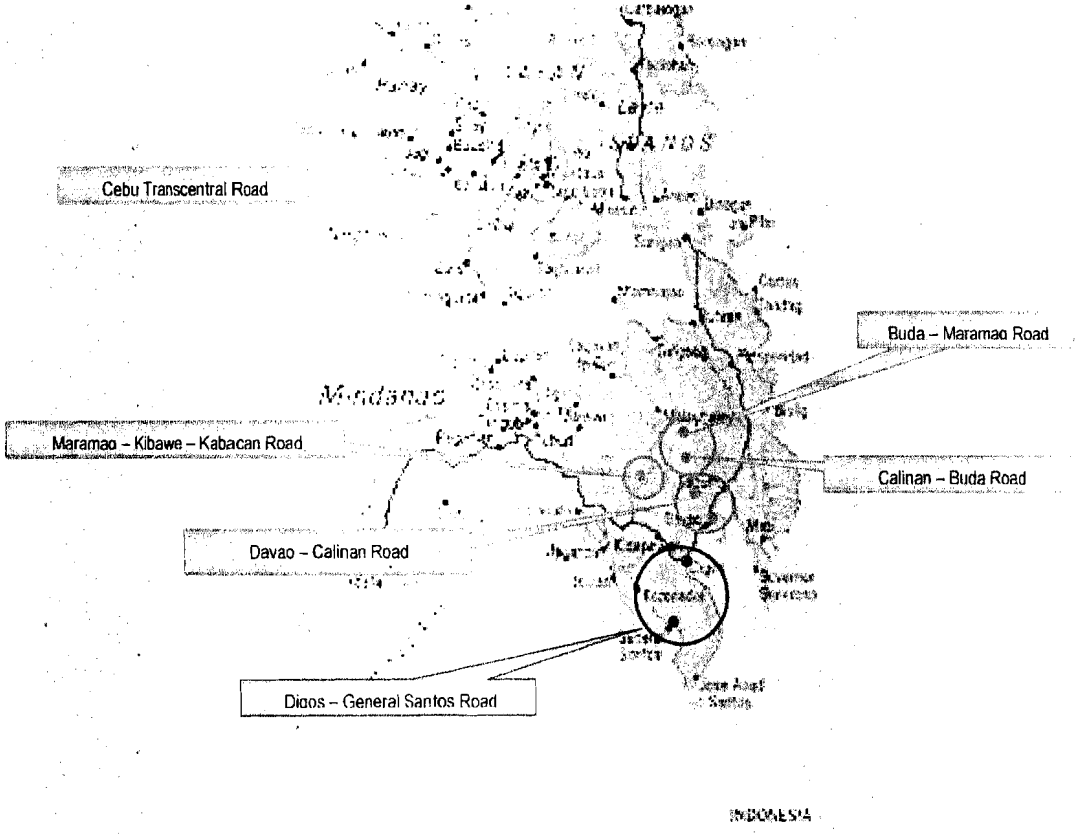
REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BONIFACIO DRIVE, PORT AREA, MANILA

FEASIBILITY STUDIES AND DETAILED ENGINEERING DESIGN OF REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS AND ROAD SLIP SECTIONS
IBRD-Assisted National Road Improvement and Management Program
Loan No. 7006-PH

Draft Final Report on the
Environmental and Social Components

DIGOS-GENERAL SANTOS ROAD



JAPAN OVERSEAS CONSULTANTS CO., LTD.
in association with
TECHNIKS GROUP CORPORATION
CERTEZA DEVELOPMENT CORPORATION
CONSULTING ENGINEERS CONSTRUCTION MANAGERS

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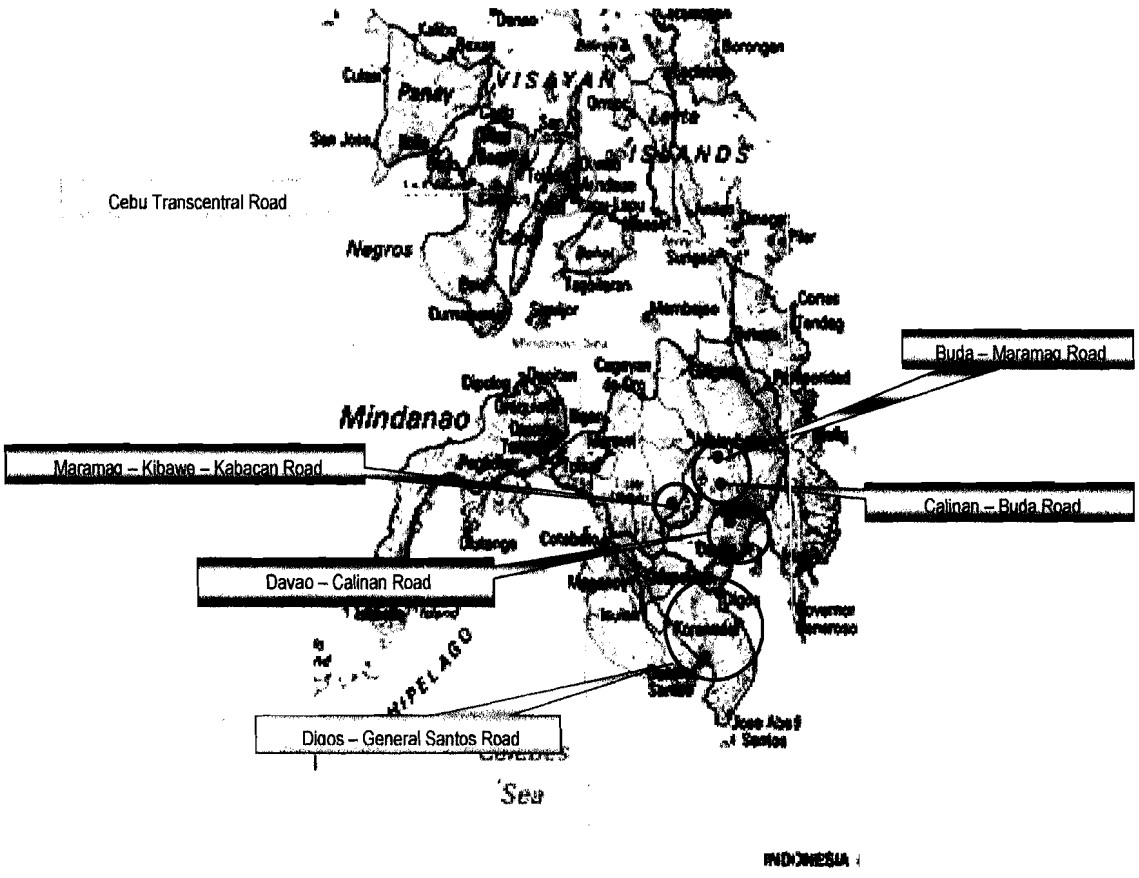

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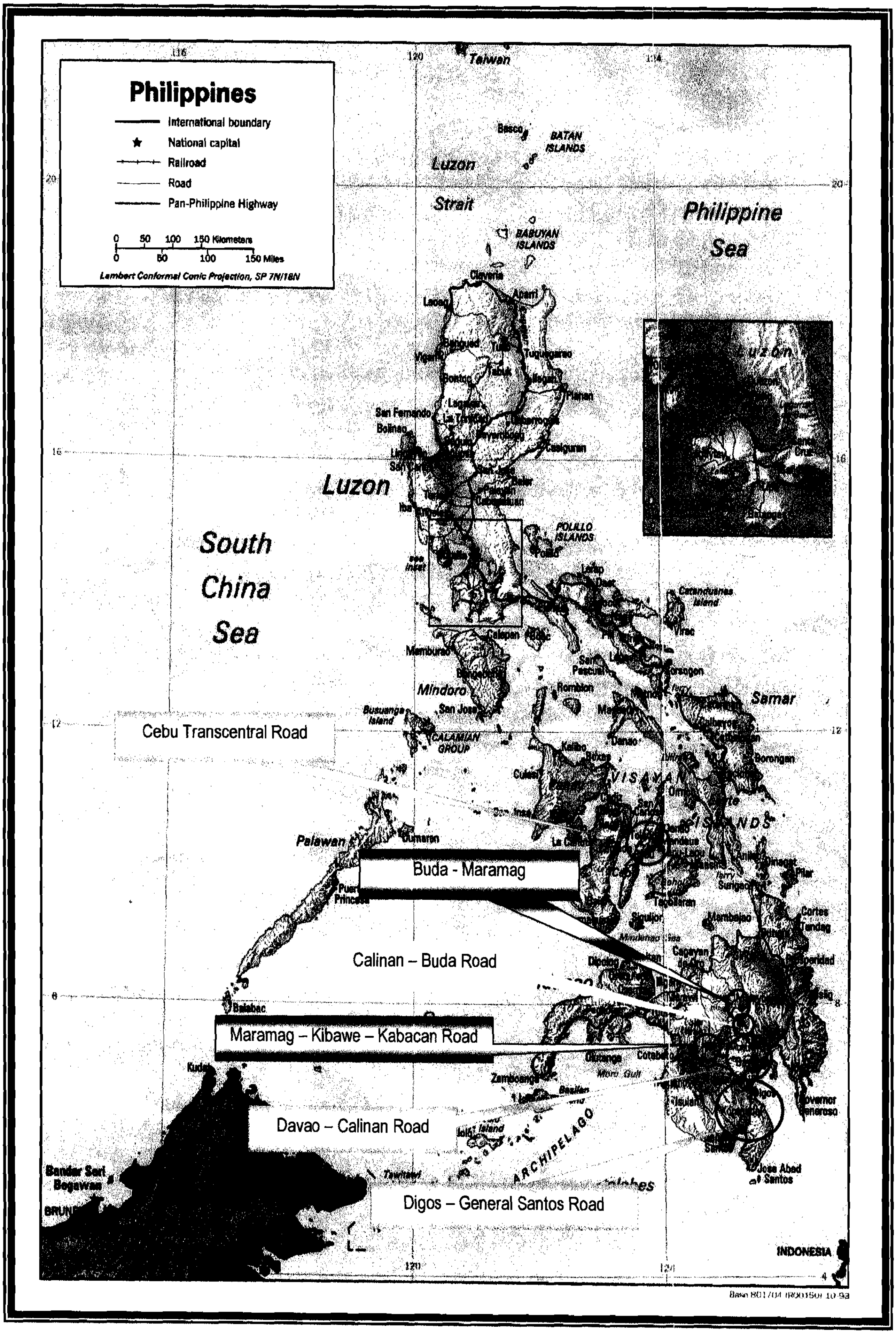

Philippines
International boundary
National capital
Railroad
Road
Pan-Philippine Highway
0 50 100 150 Kilometers
0 50 100 150 Miles
Lambert Conformal Conic Projection, SP 7N/18N
Taiwan
Luzon Strait
BATAN ISLANDS
BABUYAN ISLANDS
Philippine Sea
Luzon
South China Sea
POLILLO ISLANDS
Mindoro
Samar
Palawan
Cebu Transcentral Road
Buda - Maramag
Calinan – Buda Road
Maramag – Kibawe – Kabacan Road
Davao – Calinan Road
Digos – General Santos Road
INDONESIA

KEY MAP

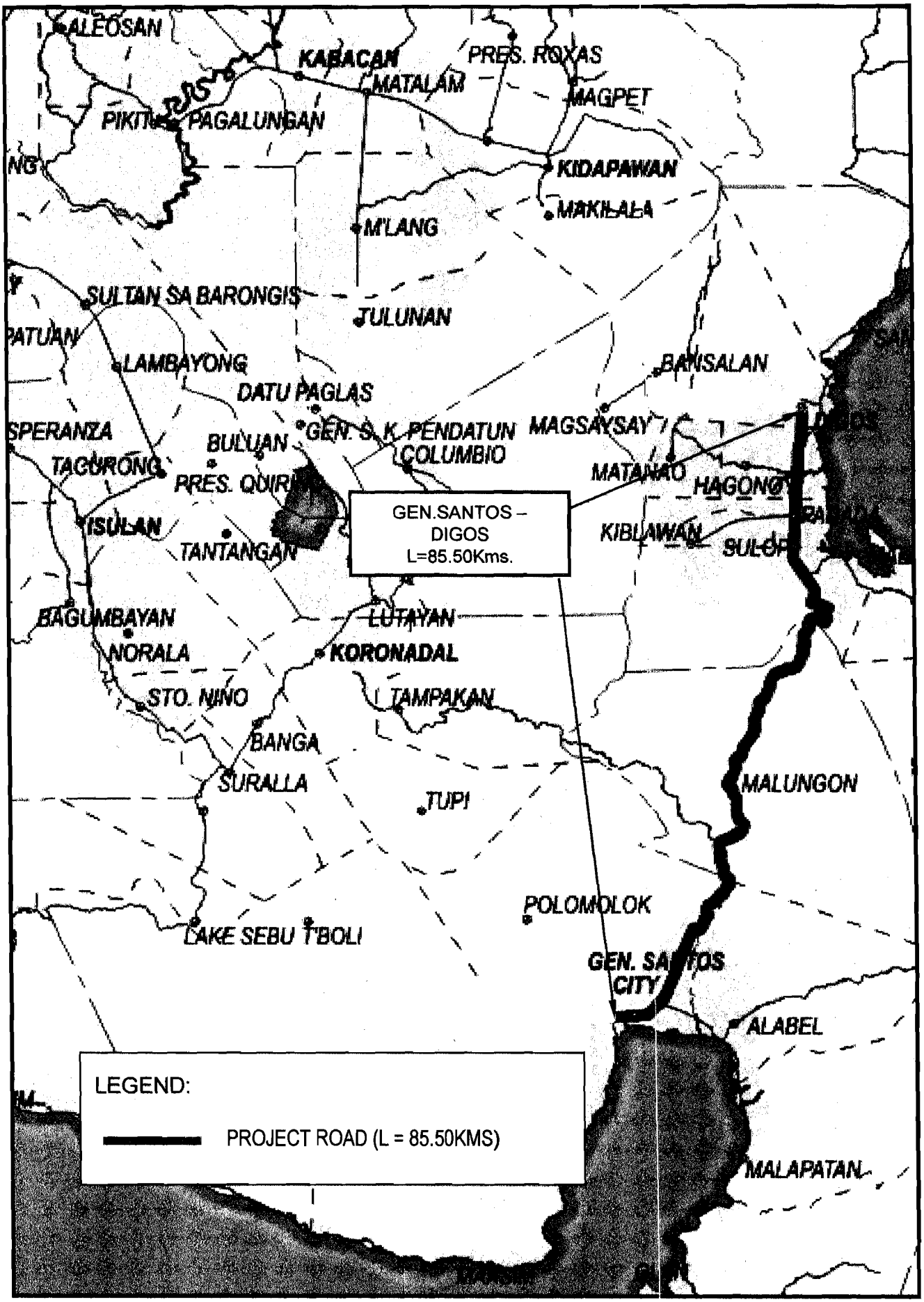


FIGURE 1
DIGOS-GENERAL SANTOS ROAD

1.0 GENERAL STATEMENT

PROJECT DESCRIPTION
OF THE REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS
AND ROADSLIP SECTIONS ALONG DIGOS-GENERAL SANTOS ROAD
(An IBRD-Assisted First National Road Improvement and Management Program)

1.0 GENERAL STATEMENT

The Government of the Philippines through the Department of Public Works and Highways is presently implementing the International Bank for Reconstruction and Development (IBRD) – Assisted First National Road Improvement and Management Program (FNRIMP). The FNRIMP aims to continue develop a sustainable road development and management program for the national road network. It is programmed over a period of nine years commencing with Phase I for the year 2002-2003, Phase II for 2004-2006 and Phase III for 2007-2009.

