening	June 28-30, 1967	20.00 Bare
San Nicolas	San Baltazar (Bo.2) (Pob.)	Gening	June 28-30, 1967	<b>光线性管体的 12.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.</b>
San Nicolas	San Bartolome (Bo.4) (Pob.)	Gening	June 28-30, 1967	
San Nicolas	San Udefonso (Bo.3) (Pob.)	Gening	June 28-30, 1967	
San Nicolas	San Juan Bautista	Gening	June 28-30, 1967	2.50 Bare
Sanat	San Agustin (Pob.)	Gening	June 28-30, 1967	
Sarrat	San Andres	Gening	June 28-30, 1967	
Sarrat	San Antonio	Gening	June 28-30, 1967	120.00 Bare
Sarrat	San Cristobal	Gening	June 28-30, 1967	10.00 Bare
Sarrat	San Felipe	Gening	June 28-30, 1967	2.00 Rivercourse
Sarrat	San Francisco (Pob.)	Openg	September 10, 1989	10.00 Bare
Sarrat	San Isidro	Gening	June 28-30, 1967	10,00 Rivercourse
Sarrat	San Joaquin (Pob.)	Gening	June 28-30, 1967	5,00 Rivercourse
Sarrat	San Jose	Gening	June 28-30, 1967	
Sarrat	San Leandro (Pob.)	Gening	June 28-30, 1967	
Sarrat	San Lotenzo	Gening	June 28-30, 1967	2.00 Rivercourse
Sarrat	San Manuel	Gening	June 28-30, 1967	3.00 Bare
Sarrat	San Marcos	Gening	June 28-30, 1967	20,00 Bate
Sarrat	San Nicolas	Pepang	October 21-25, 1987	0.05 Bare
Sarrat	San Roque	Pepang	October 21-25, 1987	
Sarrat	San Vicente (Pob.)	Gening	June 28-30, 1967	
Sarrat	Santa Barbara (Pob.)	Goring	July 20-26, 1977	3.00 Rivercourse
Satiat	Santo Tomas	Gening	June 28-30, 1967	35.00 Bare
Espiritu	Balioeg .	Pepang	October 21-25, 1987	35.00 Bare
Espiritu Espiritu	Bugasi	Pepang	October 21-25, 1987	30,60 Bare
Espiritu	Caestebanan	Gening	June 28-30, 1967	0.40 Bare
Espiritu	Caribquib	Pepang	October 21-25, 1987	2.50 Bare
Espiritu	Cataguaguen	Pepang	October 21-25, 1987	17.00 Bare
Espiritu Espiritu	Hilario (Pob.)	Pepang	October 21-25, 1987	30.00 20-ha farmland
Espirio	Lorenzo (Pob.)	Pepang	October 21-25, 1987	•
Espirio	Macayepyep	Pepang	October 21-25, 1987	35.00 Bare
•	Sinamar	Pepang	October 21-25, 1987	30.00 Bare
Espiritu	والطاالعة	16		

MUNI-		TYPHOON	DATE OF	RIVER WASHED AREA
CIPALITY	BARANGAY	NAME	OCCURRENCE	HECTARAGE PRESENT LAND USE
Espiritu	Tabcabagan	Pepang	October 21-25, 1987	30.00 Bare
Espiritu	Valdez	Gening	June 28-30, 1967	30.00 Bare
Mascos	Cacalean	Gening	June 28-30, 1967	0.50 Bare
Marcos	Dequioag	Gening	June 28-30, 1967	15.00 8-ha peanut & mango farmland
Marcos	Elizabeth (Culao)	Gening	June 28-30, 1967	30.00 Bare
Marcos	Escoda	Gening	June 28-30, 1967	120.00 Bare
Marcos	Ferdinand	Gening	June 28-30, 1967	10.00 Bare
Marcos	Fortuna	Gening	June 28-30, 1967	7.00 Rivercourse
Marcos	Pacifico (Agunit)	Gening	June 28-30, 1967	70.00 Bare
Marcos	Sandago	Gening	June 28-30, 1967	10.00 Bare
Marcos	Tabucbuc (Ragas)	Gening	June 28-30, 1967	15.00 4-ha rooterop farmland