The Remedial Works in Specified Landslide Areas and Slip Sections of Digos-General Santos Road is an offshoot of follow-up to the completed IBRD-Assisted Highway Management Program (HMP). The services of Japan Overseas Consultants (JOC) were commissioned by the DPWH in partnership with Techniks Group Corporation (TGC) and Certeza Development Corporation (CDC). The partnership was necessitated to effectively ensure the provision of engineering services for the Feasibility Studies and Detailed Engineering Design.

During the implementation of the civil works component of the HMP, there were sections/segments of the project roads that experienced or have been noted as disaster prone areas due to landslides and road slips. In order to address these problems and establish mitigating measures, the DPWH is initiating the conduct of in-depth study which includes comprehensive investigation and analysis of landslide areas and road slip sections, and detailed design and documentation and contract packaging for appropriate remedial works including slope protection and slope stabilization works.

2.0 PROJECT DESCRIPTIONS

2.0 PROJECT DESCRIPTIONS

The Digos-General Santos Road starts from Digos City, Davao del Sur and ends in General Santos City with a total road length of about 81.0 kms. The remedial works starts from Sta. 21 and end at Sta. 68. The problem and disaster prone areas have been identified during the feasibility study, which highlighted all works and countermeasures to be undertaken. The project road connects the cities of Davao, Digos City, is situated in the northern portion of the province of Davao del Sur. The road serves the port cities of northern and southern Mindanao.

The project focuses on the current situation of the road that requires remedial and additional engineering works. There are 34 sections along the road that have been designed for slope protection, improvement of drainage system, and other engineering measures that would address the problem landslides and road slips area.

2.1 OBJECTIVES

The objective of the project is to remediate and prevent the occurrence of landslides on high cut side slopes and roadslip sections along the project road. It aims: (a) to provide driving safety to motorists all the time; (b) to provide continuous flow of traffic even during bad weather; (c) to promote and sustain regional industries and agricultural activities; (d) to encourage and promote tourism; (e) to provide time safety of the residents in the community; (f) to prolong the life span of the roadway facility; and (g) to promote economic growth of roadside communities.

2.2 SCOPE OF WORK

The Consulting Services were commissioned in two (2) phases: (a) Phase I: Feasibility Study; and (b) Phase II: Detailed Design. The project covers the Remedial Works in Specified Landslide Areas and Slip Sections of Digos-

General Santos Road. Under considerations are 34 sections with 48 locations including 12 specified ones as shown in Figure 2-1.

The Feasibility Study cover the technical, economic and environmental aspects of the project road. It includes:

a) inspection and preliminary assessment of the hazard, risk and mechanisms of failure;
b) identification of remedial options and countermeasures for evaluation;
c) definition of scope for detailed engineering design.
d) cost estimation of countermeasures;
e) cost/benefit analysis; and
f) preliminary environmental assessment and environmental scoping

The Detailed Design covers the technical, economic, environmental and tendering aspects of the civil works. It includes:

a) comprehensive investigation and analysis of the landslide areas and roadslip sections;
b) detailed design and costing of countermeasures;
c) detailed documentation and contract packaging of remedial works, slope protection and stabilization works;
d) environmental and social assessment;
e) preparation of EIS and RAP reports; and
f) development of Environmental Management Plan and Environmental Monitoring Program

The items d. e. and f of the Detailed Design are summarized in this report.

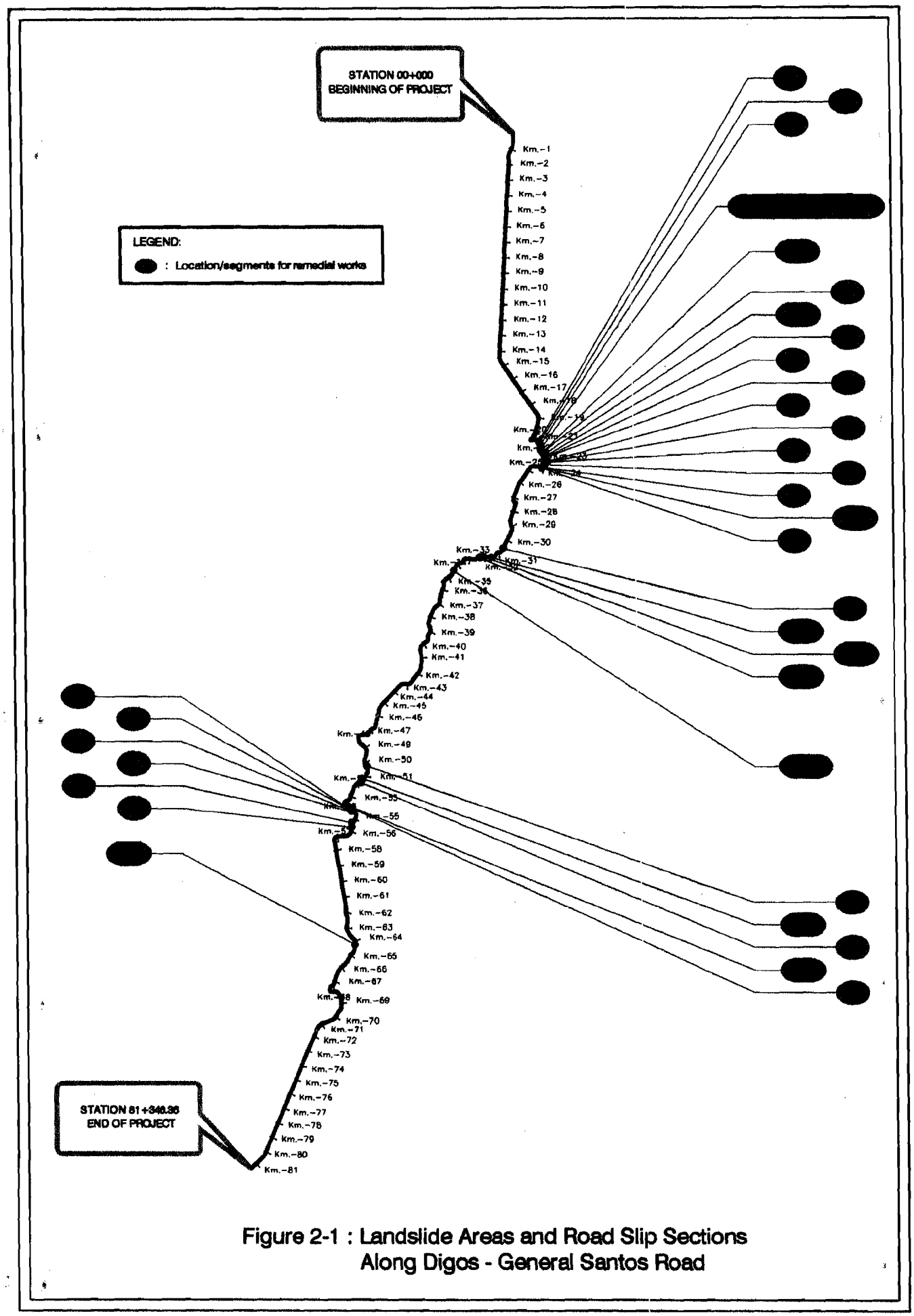


Figure 2-1 : Landslide Areas and Road Slip Sections Along Digos - General Santos Road

3.0 ECOLOGICAL CHARACTERISTCS OF ROAD INFLUENCE AREA

3.0 ECOLOGICAL CHARACTERISTICS OF ROAD INFLUENCE AREA

The direct road influence areas of the Digos-General Santos Road are composed of Digos City, Sarangani and six (6) municipalities of General Santos.

The city of Digos is 56 km. from Davao City which is the regional center of economic delineation for development in Southern Mindanao. The Digos City forms the northern portion of the province of Davao del Sur. Sarangani Province is composed of one land-locked municipality and six (6) coastal towns along the southern tip of Mindanao.

3.1 LOCAL GEOGRAPHY AND LANDUSE

Digos City is at the cross road of the port cities of General Santos, Cotabato and Davao. It occupies common boundaries with the municipalities of Hagonoy on the south from the west coast of Davao Gulf. The Digos-General Santos Road passes kilometer post 64 of the Provincial Highway, with Bancahas on the north, Sinarangan and Miral Creek on the northwest and Sta. Cruz and Kibanban Creek on the northeast. Digos City is bounded on the east by Davao Gulf.

The province of Sarangani lies between latitudes 5°33'41" and 6°32'44" North and between longitudes 124°21'39" to 125°55'11" East. It is bounded on the north by the province of South Cotabato, on the south by Sarangani Bay and Celebes Sea, on the east by Davao del Sur and on the west by the Sultan Kudarat. Between the eastern and western parts is the General Santos City.

The existing landuses in and around the road influence area are summarized in Table 3-1. The combined area is 392,611.48 hectares with almost 93% of the land area belonging to Sarangani. The road impact area is vastly agri-producing land.

Table 3-1
Existing Land Use
Digos City and Province of Sarangani, 2000

Land Uses	Digos City	Sarangani	Total
Agricultural	8,359.00	126,859.95	135,218.95
Industrial	2.00	22.90	24.90
Commercial	52.50	48.36	100.86
Residential	2,734.00	420.60	3,154.60
Institutional	53.85	150.01	203.86
Others	17,508.65	236,399.66	253,908.31
Total	28,710.00	363,901.48	392,611.48

Source: Socio-Economic Profile

From the records of DENR, the total land area of Davao del Sur on the other hand has 65% or 2,558.74 sq.km devoted to forestland. A total of 1,375.27 sq.km is alienable and disposable (A&D) land. Of the total forest land about 13% are considered as forest reserve, 71% as timberland and the remaining 16% are national parks.

Data from the Bureau of Soil and Water Management show Region XI with a total of 2,473.03 sq.km. used for agriculture. Of which 2,220.02 sq.km are devoted to crops (e.g. rice, corn, mango, fruit trees, coconut, coffee, banana). Lands used for livestock cover 171 sq.km. and 82.01 sq.km for fishery. Table 3-2 lists the summary of the area distribution of existing landuse per municipality.

3.2 TOPOGRAPHY AND CLIMATE

About 65% of the total land area are classified as rolling and mountainous. Flat undulating terrain dominates the alluvial and coastal plains of Digos, Malanao, Bansalan, Magsaysay, Kiblawan, Hagonoy, Padada and Sulop.

The level to nearly level terrain of the road influence area covers about 1,036.14 sq.km. or 26.34% of the total area of the Davao del Sur Province. Areas with

Table 3-2 Area Distribution of Existing General Land Use in Davao del Sur (in square kilometers)

Municipality	Built-up Area	Agri-culture	Forest	SPECIAL USES										
				Mining/ Quarry	Grassland Pasture	Industrial	Agro-Industrial	Tourism	Fish-pond	Infra/ Utilities	Mangrove Coastal Zone	River & Creeks	Other Uses	Total
Bansalan	8.217	124.213	9.63		13.860							1.740	0.090	157.750
Digos	27.34	83.590	14.47		141.850				0.620					267.870
Don Marcelino	1.153	216.397	186.06	1.22	0.864			0.065		1.553			0.010	407.320
Hagonoy	5.01	101.420		0.20			3.170		3.800	1.790	1.200		0.050	116.640
J. Abad Santos	1.290	77.222	641.78		1.250		0.030				0.997		11.824	734.393
Kiblawan	2.396	116.240	74.76		189.743					1.820		5.000		389.959
Magsaysay	3.78	109.105	6.00	0.12	50.864									169.869
Malaglag	2.51	165.540	14.24		0.500				1.913	1.390			0.029	186.124
Malita	4.475	126.460	264.47	50.46	61.515	0.327			3.475		1.383		0.024	512.589
Matanao	7.538	82.840	14.90	0.00	97.120									202.398
Padada	2.317	36.970		0.11	0.645		1.326		1.552	1.680		0.424		45.019
Sta. Cruz	3.21	138.775	5.04	0.35					0.050	0.305	7.52			155.250
Sta. Maria	6.076	183.170	83.00						1.868	0.712	2.88			277.706
Sarangani	0.64	121.130	76.10					0.059	1.550	2.150	0.650	2.510		204.785
Sulop	1.713	84.280		0.08	14.410				3.527	1.622		0.524	0.020	106.174
Davao del Sur	77.6650	1,767.35	1,390.45	52.5330	572.621	0.327	4.526	0.124	18.355	13.022	14.630	10.198	12.047	3,933.846

Source : PPDO BASED ON Draft MCDP

gently sloping to undulating topography of 8-18% slope cover 520.4 sq.km of 13.23% of the total land area.

Those with rolling to moderately steep topography of 18-30% slope cover 704.13 sq.km. or 17.9% of the total land area. Highlands with remarkably steep and mountainous terrain of more than 30% have an aggregate area of 1,673.31 or 42.54% of the total area.

The road influence area of the Digos-General Santos Road associates with the major river basins of Davao del Sur, namely: Digos River Basin, Padada-Mainit River Basin and the Tagulaya-Sibulan River Basin. Table 3-3 shows the drainage areas of these major river basins.

Table 3-3 DRAINAGE AREA AND WATER SUPPLY OF MAJOR AND MINOR RIVER BASINS

River Basin	Drainage Area (sq.km.)	Estimated Annual Discharge (mcm/yr)
Digos	175	350
Padada-Mainit	1303	2606
Tagulaya-Sibulan	158	316
TOTAL	**1636**	**3272**

Source: National Water Resources Board

The road influence area falls under Type IV of Corona's Climatological Classification, characterized by evenly distributed rainfall with no mark seasonality. The project road is affected by the southern typhoon belt. The coldest periods are the months of December and January; while the months of April and May are hottest. Table 3-4 shows the monthly rainfall distribution from year 1997 to year 2000.

Table 3-4 COMPARATIVE MONTHLY RAINFALL DISTRIBUTION IN MILLIMETER IN DAVAO DEL SUR FROM 1997-2000 (From PAGASA, Region XI)

Month	1997	1998	1999	2000
January	303.4	43.4	307.1	337.0
February	156.9	24.7	135.4	303.9
March	119.1	7.1	290.5	231.5
April	133.8	30.6	173.6	98.8
May	170.7	160.4	220.2	94.4
June	60.0	149.3	177.5	188.4
July	100.6	144.5	115.1	175.0
August	45.4	94.1	157.8	257.2
September	170.3	229.2	214.8	58.6
October	449.3	206.2	89.8	279.8
November	31.8	169.3	104.0	199.1
December	71.8	86.8	257.1	133.8

Source: PAGASA, Region XI

3.3 SOIL TYPES

The Digos-General Santos Road cuts several soil types. There are seven (7) soil types classified according to color, texture, depth, drainage, relief, permeability, and fertility. These soil types are enumerated in Table 3-5 Descriptions of these soil types are presented in Table 3-6.

Table 3-5 SOIL CLASSIFICATION BY MUNICIPALITY/CITY

Municipality/City	Type of Soil
Bansalan	Miral Clay Loam
Digos	San Miguel Silty Clay Loam
Don Marcelino	San Miguel Silty Loam, Cabangan Clay Loam, Faraon Loam
Hagonoy	San Miguel Silty Loam
Jose Abad Santos	Malalag Clay Loam
Kiblawan	Malalag Clay Loam, Faraon Loam
Magsaysay	Miral Clay Loam
Malalag	Madunga Clay
Malita	San Miguel Silty Clay Loam, Cabangan Clay Loam, Faraon Loam
Matanao	Faraon Clay, Matina Clay, Matina Clay Loam
Padada	San Miguel Silty Loam Clay, Cabangan Clay Loam
Sta. Cruz	Madunga Clay Loam, Cabangan Clay Loam
Sta. Maria	San Miguel Silty Clay Loam, San Miguel Clay Loam, Malalag Clay Loam
Sulop	San Miguel Silty Clay Loam, Cabangan Clay Loam
Sarangani	Malalag Clay

Table 3-6 DESCRIPTION OF SOIL TYPES IN DAVAO DEL SUR

Soil Type	Parent Material	Dominant Relief	Drainage		Remarks
			External	Internal	
San Miguel Silty Clay	Alluvium washed mainly from the uplands, underlain by igneous rocks	Level to nearly level	Fair	Good	Utilized for coconut lowland rice adaptable to most agricultural needs
Cabangan Clay loam	Alluvium washed from the highlands underlain by sedimentary rocks	Level to nearly level	Good	Fair	Excellent for lowland rice when irrigated, needs drainage for upland crops
Matina Clay	Alluvium washed mainly from the uplands	Nearly level to undulating	Good	Fair	Largely utilized for corn and sugar cane. Excellent for lowland rice when irrigated
Miral Clay Loam	Alluvium from different sources, igneous rocks and consolidated gravelly sand	Sloping to Hilly	Fair	Good	Excellent for lowland rice and good for permanent crops like abaca and fruit trees
Faraon Clay	Soft coralline limestone	Undulating to gently rolling	Fair	Good	Moderately fertile used mostly for corn, sugar cane and legumes
Madunga Clay Loam	Mixture of shale, sandstone, sand and gravel deposits	Moderately rolling to hilly	Good	Poor	Moderately fertile used mostly for corn, sugar cane and legumes
Malalag Clay Loam	Mixture of igneous, metamorphic and shale rocks	Hilly to mountainous	Fair	Good	Limited agricultural use due to its thin soil profile inherent low fertility and rough topography. Suited to pasture and forestry with applied soil conservation measure

Source: Bureau of Soils, Department of Agriculture

No apparent soil erosion occur on 901.76 sq.km of land area of the Davao del Sur Province. A total of 317.66 and 538.61 sq.km have slight and moderate erosion problems respectively. A large area of 2,170.41 sq.km or 55.17% of the total land area have severe soil erosion.

4.0 SOCIAL AND ECONOMIC PROFILES OF THE ROAD IMPACT AREA

4.0 SOCIAL AND ECONOMIC PROFILES OF THE ROAD IMPACT AREA

The impact area of the Digos-General Santos Road crosses the social and economic environments of several provincial governments. For easeness of discussions, it is strategic in this report to describe the road impact area in three (3) segments, namely: 1) Davao del Sur Road Segment; 2) Sarangani Road Segment and 3) General Santos City Road Segment.

4.1 DAVAO DEL SUR ROAD SEGMENT

The road impact area essentially covers a large portion of the province of Davao del Sur. It encompasses 14 municipalities and the City of Digos

4.1.1 Population

The province of Davao del Sur has a total population of 1,905,917 in 2000, representing about 39.89% of the total population of Region XI. Population of the province exhibited an increase during the period from 1990-2000 with a decelerating growth rate of 2.54% annually.

The population development of Davao del Sur is shown in Table 4-1.

Table 4-1 Population Development, Davao del Sur, 1990-2000

Region/ Province	Population			Average Annual Growth (%)		
	1990	1995	2000	1990-1995	1995-2000	1990-2000
Region XI	4,457,076	4,604,158	4,777,513	0.65	.0.74	0.70
Davao del Sur	1,482,648	1,683,909	1,905,917	2.58	2.51	2.54

Most of the population is of Cebuano origin comprising of about 65 percent of the total population of the province. Very far behind are those coming from other provinces in the Visayas like Leyte, Iloilo, Bohol, others coming from Ilocos and some are natives in other portions in Mindanao.

4.1.2 Indigenous People

Based on the data provided by the National Commission on Indigenous People (NCIP) as of CY 2000, Davao del Sur is inhabited by different cultural minorities or the Lumads like the B'laans, Bagobos, Tagakaolo Kalagan and the Manobos. These lumads are mostly found in the municipality of Malita with 89,968 people. The summary of the number of indigenous people per municipality is shown in Table 4-2.

Table 4-2 Indigenous People by Municipality for Year 2000

Municipality	Indigenous People	Number	Percentage to Total
Magsaysay	B'laan-Bogobo-Igorot	25,900	6.75
Bansalan	Bagobo	9,317	2.43
Matanao	B'laan-Bogobo-Klagan	11,726	3.05
Hagonoy	Klagan-B'laan	4,387	1.14
Digos City	Bagobo-Tagakaolo-B'laan	49,797	12.97
Sta. Cruz	B'laan-Igorot	26,908	7.01
Padada	B'laan	723	0.19
Kiblawan	B'laan	16,510	4.30
Sulop	B'laan=Tagakaolo-Klagan-Manobo	820	0.21
Malalag	Tagakaolo-B'laan	13,333	3.47
Sta. Maria	Tagakaolo	36,440	9.49
Mailta	Tagakaolo-B'laan-Manobo	89,968	23.44
Don Marcelino	Manobo-B'laan	30,062	7.83
Jose Abad Santos	Manobo-B'laan-Mandaya	51,425	13.40
Sarangani	B'laan-Manobo	16,548	4.31
TOTAL		383,864	100

Source: NCIP, Provincial Office

No settlement of the indigenous people was observed in the vicinity of the road sections requiring the remedial works. However, the project road passes through an area covered by Certificate of Ancestral Domain Claims (CADC)

4.1.3 Literacy and Education

The literary rate in and around the road impact area Davao del Sur is 86.15%. There is high concentration of literate in rural areas with 72.88%; most of which are 10-14 years old. By sex, the male dominates with 51.52% against, the females with only 48.48%.

The road impact area affects the province which has 382 schools for elementary, 66 secondary schools, 10 tertiary schools, 6 technical schools and 1 trade school. These schools are distributed in the city of Digos and municipalities of Hagonoy, Jose Abad Santos, Malalag, Matanao, Padada. Sta. Cruz, Sta. Maria, Sulop, Bansalan, Malita, Kiblawan and Magsaysay.

Digos City has the highest number of schools age population followed by Malita, Sta. Cruz and Jose Abad Santos. The school participation rate ranges from 46.52% to 60.54%; suggestive of large number of out of school youth in the area.

The teacher-pupil ratio is just within the National Standards for both elementary and secondary level having 1 teacher for every 40 pupils in the elementary and 1 teacher for every 50 students in the secondary.

4.1.4 Health and Nutrition:

The road impact area has recorded 14,901 live births in 2000 (i.e. one baby born every 35 minutes or 41 babies everyday). Digos City reported the highest number of live births with 2,355 followed by Malita and Sta. Cruz with 1,647 and 1,479 respectively. Males dominated the female with birth ratio of 2 to 1.

Infant Mortality Rate (IMR) in 2000 is 4.36 per 1000 population. Infant deaths are commonly caused by combination of infection, malnutrition and congenital disorders.

The road impact area of Davao del Sur has 140 Barangay Health Stations (BHS) and 16 Rural Health Units (RHU) giving a ratio of RHU/HBS to population of 1:4,864 in 2000. Using the ratio of 1 RHU/BHU per 5,000 populations as standard, the city of Digos, Malalag, Sta. Cruz, Malita, Sta. Maria and Jose Abad Santos fail.

There is a total of 43 hospitals, where 36 (84%) are private and 7 (16%) are public. The provincial hospital is located in Digos City and one district hospital each in Jose Abad Santos and Kiblawan. The municipalities of Sarangani, Don Marcelino, Malita and Matanao have individual Municipal/Medicare Hospitals.

4.1.5 Labor Employment:

Available records show that from 1996 to 1998, there had been a progressive increase in the labor force of age 15 years and above.

The Labor Force Participation Rate continuously decreased to 71.2% in 1998. Employment Rate also decreased from 94.77% in 1996; 92.8% in 1997; 92.5% in 1998. Unemployment Rate was recorded at 5.5% in 1996; 7.2% in 1997 and 7.5% in 1998.

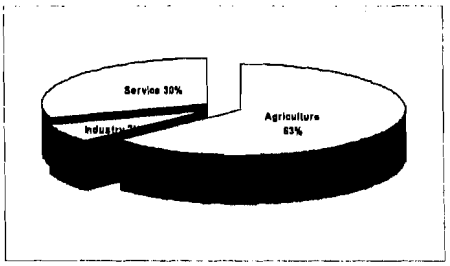
In 1998, more people were employed in the rural areas than in urban areas with 216,000 and 70,000 employed persons respectively. Employment Rate in the rural areas continued to increase from 69.7% in 1996 to 70% in 1998.

The nature of the work in the field opted the employer to hire male than female workers. Table 4-3 shows the trend of employment of the male and female population of the Davao del Sur based on record from 1996 to 1998. In terms of employment by type of industry, Figure 4-1 shows the agricultural sector with an employment percentage of 63%.

Table 4-3 Employment Status in Davao del Sur (From NSO XI, Davao)

1996	Total	Urban Male	Urban Female	Rural Male	Rural Female
Total 15 Yrs Old (000) & Over	476	58	54	185	179
Labor Force Participation Rate	70.40	82.80	63.00	86.50	71.20
Employment Rate	96.00	91.70	94.10	98.80	94.55
Unemployment Rate	5.50	8.30	5.90	1.30	54.00
Visible Underemployment Rate	21.00				
1997					
Total 15 Yrs Old & Over	487	57	56	188	186
Labor Force Participation Rate	70.20	84.20	46.40	89.90	52.70
Employment Rate	92.80	91.70	93.50	92.30	93.10
Unemployment Rate	7.20	8.30	7.30	6.50	7.10
Visible Underemployment Rate	13.00				
1998					
Total 15 Yrs Old (000) & Over	500	58	86	203	183
Labor Force Participation Rate	68.30	84.48	50.00	88.67	50.27
Employment Rate	92.50	91.84	89.29	93.89	83.70
Unemployment Rate	7.50	8.16	10.71	6.11	16.30
Visible Underemployment Rate	18.30				

Figure 4-1 Number of Employed Persons by Type of Industry



There are still segment of employed population who desires to put more hours of works to augment their income and others to achieve a higher level of self-fulfillment. Table 4-4 shows the employment status from year 1999 to 2000. Table 4-5 highlights the number of employed person by industry.

Table 4-4 TOTAL POPULATION 15 YEARS & OVER & EMPLOYMENT – STATUS
(In Thousand)

Indicators	1997	1998	1999	2000
Total 15 Years Old & Over	485	497	509	460
Labor Force Participation (%)	72.8	66.6	67.4	69.3
Employment Rate (%)	94.7	94	93.9	92.2
Unemployment Rate (%)	5.3	6	6.1	7.5
Visible Underemployment Rate (%)			11.6	20.1

Source: 1997-1999, NSCB 2000, NSO Region XI

Table 4-5 NUMBER OF EMPLOYED PERSONS BY TYPE OF INDUSTRY
(in Thousands)

Industry Type	Urban	Rural	Total
Total	72	222	294
Agricultural	20	159	179
Industry Type	8	9	17
Service	44	54	98

Source: NSO, Region XI

4.1.6 Commerce and Trade:

The Digos-General Santos Road contributes to the emerging opportunities both for the province of Davao del Sur and Sarangani. These emerging opportunities are in the commercial establishment like retail, banking services, real estate and coops/financing.

In year 2000, 254 new establishments were added giving a total of 968 operating commercial centers in the Davao del Sur. Banking has a total number of 29 in 2000. The commercial establishments are mostly found in Digos City being the capital and in the municipalities of Malita and Bansalan.

Small to medium enterprises are generally engaged in agriculture with the dominance of trading and service activities. Manufacturing is likewise limited to micro-scale enterprises.

Investment and employment were generated from trading and services sector with few large industry established before 1999.

4.1.7 Agriculture:

About 1,629 sq.km. of the road impact area in the province of Davao del Sur are classified as alienable and disposable (A&D) lands. Around 998 sq.km. are devoted to cultivated crops; 500 sq.km. are planted with perennial trees; 14 sq.km. are fishponds; 104 sq.km. are ricelands; and 14 sq.km are built-up areas. Thirty eight (38) percent or 613 sq.km. of the province's A&D land area are utilized on activities at an intensity in excess of the land's suitability (i.e. the land is over-used).

Data from the provincial agricultural office of the Davao del Sur indicate that rice is the most suitable in the municipalities of Hagonoy, Magsaysay, Matanao and Bansalan. Forestry plantation is suited in Jose Abad Santos, and San Marcelino Sarangani. Cultivated crops and perennial trees are suitable in the municipalities of Bansalan Digos Jose Abad Santos, Kiblawan, Malalag, Malita, Padada, Sta. Cruz, Sta. Maria, and Sulop. Pastureland is also suited in the province especially those that are already planted with coconut to increase productivity.

4.1.8 Forestry

One of the programs undertaken by the Provincial Environment and Natural Resources Office (PENRO) is the Integrated Social Forestry (ISF) wherein deserving forest occupants were given security of tenure through the issuance of Certificate of Stewardship Contracts (CSC). For 1997-1998 a total of 350 CSC had been issued benefiting 350 farmers covering an area of 645.98 hectares. The DENR issued certificate of Ancestral Domain Claims (CADCS) with an area of 7,027.82 hectares with recipients of two (2) barangays in Matanao and one (1) in Magsaysay and nine (9) barangays in Malita with a total of area of 33,730.74 hectares.

4.1.9 Mining

The road impact area along the province of Davao del Sur is known to have a number of mineral deposits both metallic and non-metallic but had remained undeveloped. The province generates revenues from its non-metallic deposits.

For calendar years 1996, 1997 and 1998, volume of extracted quarry resources was 368,994 cubic meters, 305,185 cu.m. and 177,410.94 cu.m. respectively as shown in Table 4-6.