Marcos	Valdez	Gening	June 28-30, 1967	5.00 Bare
Dingras	Albano (Pob.)	Pepang	October 21-25, 1987	0.25 Bare
Dingras Dingras	Bagut	Pepang	October 21-25, 1987	<u>.</u>
Dingras Dingras	Parado(Bangay)	Kuring	June 20-24, 1985	•
_	Baresbes	Miding	August 17-19, 1986	30.00 Bare
Dingras Dingras	Barong	Rosing	July 19-21, 1971	100.00 Bare
•		Pepang	October 21-25, 1987	•
Dingras	Burgcag		October 21-25, 1987	
Dingras	Dancel	Pepang	July 20-26, 1977	10.00 Bare
Dingras	Elizabeth	Goring	October 27, 1991	2.00 Fishpond
Dingras	Foz	Trining		50.00 Bare
Dingras	Guerrero (Pob.)	Pepang	October 21-25, 1987	20.00 Bare
Dingras	Lanas	Maring	August 27-30, 1984	38,00 10-ha corn farmland
Dingras	Lumbad	Pepang	October 21-25, 1987	38.00 IO-RA COID INDBANG
Dingras	Madamba (Pob.)	Pepang	October 21-25, 1987	00.00
Dingras .	Mandaloque	Gening	June 28-30, 1967	20.00 Bace
Dingras	Medina	Pepang	October 21-25, 1937	1,00 Bare
Dingras	Peralta (Pob.)	Pepang	October 21-25, 1987	3.00 Bare
Dingras	Puruganan (Pob.)	Pepang	October 21-25, 1987	
Dingras	Root (Baldias)	Pepang	October 21-25, 1987	20.00 Farmland in 1 year
Dingras	Sagpatan	Pepang	October 21-25, 1987	25,00 Bare
Dingras	San Esteban	Pepang	October 21-25, 1987	1.00 0.2-ha farmland
Dingras	Francisco	Maring	August 27-30, 1984	27.00 Bare
Dingras	San Marcelino (Padong)	Maring	August 27-30, 1984	50.00 Bare
Dingras	San Marcos	Pepang	October 21-25, 1987	100.00 Bare
Dingras	Sulquiano	Pepang	October 21-25, 1987	· · · · · · · · · · · · · · · · · · ·
Dingras	Suyo (3)	Pepang	October 21-25, 1987	
Dingras	Ver	Maring	August 27-30, 1984	30.00 Bare
Solsona	Aguitap	Perang	October 21-25, 1987	25.00 Bare
Solsona	Bagbag	Pepang	October 21-25, 1987	125.00 Bare
Selsona	Bagbago	Pepang	October 21-25, 1987	8.00 4-ha farmland
Solsona	Barcelona	Pepang	October 21-25, 1987	30.00 Bare
Solsona	Bubuos	Pepang	Ociober 21-25, 1987	59.00 1-ha farmland
Solsona :	Capurictan	Pepang	October 21-25, 1987	2.00 Bare
Solsona	Catangearan	Pepang	October 21-25, 1987	0.50 Bare
Solsona -	Darasdas	Maring	September 20, 1992	15.00 Barc
Solsona	Juan (Pob.) (1)	Pepang	October 21-25, 1987	1.50 Restoration in 1 year
Solsona	Laureta (Pob.)	Penang	October 21-25, 1987	30,00 15-ha farmland
	Lipay	Pepang	October 21-25, 1987	75.00 Bare
Solsona Solsona	Maananteng	Pepang	October 21-25, 1987	15.00 Bare

MUNI-	ctarage and present land use	TYPHOON	DATE OF	RIVER WASHED AREA
CIPALITY	BARANGAY	NAME	OCCURRENCE	HECTARAGE PRESENT LAND USE
Solsona	Manalpac	Pepang	October 21-25, 1987	15.00 Bare
Solsona	Mariquet	Pepang	October 21-25, 1987	8.00 Bare
Solsona	Nagpatpatan	Pepang	October 21-25, 1987	20.00 Bare
Solsona	Nalasio	Pepang	October 21-25, 1987	120.00 Some planted with vegetables.