Table 4-6 NUMBER OF PERMITTES BY MUNICIPALITY FOR SAND AND GRAVEL CONCESSION

Municipality/ Barangay	No. of Permittees				Volume (CU.M)				TOTAL Volume (Cu.M)
	1997	1998	1999	2000	1997	1998	1999	2000	
BANSALAN									
New Clarin		1	1	1		4500	2000	2000	8500
DIGOS									
Ruparan	1*	1*	1*	1*	26623	8860	10180	10180	55843
Kiagot				1*				60	60
Tres de Mayo	1*	1			2526	500			3026
STA. CRUZ									
Coronon	4	4	2	1#	13500	4000	6000	5000	28500
Sinoron, Zone II, IV	6	7	6		9000	8000	4500		21500
Zone II	2				11000				11000
Astorga	1	2	2*		1500	1350	2500		5350
Zone I	1				1000				1000
Tuban			1*				500		500
PADADA									
Upper Malinao	1	1	1	1	16500	13150	10657	19600	59907
HAGONOY									
La Union	1	1	2	2	3710	4100	8700	4350	20860
Tologan	7	6	7	7	28096	18070.5	15095	29061	90323
Crossing Hagonoy	3	4	3	3	10703	9395	3300	5160	28558
Guihing	2	3	3	2	8678	7500	9775	7950	33903
Lapulabao	10	7	8	12	78409	47751	44685	89340	260185
Poblacion	1	1	2		7457	3250	2000		12707
Mahayahay	1		1		1000		1400		2400
Maliit Digos			1				1500		1500
New Quezon		1	1			1200	1000		2200
MAGSAYSAY									
Dalawinon	1	1	1		250	1200	1750		3200
New Ilocos			1*				500		500
MATANAO									
Poblacion	3 1*	6	5	5	6150	6020	14400	9486	36056
Sampaguita	1				1000				1000
Cebuza	4	2	3	3	5300	2350	4500	6350	18500
San Jose		1		1		2952		5750	8702
New Murcia		1	1	1		1500	1200	5000	7700

Lower Marber	1	4	4	4	1500	7191	3862	1700	14253
Buas			1	1			500	5750	6250
Malalag									
Baybay	1				1000				1000
Ibo	1				2000				2000
Poblacion	1				500				500
Balasinon				1*				200	200
Malita									
Lais	1				1000				1000
Mana	1	1	1	1	2900	1111.5	1000	2000	7011.5
Sanghay	1	2	2	1	2800	3277.5	1000	1000	8077.5
Felis	2	1	1	2	12152	1200	2000	3000	18352
Sulop									
Baluyan			1*				100		100
Don Marcelino									
Kinanga			1*				1400		1400
TOTAL	217	256413	414783	570730	256254	158429	156004	212937	783624

4.1.10 Tourism

The Digos-General Santos Road caters tourists to numerous scenic spots of Davao del Sur province. These scenic spots include: hot springs, islets, beach resorts, caves, mountain parks, water falls and rivers.

The most popular is the Mt. Apo Natural Park. The province of Davao del Sur shares this park with Davao City and Cotabato Province. The park is declared protected area under the NIPAS and includes Mt. Apo, the country's highest mountain peak. The park also features cold and hot springs, waterfalls, river rapids, multi-colored wild flowers, and crystal clear lake, underground springs, stalactites, stalagmites and bat habitats.

4.1.11 Roads and Transportation

The total road network as of CY 2000 is 3,645.321 kilometers covering the categories of barangay, provincial, national and municipal roads. Table 4-7 summarizes the type of surface of the existing road network in the province of Davao del Sur.

The road impact area of province of Davao del Sur has 10,341 registered vehicles in the CY 2000 with an increase of 1.77% from the previous year of 10,161 vehicles. Motorcycles have the highest number of registered units at 7,744 of 74.9%, followed by cars/jeeps with 1,828 units, trucks/buses with 759 and trailers with 10 units. The vehicle density is placed at 2.8 units per kilometers.

Table 4-7 Existing Road Network (in Kilometer) by Category and by Type of Surface

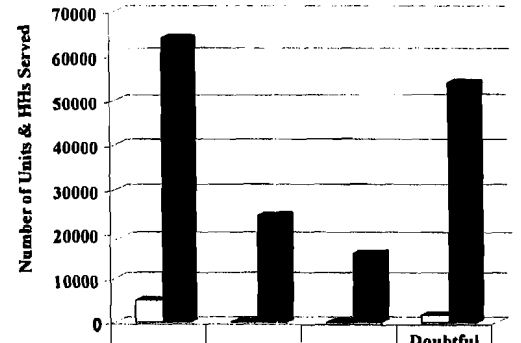
Category	Type of Surface								Total Length
	Concrete	%	Asphalt	%	Gravel	%	Dirt	%	
National	74.370	23.01	38.985	12.06	209.862	64.93	0.000	0	323.217
Provincial	59.530	14.21	5.117	1.22	344.401	82.19	10.000	2.39	419.048
Municipal	44.098	14.07	5.045	1.7	186.834	62.99	60.632	20.44	296.609
Barangay	19.000	0.73	0.300	0.01	1512.441	58.03	1074.706	41.23	2606.447
Total Length	196.998	5.40	49.447	1.36	2253.538	61.62	1145.338	31.42	3645.321

Source: DPWH I &II ,PEO, MPDO 2000

4.1.12 Water Supply:

Out of 157,054 household population of Davao del Sur, 103,153 or 65.68% are served with potable water facilities. These include 15,471 household (9.8%) which are Level III water system; 23,776 household (15.13%) are Level II; 63,906 households (40.69%) are Level I. A total of 53,901 households are served with doubtful water sources as shown in Figure 4-2.

Fig. 4-2 Status of Water Sources



Tables 4-8 and 4-9 shows household populations served by Level III water system and the number of existing water supply sources in Davao del Sur.

Table 4-8 Number of Household Served by Level III System in Davao del Sur (2002)

Municipality / City	Total Household Population	Level III	Number of Pumps	Number of Spring	Capacity (liters/day)	Bgy. Served	Household Served		Household Unserved	
		Number					Number	%	Number	%
Bansalan	10,988	1	2	3	2,842,569	16	3,498	31.6	7,490	68.2
Digos City	27,766	4	11		14,947,200	18	8,710	31.4	19,056	68.6
Don Marcelino	7,245	2		2	51,436	2	536	7.4	6,709	92.6
Hagonoy	9,278	2	2		210,879.19	4	774	6.3	8,504	91.7
Jose Abad Santos	12,768	1	2		28,800	2	300	2.3	12,468	97.7
Kiblawan	9,019	3	1	3	993,600	2	663	7.35	8,356	92.65
Magsaysay	9,046	3	2	1	2,384.55	1	1,102	12.2	7,944	87.8
Malalag	7,145	1	3		28,800	4	1,430	20.1	5,715	79.9
Malita	22,372	1	3		1,178,000	3	2,400	10.72	19,972	89.28
Matanao	10,037	5	3		188,200	3	910	9.06	9,127	90.84
Padada	5,154	2	3		2,232,158.4	10	1,862	36.12	3,292	63.88
Sarangani	3,974	-								
Sta. Cruz	14,732	2	3		5,403,024	6	1,790	12.15	12,942	87.85
Sta. Maria	9,778	2	1	1	100,800	1	1,050	10.7	8,728	69.3
Sulop	5,784	1	1		921,500	7	851	14.71	4,933	85.29
Total	165,086	30	37	10	29,129,351.14	79	25,876	15.67	135,236	81.92

Table 4-9 Number of Existing Water Supply Sources by Municipality/City in Davao del Sur

Municipality /City	1997				1998				1999				2000			
	Level 1	Level 2	Level 3	Doubtful sources	Level 1	Level 2	Level 3	Doubtful sources	Level 1	Level 2	Level 3	Doubtful sources	Level 1	Level 2	Level 3	Doubtful sources
Bansalan	58	5	1	39	80	5	1	39	104	5	1	39	104	6	1	39
DigosCity	642	7	1	126	688	4	4	126	938	4	4	126	938	5	4	128
Don Marcelino	143	6	0	119	145	6	0	119	149	6	0	119	149	6	0	119
Hagonoy	349	2	2	37	348	2	2	37	465	2	2	37	465	2	2	37
Jose Abad Santos	96	0	0	137	140	0	1	137	217	0	1	137	217	4	1	137
Kiblawan	195	4	1	181	196	4	1	181	189	4	1	181	189	4	1	181
Magsaysay	307	8	2	48	309	8	2	48	289	8	2	48	289	8	2	48
Malalag	171	1	1	108	190	1	1	108	290	1	1	108	290	1	1	108
Malita	329	6	1	245	362	6	1	245	345	6	1	248	345	6	1	248
Matanao	247	3	2	125	247	3	2	125	264	3	2	125	284	5	2	125
Padada	135	0	2	60	136	0	2	60	177	0	2	60	177	0	2	80
Sta.Cruz	128	9	1	111	164	8	2	111	268	8	2	111	268	8	2	111
Sta.Maria	317	1	1	263	327	1	1	263	347	1	1	263	947	43	1	101
Sarangani	40	1	0	106	54	1	0	106	95	1	0	106	95	2	0	108
Sulop	237	0	1	140	252	0	1	140	283	0	1	140	283	0	1	140
Total	3394	53	16	1845	3638	49	21	1845	4420	49	21	1848	5040	100	21	1710

Source: PHO, Davao del Sur

4.2 SARANGANI ROAD SEGMENT

The impact area of Digos-General Santos Road also influences the socio-economic growth of the Sarangani Province. It is formerly the third congressional district of South Cotabato. It is made-up of seven (7) municipalities namely: Alabel, Glan, Kiamba, Maasim, Maitum, Malapatan and Malungon.

4.2.1 Landuse:

Sarangani is an agricultural province where 127,473.95 hectares or 32.15% are devoted to coconut, corn, rice and banana. Fishponds and prawn farms flourish in the coastal zone with an aggregate areas of 678.34 hectares.

Sarangani Province has very low industrial base with only 22.90 hectares or 0.0057 of the total land area. The major industries are: shipbuildings/dry docking facilities at Maasim; 69 MW power plant and smoke-fish plant at Alabel. Small to medium scale industries are ice plants, boat making, blacksmithing, food processing, furniture-making, pottery, etc. Table 4-10 lists the landuse of the province in 1999.

Table 4-10 Existing Land Use in Sarangani

Name of Municipality	Land Uses (Area in hectares)						
	Agricultural	Industrial	Commercial	Residential	Institutional	Others	Total
Alabel	10,247.00	0.91	9.90	143.93	62.90	27,060.23	49,570.00
Glan	40,987.00	1.00	7.00	108.00	20.00	18,693.33	69,760.00
Kiamba	10,409.83	0.18	3.50	42.00	13.60	31,358.89	41,828.00
Maasim	15,943.85	14.00	5.48	39.72	19.25	36,407.05	50,043.00
Maitum	9,344.02	3.46	3.46	22.39	11.43	22,847.92	32,435.00
Malapatan	10,796.00	0.65	2.25	24.41	7.90	47,443.79	62,456.00
Malungon	29,132.25	2.70	16.77	40.15	14.93	52,588.45	89,663.00
Total	127,453.95	22.9	48.36	420.60	150.01	239,399.66	395,755.00

Source: PFLUP, 1999

4.2.2 Population

Based on 2000 census, Sarangani has a population of 410,622 representing 7.9% of Region XI's population. Of the total 199,628 (49%) are females while 210,994 (51%) are males.

Population density is placed at 104 persons per square kilometers of land in 2000. Based on the projected population level, the province's density is expected to reach 126 persons per square kilometers in the year 2005.

Although Sarangani is still predominantly rural with 70.24% of the populace residing in rural areas, urbanization has increased considerably by 9.77% points since 1980 – from 19.99% to 29.76% in 1995. Consequently, the proportion of rural population has slide down from 80.01% in 1980 to 70.24% in 1995.

The sex ration (number of males for every 100 females) slightly decreased from 106.80 in 1990 to 105.69 in 2000. The predominance of males was noted in all municipalities of the province.

4.2.3 Indigenous People

Ethnic pluralism is exhibited in the population. The Muslims comprise 7 groups; the Lumads by 17 and migrant settlers by at least 20 groups. In terms of population, the dominant ethnic groups are the: B'laan, Maguindanao, T'boli, Tagakaulo, Kalagan and Sangil. The B'laan represent the largest minority and are mostly found in Malapatan, Glan, Alabel, Maasim and Malungon. The largest concentration of B'laans is in Malapatan, accounting for 37% of the total municipal population. The Maguindanao tribe is distributed in the municipalities of Malatapan, Maitum and Maasim. The T[bolis lives mostly in Maitum, Kiamba and Maasim, while the Tagakaulos reside exclusively in Malungon.

4.2.4 Educating and Literacy

The literacy rate or the proportion of the population 15 years and above who can read and write in the Sarangani province stood at 91.46%. There are estimated 196,171 or 47.2% of the total population who are supposed to be in school. In SY 1999-2000 the province has a high simple literary rate of 91.46% and functional literacy rate of 86.87%.

In SY 1999-2000, there were 1,622 elementary and 522 secondary school teachers in the province. The average teacher-pupil ratio of 1:38 and 1:31 for elementary and secondary schools respectively is better than the standard ratio of 1:40 The 2000 DECS Annual Report indicated a low performance in elementary education as shown in Table 4-11.

Table 4-11 Performance Indicators of Public Elementary Schools, SY 1999-2000

PERFORMANCE INDICATORS	SARANGANI PERFORMANCE RATES	REGION XI PERFORMANCE RATES
Completion Rate	47.13	60.57
Transition Rate	87.32	93.97
Retention Rate	83.49	89.92
Growth Rate	3.43	3.46
Drop-out Rate	4.08	1.02
Graduation Rate	86.61	93.82
Participation Rate	73.00	94.75
Cohort-Survival Rate	54.14	64.29
Enrolment Rate	46.75	No available data
Achievement Level	60.67	No available data
Textbook-pupil Ratio	1:46	1:86

SOURCE: DECS XI & Sarangani Province, 2000

4.2.5 Health and Nutrition:

The seven (7) health centers in the Sarangani Province, one (1) in each municipality, have an average facility-population ratio of 1:59,368. The ratio is almost three-times more than the national standard of 1:20,000.

Commercial diseases are the predominant causes of morbidity in the Sarangani Province. Among the leading causes were infectious diseases and nutritional deficiencies. Table 4-12 shows the leading diseases in the province. The table highlights the high incidence of communicable diseases among children of five (5) years old and below.

Table 4-12 Morbidity: Ten(10) Leading Causes, Per 10,000 Population in Sarangani Province for a 5 Year Average (1994-1998)

CAUSES OF MORBIDITY	1999		5 year ave (1994-1998)	
	No. of Cases	Rate/10,000 pop.	No. of Cases	Rate/10,000 pop.
Cough and Colds	9,895	238.10	19,250	519.48
Pneumonia	5,694	137.01	2,548	68.76
Diarrhea	4,905	118.03	5,712	154.14
Influenza	2,796	67.28	3,130	84.47
Bronchitis	1,977	47.57	1,219	32.90
Wounds: All Forms	456	10.97	1,874	50.57
Malaria	405	9.75	543	14.65
TB Respiratory	366	8.81	404	10.90
Chicken Pox	359	8.64	2,946	79.50
Hypertension	253	6.09	612	16.52

SOURCE: PROVINCIAL HEALTH OFFICE, SARANGANI PROVINCE

4.2.6 Labor and Employment:

The working age population of Sarangani Province is estimated at 256,000 with a labor force participation rate of 72.8% or about 186,000. Of the total labor force, 111,000 or 60% are males and 75,000 or 40% are females. Labor force participation rate is much higher among males (87.7%) than females (58.6%).

Employment rate in year 2000 was placed at 93.5% which is a 0.5% increase over the level reached in 1999. Based on the 61,714 households/families surveyed in 1999 for MBN indicators 73.46% or 45,336 families had heads of the family not gainfully employed and 84.32% or 52,039 families had family members not gainfully employed too. Moreover, 83.64% or 51,620 families had income below the subsistence threshold level. These scenarios only show that most of the families in the Sarangani Province are economically poor.

4.2.7 Agriculture:

Agriculture covers 121,753.19 hectares or 30.76% of the total land area of the Sarangani Province. The principal crops are coconut, sugarcane, banana, corn, rice, asparagus and mango. Sarangani Province is the leading coconut producer of Region XII, contributing 297,151.55 metric tons or 47.66% of the region's total output in 2002. Coconut is extensively grown in Glan, covering an estimated 33,192 hectares.

4.2.8 Forestry:

About two-thirds of Sarangani Province is classified as forestlands. A total of 391.7 hectares or 4% of forestland are classified as Alienable and Disposable (A&D) lands. The remaining forest accounts for about 25,960 hectares of 65% of its total land.

As of 2001, there are seven (7) Industrial Forest Management Agreement (IFMA) holders with a combined total area of 38.07 km^2 and two (2) agro-forest farm leases with an aggregate area of 73.2 km^2 as shown in Table 4-13.

Table 4-13 Number and Size of Forest Concessions by Municipality in Sarangani

Municipality /Type of Concession	Total	
	No	Area
Sarangani		
Alabel	3	8.155
Glan	2	53.592
Kiamba	2	32.032
Maasim	12	5.559
Maitum	1	11.150
Malapatan	2	1.165
Malungon	6	4.642

Source: DENR Sarangani 2000

4.2.9 Mining:

The road impact area shares the mineral resources of Sarangani Province. The province is rich in copper, gold, iron, marble, cement, coal, limestone, gypsum, phosphate rock and silica. Other mineral resources include: guano, sandstone, corals and white pebbles. Table 4-14 presents the volume and value of sand and gravel production in the province in 1995 – 1999.

Table 4-14Volume and Value of Sand Gravel Production and Location of Quarry Sites, by Municipality in Sarangani, 1999-2001

Municipality	1999		1990		1995		Location of Quarry Sites
	Volume (cu.m.)	Value (PhP)	Volume (cu.m.)	Value (PhP)	Volume (cu.m.)	Value (PhP)	
Sarangani	153,354.48	1,320,574.31	169,012.53	1,536,244.10	119,531.90	1,045,546.42	
Alabel	71,678.05	512,498.30	58,209.41	416,197.31	55,837.03	399,234.74	Maribulan Alegria Kawas
Glan	21,757.61	282,848.94	28,582.90	371,577.72	17,631.54	229,210.00	Ilaya Tapn Cross Pangyan Small Margus San Vicente
1Kiamba	4,966.19	44,713.73	2,741.38	24,672.46	6,911.59	62,204.30	
Maasim	8,699.34	78,294.10	5,756.92	51,812.24	3,157.60	28,418.43	Tinoto Kablacan
Maitum	19,526.76	188,433.27	49,823.66	480,798.30	22,136.89	213,621.03	Maguling Pang, Saub, Mindupok Kalaong
Malapatan	11,293.81	90,350.44	13,021.78	104,174.20	4,318.88	34,551.00	Lun Padidu Tuyan
Malungon	15,430.69	123,445.53	10,876.48	87,011.87	9,538.37	76,306.92	Nagpan Malandag Tamban, Datal Tampal

Source: PENRO-PTO 2001

4.2.10 Commerce and Trade:

There are forty three (43) registered agricultural enterprises in Sarangani. These enterprises are leading agricultural industries which produce corn, rice banana, and cattle. Fourteen (14) registered fishery enterprises are engaged in prawn farming, milkfish and tilapia production and deep-sea fishing.

Agriculture, fishery and forestry are the primary revenue generating activities in the province in terms of capitalization and employment.

4.2.11 Tourism

Sarangani Province is rich in natural scenic spots. These include: sandy/coral beaches, coral reefs, marine sanctuaries, rocky headlands, mountains, lakes, springs, waterfalls and caves.

4.2.12 Roads and Transportation:

As of 2001, Sarangani Province has a total road network of 2,524.88 kms and a road density of 0.638 km per sq.km. of land area. Of the total road network, 270.24 kms are national roads, 294.63 km are provincial roads, 138.36 km are municipal roads and 1,821.65 km are barangay roads. Only 7.84% of 197.94 km

are paved with concrete and asphalt and 92.16% or 2,326.93 km are gravel and earth roads.

4.2.13 Water Supply Facilities

Sarangani Province has Level I, II and III water systems. There are seven (7) Level III systems in the province operated under different kinds of ownership or association as shown in Table 4-15 together with their service coverage in 1997.

Table 4-15 Summary of Operating Water Districts in Sarangani

Municipality	Name of Operating Body	Water Consumption			Services Coverage								
		Type of Water Source	Water Consump-tion (m^3/day)	Domes-tic Supply (%)	No. of Barangays Served			No. of Household Served			No. of Population Served		
					Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Alabel (Capital)	Alabel WS	DW	170	99	1		1	248		248	1,488		1,488
	San Miguel Coop.	DW	49	98		1	1		70	70		350	350
	Sto. Niño Coop.	DW	136	99	1		1	186		186	1,150		1,150
	Municipal Total		355	99	2	1	3	434	70	504	2,638	350	2,988
Glan	Glan WD	DW	627	94	1	1	2	737	56	793	4,100	336	4,436
Maasim	Maasim WD	SP	114	91	2		2	174		174	870		870
Malapatan	Malapatan WS	DW	75	97	1		1	150		150	900		900
	Lun Padidu WS	DW	66	98	1		1	115		115	690		690
	Municipal Total		141	98	2		2	265		265	1,590		1,590
Provincial Total			1,236	96	7	2	9	1,610	126	1,736	9,198	686	9,884

Note: 1. Type of Water Source: DW – Deep Well, Surf – Surface Water (River), SP – Spring
2. * - Estimated at 100 lpcd.

There are 56 Level II systems in the province. Except for 6 systems in Malapatan and a system in Malungon, majority is utilizing spring sources. The municipality of Malungon has the largest number; 16 systems.

Only 57% of the total provincial population have adequate water services. The percentage of underserved population is estimated at 31% of the total population (22% of urban and 35% rural population), who depend on unsafe water sources/facilities

4.3 GENERAL SANTOS CITY ROAD SEGMENT

4.3.1 Location and Land Area:

The road impact area ends at the General Santos City. General Santos City lies at the Southern part of Philippines. It is bounded by latitudes between 5°58' and 6°20' North and longitudes between 125°01'00" and 125°17'00" East. It has a total land area of 53,606 hectares, representing about 1.7% of the total land area of Region XI and 0.17% of the country. Majority of the entire land area constitutes broad flat lands stretching towards the northeast of the city. Mt. Matutum towers in the north with an elevation of 2,293 meters above sea level. Mt. Parker in the southwestern part of South Cotabato stands at 2,040 above sea level.

4.3.2 Population

The total population of General Santos City in 2000 was 411,822.

The province grew at the rate of 5.14 percent annually in the first half of the nineties, 0.16 percentage point lower than the annual geometric census growth rate of the eighties.

More than half of the total population of General Santos City resided in five out of its barangays.

There were 86,595 households enumerated in 2000-higher household size was 4,74 persons per household-smaller than the 1995 average of 5.0 persons.

There were 165,792 males and 161,381 females in General Santos City. This resulted to a sex ratio (number of males for every 100 females) of 102.7 in 1995.

The population in the age group 0 to 14 years comprised 39.5 percent of the total population. Those in the productive age group (15 to 64 years) made up 58.6

percent, and the oldest group (65 and over) formed the remaining 1.9 percent this resulted to a dependency ratio of 70.6 percent in 1995.

4.3.3 Education and Literacy:

Four out of ten (40.3%) persons with age of 7 years and above attended or completed elementary education. 33.7% reached or completed high school in 1995. Academic degree holders rose from 6.5% in 1990 to 8.6% in 1995.

4.3.4 Labor and Employment:

Of the male population and 15 years old and above, 63.5% worked for private business/enterprise/farm. Those who were self-employed accounted for 21.4%. Employers in own farm/business are about 5.8%.

Of the female population, 39.8% constituted those who worked for private business/enterprise/farm. It is followed by those who were self-employed having a percentage of 30.9.

Many of the academic degree holders work overseas with a record of 32.1%.

4.3.5 Agriculture:

General Santos City has a total agricultural cropland of 14,486 hectares. Table 4-16 shows the total effective area planted to crops which is 15,431.29 due to multi-copping and rotation of various crops such as coconut, rice, corn, mango, banana, sorghum, cotton and other vegetables. Out of the total production area of 15,431.29 hectares, 8,680.53 hectares are permanently planted to coconut and mango.

Table 4-16
Total Effective Area Planted to Crops, Gen. Santos City
1995 – 1999

Type of Crops	1995	1996	1997	1998	1999	Ave. Growth Rate (%)
Rice	1398.60	1734.80	1447.45	616.65	1167.51	9.85
Corn	5845.20	11738.20	3872.30	1652.75	5252.50	48.57
Coconut	7182.00	7182.00	7101.00	7237.00	7437.00	0.89
Mango	375.00	570.51	531.56	1055.18	1243.53	40.42
Banana	621.24	592.89	433.52	330.75	330.75	-13.79
Others – Vegetable/Sorghum/ Cotton	1239.00	800.00	273.00	NDA	NDA	-
TOTAL	16,661.04	22,537.40	13,658.83	10,892.33	15,431.29	4.32

4.3.6 Fishery Resources:

General Santos City is known as the Tuna Capital being the country's No. 1 exporter of sashimi-grade tuna. The total fish landed by commercial and municipal fishing in 1999 was 135,361 MT or an average daily landing of 370.85 MT per day. Entries in Table 4-17 highlight a production growth rate of 13.90% on the average over a 5-year period.

Table 4-17 Total Fish Landing in Metric Tons, (commercial & municipal), 1996-1999

QTR	1996	1997	1998	1999	Annual Ave. Growth Rate (%)
1st Qtr	20,425.90	16,477.80	15,570.00	35,814.00	35.06
2nd Qtr	24,701.90	23,733.70	15,153.00	35,785.00	32.03
3rd Qtr	27,810.80	23,607.70	25,189.00	35,747.00	11.17
4th Qtr	24,052.70	28,465.50	36,642.00	28,015.00	7.84
TOTAL	**96,991.30**	**92,284.70**	**92,554.00**	**135,361.00**	**13.90**
Ave./Month	**8,082.61**	**7,690.39**	**7,712.83**	**11,280.08**	**13.90**

Source: 1996-1997 Data – Phils. Fisheries & Dev't. Authority
1998-1999 Data – Bureau of Agricultural Extension

4.3.7 Commerce and Industry

Leading export products of General Santos City are canned tuna chunks in oil/brine/water, various pineapple, fresh asparagus, frozen tuna loins/fillet/steaks, frozen skipjack, fresh tuna fish, frozen yellowfin tuna and frozen shrimps. Tables

4-18 and 4-19 show the volume and value of export in 1995 – 1999 and the ten leading export products in 1999, respectively.

Table 4-18: Volume and Value of Export, GSC Port, 1995-1999

Commodity	1995	1996	1997	1998	1999	Ave. Growth Rate
Export Volume (MT)	497,316	501,586	487,928	505,951	516,9756	1.00
Value ($)	255,708,517	287,789,991	194,167,401	335,306,183	336,148,707	7.25

Source: Bureau of Customs, GSC

Table 4-19. Ten Leading Exports Product from General Santos City, 1999

Commodity Description	Volume (in Kgs.)	Value (in US Dollars)
Canned Tuna Chunks in oil/Brine/Water	72,618,206	127,950,012
Various Pineapple Products	185,246,550	62,034,930
Crude Coconut Oil	80,550,000	55,469,656
Fresh Asparagus	5,945,543	13,041,651
Frozen Tuna Loins/ Fillet/ Steaks	2,631,890	12,654,839
Fresh Pineapple	61,622,304	11,798,518
Frozen Skipjack (Round)	30,591,523	9,452,505
Fresh Tuna Fish	860,204	5,747,177
Frozen Yellowfin Tuna	6,652,426	5,460,465
Frozen Shrimps	562,267	5,179,929
Sub-Total (10 Leading)	447,280,913	308,789,682
TOTAL EXPORT	516,974,950	336,148,707

Source: Bureau of Customs, Makar Wharf, GSC

4.3.8 Tourism

There are two (2) museums in the General Santos City. One is located at the Mindanao State University (MSU) Campus in Tambler. The other one is located at Notre Dame of Dadiangas College.

General Santos City is blessed with several natural springs. There are also a number of swimming resorts.

4.3.9 Infrastructure and Facilities:

In 1999, General Santos City recorded 248 community water systems consisting of 167 deepwells, 15 spring development projects, 58 free-flowing wells and 8 shallow wells. The City Water District (CWD) installed the city's first centralized water distribution system covering the 12 urban barangays. As of 1999 there were 2,499 connections serving 2,385 residential and 114 commercial consumers.

As of 1999, the city has 4 communal irrigation system and 2 river irrigation systems capable of irrigating a total of 3,243 hectares.

At present, the City of General Santos has sufficient power supply. It obtains its power supply from South Cotabato Electric Cooperative II (SOCOTECO II) which also serves Sarangani Province and the towns of Polomolok and Tupi in South Cotabato.

The new General Santos International Airport in Barangay Fatima has been operational since 1996.

The port of General Santos City known as the Makar Wharf is located in Barangay Labangal. It is also considered as one to the biggest, cleanest, and most modern ports in the country. The port has a total area of 14.7 hectares, a docking length of 740 meters and width of 19 meters. It can accommodate 1 foreign and 8 domestic vessels at any given time.

General Santos City has no existing sewerage system to collect wastewater from residences and establishments. Septic tanks, vaults or pits are generally used as depository of wastes. The 1992 Wastewater Master Plan was not pursued due to high interest rate. About one-sixth (1/6) of the city's population is without adequate on-site sanitation facilities.

4.3.10 Transportation:

Mode of public transport in General Santos City is predominantly taxi, tricycles, jeepneys and trisikads. Registration of motor vehicles showed an average annual growth rate of 3.2% from 1995 to 1999. From a total of 18,097 vehicles registered in 1995, it went up to a total of 20,334 in 1999. Table 4-20 shows the total registered motor vehicles by type in 1995 – 1999.