Solsona	Puttao	Pepang	October 21-25, 1987	20.00 Bare
Solsona	San Juan	Pepang	October 21-25, 1987	25.00 Bare
Solsona	San Julian	Pepang	October 21-25, 1987	10.00 Bare
Solsona	Santa Ana	Pepang	October 21-25, 1987	10.00 Bare
Solsona	Santiago	Isang	August 29, 1992	30.00 Bare
Solsona	Talugtog	Pepang	October 21-25, 1987	24.00 Bare
Nueva Era	Acnam	Pepang	October 21-25, 1987	5.00 Bare
Nueva Era	Cabinauran	Gening	June 28-30, 1967	70.00 20-ha farmland
Nueva Era	Caray	Pepang	October 21-25, 1987	30.00 Barc
Nueva Era	Poblacion	Pepang	October 21-25, 1987	15.00 Bare
Nueva Era	Santo Nino	Gening	June 28-30, 1967	8.00 Bare
JICOTA ZJEN	TOTAL		. :	2,162.74

Table 21	Flood	preparedness	and flood	fighting :	systems. (1/6)
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	MUNI-		
	CIPALITY	BARANGAY	FLOOD PREPAREDNESS
	Piddig	Bimmanga	Bgy, officials instruct people to transfer to higher areas.
	Piddig	Callusa	Bgy, people construct temporary river bank protection.
	Piddig	Dupitac	Bgy, people construct temporary river bank protection.
	Piddig	Estancia	Bgy, people construct temporary river bank protection.
	Piddig	Gayamat	DPWH constructed spurdikes.
	Piddig	Libnaoan	Bgy, officials advise people to prepare for possible evacuation.
	Piddig	Mangitayag	Bgy, officials instruct people to evacuate.
	Laoag City	1 San Lorenzo (Pob.)	Bgy, officials instruct people to evacuate.
	Laoag City	30-2 Suyo	Bgy, officials instruct people to evacuate.
	Laoag City	30-b Santa Maria	Bgy, officials advise people to prepare for possible evacuation.
:	Laoag City	34-b Gabu Norte East	Bgy, officials advise people to prepare for possible evacuation.
	Laoag City	43 Cavit (4)	Bgy, officials advise people to prepare for possible evacuation.
	Laoag City	45 Tangid	Bgy, officials advise people to prepare for possible evacuation.
	Lacag City	51-a Nangalisan East	Bgy, officials advise people to prepare for possible evacuation.
	Laoag City	51-b Nangalisan West	Bgy, officials advise people to prepare for possible evacuation.
	Laoag City	53 Riceng	Bgy, officials advise people to prepare for possible evacuation.
	Lacag City	54-b Camangaan	Bgy, officials advise people to prepare for possible evacuation.
	San Nicolas	1 San Francisco (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
:	San Nicolas	24 Santa Monica (Nagrebcan)	None
:	San Nicolas	San Baltazar (Bo.2) (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
ì	San Nicolas	San Bartolome (Bo.4) (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
ŧ	San Nicolas	San lidefonso (Bo.3) (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
	San Nicolas	San Juan Bautista	None
٠.	Sarrat .	San Agustin (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
. :	Sarrat	San Andres	None
	Sarrat	San Antonio	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	San Cristobal	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	San Felipe	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	San Francisco (Pob.)	Bgy, people construct temporary river bank protection.
	Sarrai	San Isidro	None
	Sarrat	San Joaquin (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
:	Sarrat	San Jose	None
	Sarrat	San Leandro (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	San Lorenzo	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	San Manuel	None
	Sarrat	San Marcos	None
	Sarrat	San Nicolas	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	San Roque	Bgy, officials advise people to prepare for possible evacuation.
-	Sarrat	San Vicente (Pob.)	LGU declogs drainage canals.
	Sarrat	Santa Barbara (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
	Sarrat	Santo Tomas	None
	Espiritu	Balioeg	People construct temporary trench made of bamboo and stones.
	Espirito	Bugasi	People construct temporary trench made of bamboo and stones.
	Espiritu	Caestebanan	None
	Espiritu	Caribquib	None
•	Espiritu	Catagtaguen	People construct temporary trench made of bamboo and stones.
	Espiritu	Hilario (Pob.)	None
1	Espirio	Lorenzo (Pob.)	People construct temporary trench made of bamboo and stones.
	Espiritu	Масауеруер	None
	Espiritu	Sinamar	Bgy, people construct temporary river bank protection.