Table 4-20
Total Registered Motor Vehicles by Type, GSC, 1995 – 1999

Type of Vehicle	1995	1996	1997	1998	1999	Ave. Annual Growth Rate
Cars/Jeepneys	4,162	4,603	4,928	4,774	5,030	5%
Trucks/Buses	1,053	1,059	1,090	1,088	1,137	2%
Motorcycle/Tricycle	8,913	8,802	8,729	7,552	7,985	-2.5%
Trailers	47	81	72	73	85	19.8%
Vehicles for Hire	3,535	4,687	5,307	4,880	5,675	13.5%
Govt. Vehicles	387	344	361	429	422	2.8%
Total	18,097	19,576	20,487	18,796	20,334	3.2%

Source: Land Transportation Office, General Santos

The city has a total of 499.93 km of road in 2000. Table 4-21 shows the road network by administration and type of surface in 1999-2000. Currently, the entire road system in General Santos City is classified into 11.0% national road, 52.0% city road and 37.0% barangay roads.

Table 4-21
Road Network by Administrative Classification and Type of Surface, in Km., GSC, 1999 – 2000

Road Network	1999	200	Ave. Growth Rate
By Type Administration			
National	56.00	56.00	0.0%
City	259.77	260.17	0.2%
Barangay	182.48	183.76	0.7%
TOTAL	**498.25**	**499.93**	**0.3%**
By Type of Construction			
National	56.00	56.00	0.0%
Concrete/Asphalt	56.00	56.00	0.0%
City	259.77	260.17	0.2%
Concrete/Asphalt	93.08	93.65	0.6%
Earth/Gravel	166.69	166.52	-0.1%
Barangay	182.48	183.76	0.7%
Concrete/Asphalt	27.08	29.44	8.7%
Earth/Gravel	155.4	154.32	-0.7 %
TOTAL	**498.25**	**499.93**	**0.3%**
Concrete/Asphalt	176.17	179.10	1.7%
Earth/Gravel	322.09	320.84	-0.4%

Source: Dept. of Public Works & Highways
Office of the City Engineer

5.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (EMP)

5.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (EMP)

The landslides and roadslips in the identified segments of the Digos-General Santos Road posed environmental hazards to the motorists and the general public. Often, as observed in the past, the landslides obstruct the smooth traffic flow of goods and motorist.

The remedial roadworks and rehabilitation works listed in Tables 5-1 and 5-2 intend to mitigate the adverse effects of landslides and roadslips in identified segments of /the Digos-General Santos Road. Through the use of a checklist of various environmental conditions, the level of probable impacts of the project to these conditions is enumerated Table 5-3.

5.1 CONSTRUCTION RELATED IMPACTS

Although the Digos-General Santos Road already exists and the roadway project intends to mitigate the adverse effects of landslides and slippages on identified segments, a number of impacts are expected to be encountered particularly during construction works. The identified possible adverse impacts include but are not limited to the following:

a) generation of spoils from cuts and excavation works;
b) transit of sediments and spoil materials to creeks and stream channels by surface runoffs;
c) damage of existing vegetation cover on selected construction sites;
d) disturbance of wild life due to noise from equipment operation;
e) construction related health and safety hazards poised to construction crew and motorist;
f) generation of dust and smoke emissions from hauling of materials and operation of construction equipment;
g) generation of construction and domestic waste; and
h) oil, petroleum and lubricant spillage from equipment maintenance

Table 5-1 : SUMMARY OF SELECTED REMEDIAL WORKS IN DIGOS-GENERAL SANTOS ROAD

Location No.	Stations	Side	Type of Remedial Works
2	21 + 069.7 to 21 + 140	L	Stone Masonry Wall, Concrete Lined Canal with/without Cover, ACP, Concrete Chute Canal, Hand Laid Boulders, AC Shoulder
2A	21 + 140 to 21 + 299	L	Stone Masonry Wall, Concrete Lined Canal, Concrete Chute Canal, Hand Laid Boulders, AC Shoul
3A	21 + 299 to 21 + 379	L	Stone Masonry Wall, ACP, Curb and Gutter, Concrete Lined Canal, Concrete Chute Canal, Hand L Boulders, AC Shoulder
4A-1	21 + 447 to 21 + 590	L	Concrete Lined Canal, Concrete Chute Canal, Hand Laid Boulders, AC Shoulders, Cleaning RCPC
4A-2	21 + 590 to 21 + 740	L	Gabion Wall, Concrete Lined Canal, Curb and Gutter, Concrete Chute Canal, Hand Laid Boulders, Shoulder, Cleaning RCPC
4A-3	21 + 740 to 21 + 880	L	Concrete Lined Canal, Curb and Gutter, Concrete Chute Canal, Hand Laid Boulders, AC Shoulder, Cleaning RCPC
4A-4	21 + 880 to 22 + 135	L	Concrete Lined Canal (L/R), Concrete Chute Canal, Hand Laid Boulders, AC Shoulder (L/R), Cleani RCPC)
5'	22 + 130 to 22 + 240	L/R	Concrete Lined Canal, AC Shoulder
5^{2nd}-5^{3rd}	22 + 240 to 22 + 500	R	Gabion Catch Wall, Concrete Spray, Grouted Riprap, AC Pavement, Concrete Lined Canal (L/R), Concrete Chute Canal, Grouted Riprap, AC Shoulder (L/R)
5A-1/5A-2	22 + 500 to 22 + 720	L/R	Stone Masonry Wall, AC Pavement, Concrete Lined Canal (L/R), Concrete Chute Canal, Hand Laid Boulders, AC Shoulders (L/R)
6 & 6'	22 + 720 to 22 + 888	R	Concrete Spray, Concrete Crib, Anchor with Angular Framing, Rock Bolt, Grouted Riprap, AC Pavement, Concrete Lined Canal (L/R), Concrete Chute Canal, Grouted Riprap Shoulder (L/R),
7 & 7A	22 + 970 to 23 + 320	L	Supported Type Retaining Wall, Box Structure with Stone Masonry Wall, Box Structure with Stone Masonry Wall, H-pile with Ground Anchor, Concrete Lined Canal, Curb and Gutter, Concrete Chute Canal, Hand Laid Boulders
8	23 + 320 to 23 + 460	L	Supported Type Retaining Wall, Concrete Lined Canal, AC Shoulder (R/L), Grouted Riprap, Concret Chute Canal, Cleaning and Extension of RCPC
8A-1	23 + 460 to 23 + 580	L/R	Concrete Lined Canal, Curb and Gutter, Concrete Chute Canal (L), Hand Laid Boulders (L), AC Shoulder, Cleaning of RCPC
8A-2	23 + 580 to 23 + 760	L	Concrete Lined Canal, Concrete Chute Canal, Gabions, Hand Laid Boulders, AC Shoulder (L/R), Cleaning of RCPC, Gabions
9	23 + 787 to 23 + 860	L	Stone Masonry Wall, Concrete Lined Canal, Concrete Chute Canal, Hand Laid Boulders, AC Should (L/R)
10A	23 + 860 to 23 + 900	L	Concrete Lined Canal, AC Shoulder (L/R)
10	23 + 900 to 23 + 960	L	Stone Masonry Wall, Curb and Gutter, AC Pavement, Concrete Lined Canal (L/R), Concrete Chute Canal, Hand Laid Boulder, AC Shoulder (L/R), Cleaning of RCPC
13	30 + 520 to 30 + 640	L	AC Pavement, Concrete Lined Canal (L/R), Curb and Gutter, Concrete Chute Canal (L/R), Hand Lai Boulders (L/R), AC Shoulder (L/R)
13F	31 + 440 to 31 + 540	L	AC Pavement, Concrete Lined Canal, Curb and Gutter, Concrete Chute Canal (L/R), Hand Laid Boulders (L/R), AC Shoulder (L/R), Cleaning of RCPC
13G	32 + 080 to 32 + 127	L	Stone Masonry Wall, Concrete Lined Canal (L/R), Curb and Gutter, Concrete Chute Canal (L/R), Ha Laid Boulder (L/R), AC Shoulder (L/R)
13A	32 + 160 to 32 + 560	L	Realignment of Road (full), AC Pavement (full), Stone Masonry Wall (R), Reshaping of Embankmen (L/R), Vegetation (R), Curb and Gutter (R), Grouted Riprap, Horizontal Drain, Concrete Lined Canal (L/R), Concrete Chute Canal (L/R), Hand Laid Boulders (L/R), AC Shoulder (L/R), Extension of RCP Gabion
13DA	34 + 340 to 34 + 390	L	AC Pavement, Concrete Lined Canal (L/R), Curb and Gutter (R), Concrete Chute Canal (L/R), Hand Laid Boulders (L/R), Gabion Apron, AC Shoulder (L/R)
26	50 + 200 to 50 + 365	L	Reshaping of Embankment with Vegetation, AC Pavement, Concrete Lined Canal (L/R), Curb and Gutter (L/R), Concrete Chute Canal (L/R), Hand Laid Boulders (L/R), Cleaning and Extension of RCPC
15A	51 + 440	L	Chute Canal, Hand laid Boulders (L/R), Cleaning of RCPC
15	51 + 630 to 51 + 840	L	Concrete Lined Canal (L/R), Concrete Chute Canal (L/R), Curb and Gutter, Hand Laid Boulders, Gabions, AC Shoulder (L/R)
16A	53 + 750 to 53 + 860	R	Supported Type Retaining Wall, Concrete Lined Canal (L/R), Curb and Gutter, Concrete Chute Can Hand Laid Boulders, AC Shoulders (L/R), Cleaning of RCPC
16	53 + 860 to 53 + 980	R	Stone Masonry Wall, Vegetation, Concrete Lined Canal (L/R), Concrete Chute Canal, Hand Laid Boulders, AC Shoulder (L/R), Cleaning of RCPC

Table 5-1 : SUMMARY OF SELECTED REMEDIAL WORKS IN DIGOS-GENERAL SANTOS ROAD

[illegible]	[illegible]	[illegible]	[illegible]
24	54 + 682 to 54 + 755	R	Supported Type Retaining Wall, Stone Masonry Wall, Vegetation, Concrete Lined Canal (L/R), Concrete Chute Canal, Hand Laid Boulders, AC Shoulder (L/R)
23'	54 + 830 to 54 + 860	R	Stone Masonry Wall, Vegetation, Concrete Lined Canal, Curb and Gutter, AC Shoulder (L/R)
23	54 + 860 to 54 + 920	R	Concrete Lined Canal (L/R), Curb and Gutter, Concrete Chute Canal, Hand Laid Boulders, AC Shoulder (L), Cleaning of RCBC
22	54 + 920 to 55 + 080	R	Box Structure H-Pile with Ground Anchor, Stone Masonry Wall, Vegetation with Cocomat, Concrete Lined Canal (L/R), Concrete Chute Canal (L/R), Hand Laid Boulders, AC Shoulder (L/R), Cleaning o RCBC
20	55 + 340 to 55 + 680	L/R	Concrete Lined Canal, AC Shoulder, Vegetation with Cocomat (R)
19	55 + 680 to 55 + 827.15	L	Reshaping of Embankment with Vegetation, Concrete Lined Canal (L/R), Concrete Chute Canal (L/F RCPC (L/R), AC Shoulder (L/R), AC Pavement of baranggay road (R/L)
17A	64 + 640 to 64 + 770	R	Concrete Lined Canal (L/R), Concrete Chute Canal, hand Laid Boulders, Reshaping of Embankment with Vegetation, AC Shoulder (L/R)

Table 5-2 : Remedial Works in Digos-General Santos Road

Location No.	Stations	Side	REMEDIAL WORKS																					
			Realignement	AC Pavement	Stone Masonry Wall	Supproted Type Wall	Gabion Wall	Box Structure	H-Pile with Ground Anchor	Bored Pile	Grouted Riprap	Crib Works	Anchor with Angular Framing	Concrete Spray	Rock Bolt	Vegetation	Reshaping	RCPC/RCBC	Drainage/Side Ditch	Horizontal Drain	Gabion	AC cover on Shoulder	Curb and Gutter	Guardrail
2	21 + 069.7 to 21 + 140	L		X	X								X						X			X		X
2A	21 + 140 to 21 + 299	L			X								X						X			X		X
3A	21 + 299 to 21 + 379	L		X									X			X			X			X	X	X
4A-1	21 + 447 to 21 + 590	L																	X			X		
4A-2	21 + 590 to 21 + 740	L					X						X						X			X	X	X
4A-3	21 + 740 to 21 + 880	L																	X			X	X	
4A-4	21 + 880 to 22 + 135	L											X						X			X		X
5'	22 + 130 to 22 + 240	L/R																	X			X		
5[2nd]-5[3rd]	22 + 240 to 22 + 500	R	X	X			X				X								X			X		
5A-1/5A-2	22 + 500 to 22 + 720	L/R	X	X	X									X					X			X		
6 & 6'	22 + 720 to 22 + 888	R	X	X							X	X	X	X	X	X			X					
7 & 7A	22 + 970 to 23 + 320	L			X			X	X										X			X	X	X
8	23 + 320 to 23 + 460	L				X				X								X	X			X		X
8A-1	23 + 460 to 23 + 580	L/R																	X		X	X	X	
8A-2	23 + 580 to 23 + 760	L																	X		X	X		
9	23 + 787 to 23 + 860	L			X														X			X		X
10/10A	23 + 860 to 23 + 960	L		X	X														X			X	X	X
13	30 + 520 to 30 + 640	L		X													X		X			X	X	X
13F	31 + 440 to 31 + 540	L		X															X			X	X	X
13G	32 + 080 to 32 + 127	L			X											X			X			X	X	X
13A	32 + 160 to 32 + 560	L	X	X							X					X	X	X	X	X	X	X	X	X
13DA	34 + 340 to 34 + 390	L		X															X		X	X	X	X
26	50 + 200 to 50 + 365	L		X												X	X	X				X	X	X
15A	51 + 440	L																	X					
15	51 + 630 to 51 + 840	L																	X		X	X	X	X
16A	53 + 750 to 53 + 860	R				X										X			X			X	X	X
16	53 + 860 to 53 + 980	R			X											X			X			X		X
24	54 + 682 to 54 + 755	R			X	X				X						X			X			X		X
23'	54 + 830 to 54 + 860	R				X										X						X	X	X
23	54 + 860 to 54 + 920	R																	X			X	X	X
22	54 + 920 to 55 + 080	R			X			X	X										X			X	X	X
20	55 + 340 to 55 + 680	L/R														X			X			X		X
19	55 + 680 to 55 + 827.15	L		X												X	X		X			X		X
17A	64 + 640 to 64 + 770	R														X	X		X			X		X

Table 5-3 List of Environmental Conditions That May be Affected by the Project

ENVIRONMENTAL CONDITION	PROBABLE IMPACT					
	CONSTRUCTION PHASE			*OPERATION PHASE*		
	Beneficial	Adverse	None	Beneficial	Adverse	None
1.0 natural environmental condition						
1.1 Land						
1.1.1 Topography			0			0
1.1.2 Soil Quality			0			0
1.1.3 Critical Slope		2		5		
1.1.4Controlled / Protected Areas		2			2	
1.2 Water						
1.2.1 Surface Water Quality		1			1	
1.2.2 Groundwater Quality		1			1	
1.2.3 Turbidity and Salinity		1			1	
1.2.4 Recharge Aquifers			0			0
1.3 Atmosphere						
1.3.1 Noise		2			2	
1.3.2 Vibration		2			2	
1.3.3 Air Quality		2			2	
1.4 Process						
1.4.1 Erosion		1		5		0
1.4.2. Landslide		2		5		1
1.4.3 Floods			0	5		0
1.5 Biological						
1.5.1 Wildlife		1			1	
1.5.2 Flora & Fauna		1			1	
1.5.3 Endangered Species		1			1	
1.6 Aesthetics						
1.6.1 Tourist Spots			0			0
1.6.2 Landscape		1			1	
1.6.3 Cultural Community / Settlement	2			2		
1.6.4 Archeological, Historical or Scientific Interest			0			0
2.0 Socio-Economic Condition						
2.1 Land Use and Land Values						
2.1.1 Agricultural	1			2		
2.1.2 Forestry			0			0
2.1.3 Mining & Quarrying	2					0
2.1.4 Residential	2			2		
2.1.5 Commercial	3			4		
2.1.6 Industrial	3			4		
2.2 Demography						
2.2.1 Population			0	2		
2.2.2 Migration			0	2		
2.3 Economic						
2.3.1 Income	2			3		
2.3.2 Labor & Employment	2			3		
2.4 Basic Amenities						
2.4.1 Health			0	2		
2.4.2 Education			0	2		
2.4.3 Recreation			0	2		
2.4.4 Transport & Communication		1		3		

Legend:

Measure of Intensity

0 = None	1 = Very Low	2 = Low	3 = Moderate	4 = High	5 = Very High

During the site inspection, the listed construction related impacts were assessed to have very minimal and insignificant adversities to the receiving environment of the Digos - General Santos Road. Close coordination with National Commission on Indigenous People (NCIP) is required because the project road passes through an area covered by Certificate of Ancestral Domain Claim (CADC).

5.2 OPERATION RELATED IMPACTS

More beneficial impacts as compared to the adverse effects are expected once the construction of the remedial work is completed. Completion of remedial works improves and enhances the operational performance and efficiency of the Digos-General Santos Road.

The operation of an improved roadway contributes to the increase in population and growth in economy of the roadside communities. It caters better and efficient transportation and communication developments in and around the roadways.

Within the project area, increase in the utilization of available land for agricultural purposes is highly expected during the operation of an improved roadway. The same can be expected with other economic activities such as opening of more roadside business ventures and vending of indigenous products along selected and safe sections of the roadway. All these contribute to: 1) increase in income; 2) additional revenues for the local government units; and 3) improvement of economic and social being of roadside residents.

5.3 ENVIRONMENTAL COMPLIANCE REQUIREMENT

In cognizance of the P.D. 1586 otherwise known as the "Environmental Impact System", the Remedial Works on Specified Landslide Areas and Slip Sections along Digos-General Santos Road need to comply basic requirements. These requirements include: a) submission of project descriptions; b) resolutions from the Local Government Units; and c) issuance of Certificate of Non-Coverage (CNC).

5.3.1 Submission of Project Descriptions

As part of the environmental compliance procedure, scoping meetings were conducted with the Regional Office of the Environmental Management Bureau (EMB) of the DENR in Davao City. The EMB Office in this city has administration jurisdiction over environmental matters of the Digos-General Santos Road Project. In the scoping meetings, the project description of the Remedial Works on Specified Landslide Areas and Roadslip Sections of the Digos-General Santos Road was required and presented.

The contents and substance of the project description were accepted and subjected to review and evaluation prior to the granting of Certificate of Non-Coverage (CNC). The Project Description includes discussion on the following:

a) General Information – presents the project title, name and address of project proponent, proponents contact person and the location of the project;
b) Project Description – presents the plan/design components and activities during the construction and operation phases of the project;
c) Description of Project Surroundings – describes the existing physical, biological and socio-economic conditions, where the project will be located; and,
d) Predicted and Assessed Impacts and Proposed Mitigation Measures – describes the possible impacts that are likely to occur in various stages of the project development and the corresponding mitigation and enhancement measures to prevent and/or minimize the occurrence of adverse impacts and strengthen the positive effects of the project.

5.3.2 Resolution from the Local Government Units

Meetings with councils of affected barangays along the Digos-General Santos Road were held. The Project Description was presented and discussed with the officers and members of the Barangay Councils. These councils, which granted resolutions favorable to the road remedial project include the following:

1) Brgy. Bolton, Malalag, Davao del Sur
2) Brgy. JP Laurel, Malungon, Sarangani
3) Brgy. Malungon, Ganay, Malungon, Sarangani
4) Brgy. Taga sule, Malalag, Davao del Sur
5) Brgy. Nagpa, Malungon, Sarangani
6) Brgy. Banate, Malungon, Sarangani

5.3.3 Issuance of Certificate Non-Coverage

After careful evaluation of the submitted Project Description documents augmented with favorable resolutions from the affected barangays, the regional office of EMB-DENR in Region XI came to a conclusion that the Digos-General Santos Road Remedial Works Project falls under "Category C" (Projects intended to directly enhance environmental quality or address existing environmental problems). Projects under Category C are exempted from securing an Environmental Compliance Certificate (ECC).

The Certificate of Non-Coverage (CNC) No. 11-2004-187 dated 23 November 2004 was issued by EMB-DENR Region XI, for the Digos-General Santos Road Remedial Works Project. It highlights major condition on securing necessary permit to cut trees whenever applicable from the regional offices of DENR-CENRO and DENR DENRO. The CNC is presented in Appendix A.

5.4 WASTE MANAGEMENT AND DISPOSAL STRATEGY

The DPWH shall submit a waste management and disposal strategy to the EMB-DENR Region XI for approval prior to the implementation of the Regional Works in Specified Landslides Areas and Slip Sections of the Digos-General Road. Close coordination with National Commission on Indigenous People (NCIP) is required to select disposal sites because the parts of the project road pass through an area covered by Certificate of Ancestral Domain Claim (CADC).

5.5 CONTINGENCY RESPONSE STRATEGY

During the Construction Phase of the Remedial Works in Specified Landslide Areas and Slip Sections of Digos-General Santos Road, the Constructors / Contractor must ensure that:

a) Adequate warning signs, barricades, warning lights including traffic aides are provided at all timed during construction'
b) Vehicles for emergency cases are provided;
c) All equipment are in good working condition;
d) Crews follow safety procedures and are equipped with safety paraphernalia;
e) Safety and emergency contingency programs are formulated and coordinated at all times;
f) Temporary stockpiles and disposal sites are properly protected and secured; and
g) Construction spoils are properly hauled to designated disposal sites.

5.6 ABANDONMENT STRATEGY

Abandonment measures must be implemented immediately after the construction activities. Upon completion of the project, all parties concerned, such as the DPWH, DENR, NCIP and the LGUs must inspect the area to check if:

a) Temporary structures are properly dismantled and disposal;
b) Facilities, utilities and service connections are properly re-installed or re-commissioned in the usual functioning condition;
c) Construction equipment and waste materials are properly accounted and transported back to the Contractors' and
d) Temporary camps and facilities are properly cleared of debris.

5.7 ENVIRONMENTAL

5.7.1 Monitoring Activities

The EMB-DENR and DPWH are expected to conduct monitoring on the progress and performance of the roadway project.

The following will be monitored during the Construction Phase:

a) Implementation of approved plan/program on structural, engineering design, drainage, waste disposal, noise pollution control, tree-cutting etc.
b) Prevention of dust build-up by water spraying;
c) Sustenance of good water quality and clean waterways; BOD, TSS, oil and grease must be regularly checked.
d) Compliance to occupational health and safety regulations by the contractor;
e) Waste reduction, recovery re-use and recycling activities on-site;
f) Sanitary conditions at worker camps;
g) Adequacy and reliability of safety features on site; and
h) Implementation of tree planting, road maintenance and landslide remediation scheme.

5.7.2 The Multi-Partite Monitoring Team (MIT)

As stipulated in DAO 96-37, a Multi-Partite Monitoring Team (MMT) must be formed immediately before the start of construction and after the issuance of the Certificate of Non-Coverage (CNC). The main goal of the MMT is to monitor the DPWH as well as the Contractor's compliance to the CNC conditions, the Environmental Management Plan (EMP) and other applicable laws, rules and regulations. In addition to these, the MMT shall also:

a) Gather relevant data to determine possible causes of unavoidable and residual adverse impacts and validity of Public Complaints or concerns about the project; and,

b) Prepare, integrate and disseminate monitoring reports and submit recommendations to DENR.

Members of the MMT shall be selected by concensus among heads and officials of EMB-XI and XII, DPWH-XI and XII, NCIP, LGUs, Pos, NGOs and other bonafide representatives from the communities concerned. Since some of the project locations are situated in the area of Certificate of Ancestral Domain Claims (CADCS), involvement of NCIP is necessary.

5.7.3 Environmental Monitoring Matrix

Table 5.3 shows the proposed Environmental Monitoring Program for the implementation of the proposed "Remedial Works in Specified Landslide Areas and Slip Sections of Digos-General Santos Road.

5.7.4 Institutional Operation

The institutional operation of the Environmental Management Plan (EMP) shall strictly adhere within the existing institutional organization of DPWH. Figure 5.4 outlines the institutional structure that will be operated during the project implementation.

5.8 CONSTRUCTION CONTRACTOR'S ENVIRONMENTAL PROGRAM

The rules, regulations and conditions stipulated in the Certificate of Non-Coverage (CNC) must be incorporated in the contract between the Proponent and whoever will be selected as Construction / Contractors. The Constructors / Contractors shall comply with the measures stated in the Certificate of Non-Coverage (CNC) issued by the Environmental Management Bureau-Region XI.

Table 5-3 Environmental Monitoring Program

Parameters to be Monitored	Stations to be Monitored	Frequency of Monitoring	Method of Analysis/Execution	DENR Standard	Implement
CONSTRUCTION PHASE					
PHYSICAL					
Water Quality BOD, TSS, and oil and Greases of surface	All remedial works, in specified Landslide areas and slip sections	Quarterly during Construction	Standard EMPASS-EQD Water quality analysis	Class "C" BOD - <10 mg/L TSS-<30 mg/L increase Oil & Grease - <3mg/L	DENR – EMN Region –XI
BIOLOGICAL					
Tree Cutting	Entire alignment where there are trees to be Cut	Daily	Monitoring team must ensure that tree cutting is limited within the required ROW only	N.A.	DENR/DPWH
Waste management and disposal	All portions of project sites with excavation And fill activities	Weekly during construction	Site Inspection	Based on EMP	DENR – EMB - Region XI
SOCIAL					
Compliance of Contractor to occupational Health and safety rules and regulation	All construction areas.	Weekly	Site inspection of work areas Including sanitation facilities	Based on EMP	DENR/DPWH
Road Safety	Signages and detour routes	Quarterly	Site inspection	Based on DPWH Standard Operating Procedures	DPWH
OPERATIONAL PHASE					
BIOLOGICAL					
Tree planting and its maintenance on both Sides of the highway, and possibly at Areas designated for construction	Designated environmental belts/zones, and R-O-W for construction	Monthly	Site inspection	Based on EMP	DENR/DPWH
SOCIAL					
Informal setting/squatting	Acquired R-O-W for Construction	Weekly	Site inspection	Based on EMP	DENR/DPWH
Illegal conversion of prime agricultural Land	Areas adjacent to the project	Weekly	Site inspection	Based on EMP	DENR/DPWH
Road condition	Road pavement, drainage system, embankments, Bridge shoulders, etc.	Based on standard DPWH Maintenance procedures	Standard DPWH road and Bridges maintenance works	Based on DPWH Standard Operating Procedures	DPWH/DENR

6.0 RESETTLEMENT ACTION PLAN (RAP)

6.0 RESETTLEMENT ACTION PLAN (RAP)

6.1 RATIONALE AND OBJECTIVES

The DPWH Resettlement Policy was formulated to provide guidelines during the implementation of road projects for World Bank-assisted First National Roads Improvement Management Program (NRIMP). The department has promulgated the social policy framework and specific guidelines that are operationalized for Land Acquisition Resettlement Rehabilitation (LARR), and are the basis for the drafting of the Resettlement Action Plan (RAP). The main purpose of the policy framework is to clarify resettlement principles, organizational arrangements, and design criteria to be applied to road projects to be prepared during project implementation.

The main objectives for the preparation of the RAP are:

1. So that adverse social and physical impacts are avoided, minimized and/or mitigated;
2. That everybody, particularly the Project Affected Persons (PAPs) will benefit from the project;
3. Stakeholders (including PAPs) were fully informed, consulted on the projects design, implementation and operation;
4. See to it that PAPs are provided with sufficient compensation and assistance for lost of assets and improve or at least maintain their pre-project standard of living;

6.2 PROJECT IMPACTS

6.2.1 Impacts on Land and Improvements

Based on the information gathered from Davao del Sur 2nd Engineering District, the road-right-of-way (RROW) is 60 meters, however, there are sections of the road that need slope protection and/or improvement of the drainage system which extend beyond the RROW limits of the project road.

There is no area covered by Certificate of Ancestral Domain Title (CADT) along the project road.

No possible quarry site nor stockpile area have been identified within the CADC area.

The project road has cut across the CADC area as shown in Figure 6.1. However, there are only four (4) PAPs, who will be affected by the drainage improvement at Barangay Banate, Malungon in Sarangani Province.

Overall in this project road eleven (11) PAPs whose land and/or improvements will be affected by the Project. One (1) is classified has impact on both land and improvements and remaining ten (10) cases are classified to impacts on improvements only as shown in Table 6.1. Details of the survey results are presented in Appendix C.