•	ood preparedness and flood fighting (	2/6)
MUNI	BARANGAY	FLOOD FIGHTING
CIPALITY	Bimmanga	Evacuation of affected families to higher grounds.
Piddig	Callusa	None
Piddig	Dupitac	None
Piddig	Estancia	Evacuation of affected families to higher grounds.
Piddig	Gayaniat	None
Piddig	Libnaoan	Evacuation of affected families to higher grounds.
Piddig Piddig	Mangitayag	Evacuation of affected families to higher grounds.
Lacag City	1 San Lorenzo (Pob.)	Evacuation of affected families to higher grounds.
Lacag City	30 a Suyo	Evacuation of affected families to higher grounds.
Lacag City	30-b Santa Maria	Evacuation of affected families to higher grounds.
Lacag City	34-b Gabu Norte East	Evacuation of affected families to higher grounds.
Lacag City	43 Cavit (4)	None
Ladag City	45 Tangid	Evacuation of affected families to higher grounds.
Laoag City	51-a Nangalisan East	Evacuation of affected families to higher grounds.
Laoag City	51-b Nangalisan West	Evacuation of affected families to higher grounds.
Ladag City	53 Rioeng	Evacuation of affected families to higher grounds.
• •		Evacuation of affected families to higher grounds.
Lacag City	1 San Francisco (Pob.)	Evacuation of affected families to higher grounds.
San Nicolas		Evacuation of affected families to higher grounds.
		Evacuation of affected families to higher grounds.
San Nicolas	0.053	Evacuation of affected families to higher grounds.
San Nicolas		Evacuation of affected families to higher grounds.
San Nicolas		Evacuation of affected families to higher grounds.
San Nicolas	San Agustin (Pob.)	Evacuation of affected families to higher grounds.
Sarrat	San Andres	None
Sarrat	San Antonio	None
Sarrat Sarrat	San Cristobal	Evacuation of affected families to higher grounds.
Sarrat	San Felipe	None
Sarrat	San Francisco (Pob.)	None
· -	San Isidro	Nooe
Sarrat Sarrat	San Joaquin (Pob.)	Evacuation of affected families to higher grounds.
100	San Jose	None
Sarrat Sarrat	San Leandro (Pob.)	Evacuation of affected families to higher grounds.
	San Lorenzo	Evacuation of affected families to higher grounds.
Sarrat Sarrat	San Manuel	None
Sarrat	San Marcos	Evacuation of affected families to higher grounds.
Sarrat	San Nicolas	None
Sarrat	San Roque	None
Sarrat	San Vicente (Pob.)	Evacuation of affected families to higher grounds.
Sarrat	Santa Barbara (Pob.)	None
Sarrat	Santo Tomas	Evacuation of affected families to higher grounds.
Espiria	Balioeg	Evacuation of affected families to higher grounds.
Espiriu	Bugasi	Evacuation of affected families to higher grounds.
Espiritu	Caestebanan	Evacuation of affected families to higher grounds.
Espirio	Caribquib	None
Espiritu Espiritu	Cataguaguen	Evacuation of affected families to higher grounds.
Espirio Espirio	Hilario (Pob.)	Evacuation of affected families to higher grounds.
Espiritu	Lorenzo (Pob.)	None
Espiritu	Масаусруср	Evacuation of affected families to higher grounds.
Espiritu	Sinamar	Evacuation of affected families to higher grounds.
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Table 21	Flood	preparedness.	and flood	fighting	systems. (	(3/6)
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MUNI- CIPALTIY	BARANGAY	FLOOD PREPAREDNESS
Espiritu	Tabubagan	None
Espiria	Valdez	People construct temporary trench made of bamboo and stones.
Marcos	Cacafean	Bgy, people construct temporary river bank protection.
Marcos	Daquiosg	None
Marcos	Elizabeth (Culao)	Bgy, people construct temporary river bank protection.
Marcos	Escoda	None
Marcos	Ferdinand	Bgy, people construct temporary river bank protection.
Marcos	Foroma	Bgy, people construct temporary river bank protection.
Marcos	Pacifico (Agunit)	Bgy, people construct temporary river bank protection. Bgy, people construct temporary river bank protection.
Marcos	Sandago	Bgy, people construct temporary river bank protection.
Marcos	Tabuchue (Ragas)	Bgy, people construct temporary river bank protection.
Marcos	Valdez	People transfer furnitures to higher places.
1 + 1 +		Bgy, people construct temporary river bank protection.
Dingras	Albano (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Bagut	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Parado(Bangay)	DPWH constructed spurdikes and ripraps.
Dingras	Baresbes	DPWH constructed spurdikes and ripraps.
		DPWH dredged Burnay River and constructed temporary dikes.
Dingras	Barong	Bgy, people construct temporary river bank protection.
		DPWH dredged Burnay River and constructed temporary dikes.
Dingras	Bungcag	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Dancel	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Elizabeth	Bgy, people construct temporary river bank protection.
Dingras	Foz	Bgy, people construct temporary river bank protection.
Dingras	Guerrero (Pob.)	Bgy, people construct temporary river bank protection.
Dingras	Lanas	Bgy, people construct temporary river bank protection.
Dingras	Lumbad	Bgy, people construct temporary river bank protection.
Dingras	Madamba (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Mandaloque	Bgy, people construct temporary river bank protection.
Dingras	Medina	DPWH constructed spurdikes and ripraps.
Dingras	Peralta (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Puruganan (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
Dingras	Root (Baldias)	None
Dingras	Sagpatan	None
Dingres	San Esteban	People transfer commodities and livestocks to higher places.
		Bgy, people construct temporary river bank protection.
Dingras	Francisco	DPWH constructed spurdikes and ripraps.
Dingras	San Marcelino (Padong)	Bgy, people construct temporary river bank protection.
Dingras	San Marcos	Bgy, people construct temporary river bank protection.
Dingras	Sulquiano	Rone
Dingras	Suy o (3)	None
Dingras	Vet	Bgy, people construct temporary river bank protection.
Solsona	Aguitap	Bgy, people construct temporary river bank protection.
Solsona	Bagbag	Bgy, people construct temporary river bank protection.
Solsona	Bagbago	People construct temporary trench made of hamboo and stones.
Solsona	Barcelona	Bgy, people construct temporary river bank protection.
Solsona	Bubuos	Bgy, officials advise people to prepare for possible evacuation.
Solsona	Capurictan	None
Solsona	Catangrasan	People construct temporary trench made of bamboo and stones.

MUNI-	DADANGIY	FLOOD FIGHTING
CIPALITY	BARANGAY	None
Espiritu	Tabtabagan	Evacuation of affected families to higher grounds.
Espiritu	Valdez	None
Aurcos	Cacafean	None
Aarcos	Daquioag	
Aarcos	Elizabeth (Culao)	None
Aarcos	Escoda	None
Marcos	Ferdinard	None
Marcos	Fortuna	None
Marcos	Pacifico (Agunit)	Transfer of furnitures to higher grounds.
		None
Marcos	Santiago	
Marcos	Tabuchuc (Ragas)	None
Marcos	Valdež	None
		Evacuation of affected families to higher grounds.
Dingras	Albano (Pob.)	Evacuation of affected families to higher grounds.
Dingras	Bagut	
Dingras	Parado(Bangay)	None
Dingras	Baresbes	
		Construction of emergency river bank protection.
Dingras	Barong	
		None
Dingras	Bungcag	Evacuation of affected families to higher grounds.
Dingras	Dancel	Evacuation of affected families to higher grounds.
Dingras	Etizabeth	None
Dingras	Foz	None
Dingras	Guerrero (Pob.)	Evacuation of affected families to higher grounds.
Dingras	Lanas	None
Dingras	Lumbad	None
Dingras	Madamba (Pob.)	Evacuation of affected families to higher grounds.
· .	Mandalogue	None
Dingras Dingras	Medina	None
Dingras		Evacuation of affected families to higher grounds.
Dingras	Peralta (Pob.)	Evacuation of affected families to higher grounds.
Dingras	Puruganan (Pob.)	Evacuation of affected families to higher grounds.
Dingras	Root (Baldias)	Evacuation of affected families to higher grounds.
Dingras	Sagpatan	None
Dingras	San Esteban	MONE
	m	Construction of emergency river bank protection.
Dingras	Francisco	
Dingras	San Marcelino (Padong)	None
Dingras	San Marcos	None Transfer of furnitures to higher grounds.
Dingras	Sulquiano	Evacuation of affected families into higher areas.
Dingras	Suyo (3)	
Dingras	Ver	None
Solsona	Aguitap	Construction of emergency river bank protection.
Solsona	Baghag	Evacuation of affected families to higher grounds.
Solsona	Bagbago	Evacuation of affected families to higher grounds.
Solsona	Barcelona	None
Solsona	Bubuos	None
Solsona	Capurictan	Evacuation of affected families to higher grounds.
	Catangraran	None

MUNI-		
CIPALITY	BARANGAY	FLOOD PREPAREDNESS
Solsona	Darasdas	Bgy, people construct temporary river bank protection.
Solson	Juan (Pob.) (1)	None
Solsona	Laureta (Pob.)	Bgy, officials advise people to prepare for possible evacuation.
Solsona	Lipay	Bgy, people construct temporary river bank protection.
Solsona	Maananteng	Bgy, people construct temporary river bank protection.
Solsona	Manaipac	Bgy, officials advise people to prepare for possible evacuation.
Solsona	Mariquet	None
Solsona	Nagpatpatan	Bgy, people construct temporary river bank protection.
Solsona	Natasin	Bgy, people construct temporary river bank protection.
Solsona	Puttao	Bgy, people construct temporary river bank protection.
Solsona	San Juan	Bgy, people construct temporary river bank protection.
Solsona	San Julian	Bgy, people construct temporary river bank protection.
Solsona	Santa Ana	Bgy, people construct temporary river bank protection.
Solsona	Santiago	Bgy, people construct temporary river bank protection.
Solsona	Talugtog	Bgy, people construct temporary river bank protection.
Nueva Era	Acnam	None
Nueva Era	Cabittauran	Bgy, people construct temporary river bank protection.
Nueva Era	Сагау	Bgy, people construct temporary river bank protection.
Nueva Era	Poblacion	Bgy, people construct temporary river bank protection.
Nueva Era	Santo Nino	Bgy, people construct temporary river bank protection.

MUNI-		
CIPALITY	BARANGAY	FLOOD FIGHTING
Solsona	Darasdas	Construction of emergency river bank protection.
Solsona	Juan (Pob.) (1)	Evacuation of affected families to higher grounds.
Solsona	Laureta (Pob.)	Evacuation of affected families to higher grounds.
Sotsona	Lipay	Construction of emergency river bank protection.
Solsona	Maananteng	Evacuation of affected families to higher grounds.
Solsona	Manalpac	None
Solsona	Mariquet	None
Solsona	Nagpatpatan	Evacuation of affected families to higher grounds.
Solsona	Nelasin	Evacuation of affected families to higher grounds.
Solsona	Puttao	None
Solsona	San Joan	Construction of emergency river bank protection.
Solsona	San Julian	None
Sofsona	Santa Ana	None
Solsona	Santiago	Evacuation of affected families to higher grounds.
Solsona	Talugtog	Construction of emergency river bank protection.
Nueva Era	Acnam	None
Nueva Era	Cabittauran	None
Nueva Era	Caray	Evacuation of affected families to higher grounds.
Nueva Era	Poblacion	None
Nueva Era	Santo Nino	Evacuation of affected families to higher grounds.

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		5000	SAN		***				NUEVA	: :
REQUEST	PIDDIG	כנונל	NICOLAS	SARRAT	ESPIRITU	MARCOS		DINGRAS SOLSONA	ERA	TOTAL
Construction of embankment			3	•- <b>-</b>		1	2	64		6
Construction of spur dike	4	74				7	9	<b>н</b>		15
Dredging of the river	4	ν,	'n	ដ	<b>ه</b> ا	6	ជ	22	47	z
Forestation of mountain area								4	•	<b>50</b>
Bank protection	E.		7	10	•	<b>'</b> O	51	14	m	85
Cut-off channel or re-channelling of river			4	7	==	8	3	83	* *	អ
General river control	2	∞	n	σ.	•	7		<b>%</b>		45
Maintenance of present bank and river		<b>,</b>		٠	:		6	н		٠
Construction of sabo dam						•		es		. 4
Repair of irrigation channel		7			<b>6</b>	:		. 1.	•	<b>5</b>
Others				4	•					•