Table 6.1 - Summary of Impacts on Land and Improvements

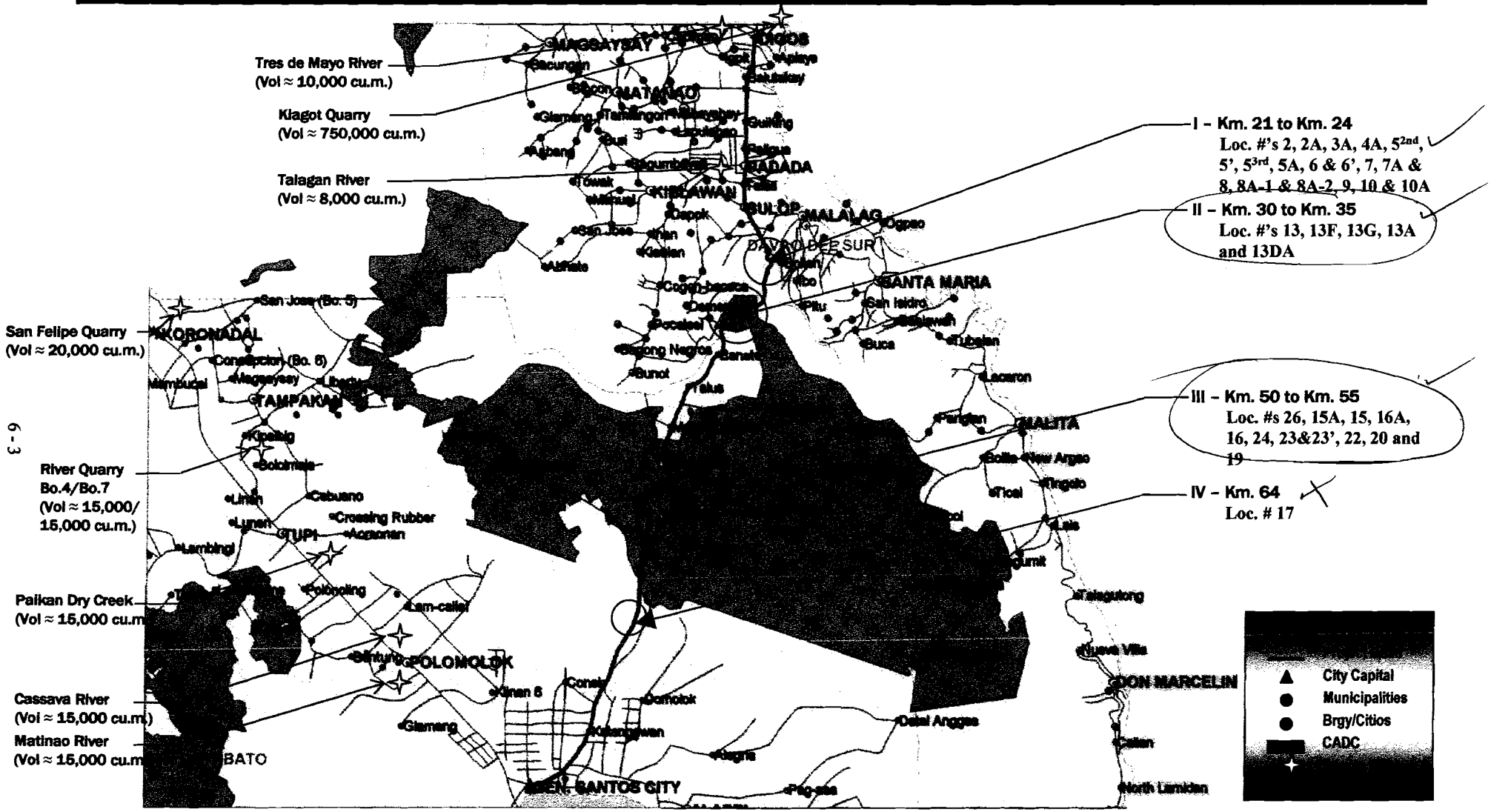
Particulars	No. of PAPs	Land Classification	Extent of Impact	Land Value, ₱	Cost of Improvements, ₱	Total, ₱
1. land and improvements	1	Agricultural	M	20,045.75	16,875.20	36,920.95
2.improvements only	10	Agricultural	M	-	24,033.60	24,033.60
Total	11			₱ 20,045.75	₱ 40,980.00	₱ 60,954.55

Since the project road has cut across the CADC area, the possibility of quarrying in the area remains, the contractors should be informed during the pre-construction conference that the project road is located in the CADC area. This matter should be monitored closely by the Multi-Partite Team (MMT). National Commission on Indigenous People (NCIP) shall be appointed as one of the members of MMT.

6.2.2 Impacts on Structure

There are two (2) PAPs who own both a small store and a rest house made with nipa and sawali (bamboo) located within the RROW, are identified to be affected by the improvement of the drainage system at Location 13A. These PAPs who own small stores of gasoline will receive income loss due to the business

Figure 6-1: CADC MAP – PROVINCE OF DAVAO DEL SUR AND SOUTH COTOBATO



interruption during the removal of their stores are estimated to have an income loss at ₱500/day for the period of one (1) week. Table 6.2 summarized the impacts on land and improvements. These PAPs are not Indigenous People (IPs).

Table 6.2 - Summary of Impacts on Land and Improvements

Particulars	No. of PAPs	Use of Bldg.	Has an area to relocate	Extent of Impact	Replacement Cost	Cost Entitlements (Income Loss)	Total Compensation
Structure	2	Commer-cial	Yes (Removable)	Severe	₱ 12,506.20	₱ 7,000.00	₱ 19,506.20
		Rest House	Yes (Removable)	Severe	5,057.50	-	5,057.50
Total	11				₱ 17,563.70	₱ 7,000.00	P 24,563.70

6.3 CONSULTATION

As mentioned in Section 8.3.2. Consultation meetings were conducted with the local officials at the barangay level from October 1 to 5, 2004. Barangays consulted were Barangays Bolton and Tagansule of the Municipality of Malalag, Barangay JP Laurel, Malungon Gamay, Nagpan and Banate of the Municipality of Malungo. The local officials were fully informed about the proposed remedial measures along the project road.

6.4 COMPENSATION PACKAGE

Particulars	Extent of Impact				Total, ₱
	Marginal		Severe		
	PAPs	Amount, ₱	PAPs	Amount, ₱	
1.Land	1	20,045.75	-	-	20,045.75
2.Land and Improvements	10	40,980.80	-	-	40,580.80
Sub-total	**11**	**65,304.55**	**-**	**-**	**60,954.55**
3. Structure	-	-	2	17,563.70	17,563.70
Sub-Total	**-**	**-**	**2**	**17,563.70**	**17,563.70**
4.Other Entitlements					
a. Income Loss	-	-	2	7,000.00	7,000.00
Sub-total	-	-	2	7,000.00	7,000.00
TOTAL	**11**	**₱ 65,304.55**	**2**	**₱ 7,000.00**	**₱ 85,518.25**

6.5 TOTAL RAP COST

The following is the summary of the total estimated cost of the RAP including the cost of implementation:

Compensation Package:		
Land	₱	60,954.55
Structure		17,563.70
Other Entitlements		7,000 00
Sub-total	₱	85,518.25
Contingencies (10%)		8,551.82
Management Cost (minimum)		50,000.00
	₱	**144,070.07**

6.6 IMPLEMENTATION SCHEDULE

The implementation of the RAP follows as soon as the World Bank concurs with the salient features of the RAP as endorsed by the GOP through DPWH/IBRD-PMO. After the approval of the RAP Report, implementation will be implemented by the Davao del Sur 2nd Engineering District, managed by ESSO with close coordination with IBRD-PMO. DPWH-Region XI will be the primary link to the DEO.

6.7 MOU AND ESTABLISHMENTS OF RIC

After receiving the approval to implement the RAP, a Memorandum of Understanding (MOU) between the DPWH and the Municipalities of Digos City and Malungon government shall be executed to ensure commitment of parties concerned. This MOU between the DPWH and the Local Government Units shall be used in the establishment of the RAP Implementation Committee (RIC) and execute the function for the Grievance Redress Committee.

6.7.1 Formation and Training of the RIC

The composition of RIC are the following:

(i) Mayor of Digos City or his representative
(ii) Mayor of Malungon or his representative
(iii) District Engineer of Davao del Sur 2nd Engineering District concerned or his designated representative
(iv) Representative of NCIP

(v) Barangay Captains of Babag, Sibogay, Pung-ol and Prenza and other local government that maybe identified during the implementation of RAP

(vi) Representative from NGO/PO operating in the area

Once the RIC is created, ESSO shall arrange for the conduct of the series of training workshops. During these workshops, the members of the RIC will be fully guided on LARR Policy and the proper implementation of the RAP in accordance with the said policy.

6.7.2 Validation of RAP report

Once the RIC has undergone the training/workshops necessary for the implementation of the RAP, they will now proceed to the review and actual validation of the RAP report and if necessary, make updates of the compensation rates for land, structures, improvements, and other entitlements due to PAPs.

6.7.3 Public Information Campaign

As soon as the validating team finds the RAP report to be satisfactory or is in compliance with the standards set in the LARR Policy Framework, then a public information campaign can be launched and informed the public of the latest development in the implementation schedule and other activities they should be involved in. The RIC is also responsible in informing the PAPs of the necessary documents pertaining to the settlement compensation for fixed assets.

6.7.4 Finalization of the Compensation Package

The RIC will then visit each PAP to validate the inventory of affected assets, the PAP will fill up some forms to indicate their concurrence to the compensation package they will receive. Once, the PAP will agree, a Compensation and Entitlement Forms shall be accomplished, signed by the PAP, and noted by the concerned Barangay Captain.

6.7.5 Implementation Schedule

Before the start of civil works, RAP implementation shall be completed first. This means that the PAPs have been paid, reorganized or relocated and the RAP process has been fully complied.

Table 6.2 RAP implementation schedule by activity

Activity	Month					
	1	2	3	4	5	6
1.Formation & Training of RIC						
2.Public Information						
3.Stake-out and Validation						
4.Finalization of Compensation Package						
5.Disclosure of Payment						
6.Payment						
7.Internal Monitoring						
8.External Monitoring						

6.8 GRIEVANCE REDRESS PROCEDURE

During the validation survey, if a PAP disagrees on the compensation package offered to them, the same shall be handled through negotiations following the succeeding procedures:

(i) PAPs may file their grievances to the RIC, who in turn must properly document the complaint and act on it within 15 days upon receipt of the said complaint;

(ii) If no action undertaken or amicable solution is reached, or if the PAP do not receive a response from the RIC, the complainant can appeal to the Office of the DPWH Regional Director which should act on the complaint/grievance within 15 days from the day of filing;

(iii) If the PAP is not satisfied with the Office of the DPWH Regional Director Office's decision, they can now elevate the case to the court of law.

APPENDIX

APPENDIX A
CERTIFICATE OF NON-COVERAGE
(CNC)

ENVIRONMENTAL
MANAGEMENT BUREAU

Republic of the Philippines
Department of Environment and Natural Resources
ENVIRONMENTAL MANAGEMENT BUREAU
OFFICE OF THE REGIONAL DIRECTOR
Region XI
Door 7 & 8 Felbel's Bldg., Lanang, Davao City
Tel. Nos. 234-0166 • 234-0061 • 234-0174 • 233-0809 • 235-1354 (fax)
email address: embdavxi@yahoo.com or embdavxi@skyinet.net

CNC-11-2004-187

The Director
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
Bonifacio Drive, Port Area, Manila

Subject: ***Certificate of Non-Coverage (CNC)***

Dear Sir:

This is to inform you that your proposed **81.0 kms. Digos-General Santos Road Remedial Works Project,** is not covered by the EIS System (P.D. 1586). Hence, exempted from securing an Environmental Compliance Certificate (ECC), subject however, to the following conditions:

1. That it shall be the responsibility of the Project Proponent to secure necessary permits from other agencies concerned to include, but not limited, to the following:

   - DENR-CENRO/PENRO on Permit to Cut Trees, whenever applicable.

THAT THE MONITORING OF THE ABOVE-STATED PERMITS/CLEARANCES SHALL BE THE SOLE RESPONSIBILITY OF THE RESPECTIVE GOVERNMENT AGENCIES CONCERNED.

Given this 20th day of November, 2004, at Davao City, Philippines.

GREGORIO T. ESTRADA
Regional Director

Recommending Approval:

RUFINO C. BANDIALAN
OIC Chief, EIA Division

Filing & Processing Fee: P 600.00 O.R. No. 8836388 F Date Issued: 11-12-2004

APPENDIX B
ENDORSEMENT OF NO OBJECTION FROM VARIOUS LGU

Republic of the Philippines
Region XII
Province of Sarangani
Municipality of Malungon
Barangay Malungon Gamay

" OFFICE OF THE BARANGAY COUNCIL "

EXCERPTS FROM THE MINUTES DRING THE REGULAR SESSION OF THE BARANGAY COUNCIL OF MALUNGON GAMAY, MALUNGON, SARANGANI PROVINCE, CONDUCTED LAST OCTOBER 01, 2004, AT EXACTLY 9:00 O'CLOCK IN THE MORNING AT THE MULTI-PURPOSE BUILDING OF THIS BARANGAY.

Present :

1. Rogelio D. Arante - - - Barangay Captain
2. Morello P. Puton - - - Barangay Kagawad
3. Rolando D. Benlot - - - -do-
4. Arsenio B. Gallardo - - - -do-
5. Lorna S. Cagunan - - - -do-
6. Regildo M. Tigdo - - - -do-
7. Victorino B. Taño - - - -do-
8. Rudy G. Desabille - - - -do-
9. Honey Grace M. Mabalot - - - S.K. Chairwoman

Absent : NONE

RESOLUTION NO. 024
Series of 2004

" A RESOLUTION PLAINLY EXPRESSING NO OBJECTION TO THE REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS AND ROAD SLIP SECTION BY THE IBRD-ASSISTED FIRST NATIONAL ROADS IMPROVEMENT AND MANAGEMENT PROJECT, PARTICULARLY THE DIGOS TO GENERAL SANTOS CITY ROAD "

WHEREAS, the Japan Overseas Consultants Co., Ltd. furnished a copy of their Project Design to the Barangay Council of Malungon Gamay, Malungon, Sarangani Province. The proposal aims to set in operation for a remedial works in specified landslide areas and slip sections at a certain portions of the Digos to General Santos City Road;

WHEREAS, the project is so timely considering the existing problems on landslide and slip sections that the barangay has experiencing, as per concern to our National Highway. And also, the program will ensure the safety of the commuters and residents that travel to and fro;

WHEREAS, the said company/group clearly requesting the Barangay Council of Malungon Gamay for an endorsement expressing no objection to the project, considering that barangay Malungon Gamay is part of the mentioned road. Furthermore, as to mandatory requirement of EMB-DENR Region XII, for the implementation of the above-stated project.

NOW THEREFORE, upon the motion of Barangay Kagawad Morello P. Puton and duly seconded by Barangay Kagawad Arsenio B. Gallardo, it is resolved, to wit;

RESOLVED, as it is hereby resolved to create a Barangay Resolution declaring no objection to the remedial works in specified landslide areas and road slip sections by the IBRD-Assisted First National Roads Improvement and Management Project, particularly the Digos to General Santos City Road.

RESOLVED FURTHER, that a copy of this resolution shall be forwarded to all concern agencies/individuals and to the Japan Overseas Consultants Co., Ltd.

UNANIMOUSLY APPROVED, this 1st day of October, 2004.

- -

I hereby certify the corectness of the said quoted resolution.

ROGELIO D. ARANTE
Punong Barangay

Prepared by:

RODEL S. DESABILLE
Brgy. Secretary

Noted and Approved by:

ROGELIO D. ARANTE
Punong Barangay

Republic of the Philippines
Province of Sarangani
Municipality of Malungon
Barangay Nagpan
OFFICE OF THE SANGGUNIANG BARANGAY

Excerpts from the Minutes of the Regular Session of Barangay Council of Nagpan, Malungon, Sarangani Province, held at Session Hall, Nagpan, Malungon, Sarangani on October 07, 2004.

Present:

HON. MARIO T. TAN	- Barangay Captain/Presiding
HON. EDWIN BALDONADA	- Barangay Kagawad
HON. [illegible]	- Barangay Kagawad
HON. [illegible]	- Barangay Kagawad
HON. [illegible]	- Barangay Kagawad
HON. [illegible]	- Barangay Kagawad
HON. [illegible]	- Barangay Kagawad
HON. [illegible]	- Barangay Kagawad
HON. [illegible]	- SK Chairperson

Absent:

None

Resolution No. 12
Series of 2004

RESOLUTION OF SANGGUNIANG BARANGAY OF NAGPAN, MALUNGON, SARANGANI PROVINCE EXPRESSING NO OBJECTION TO THE REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS AND ROAD SLIP SECTIONS BY THE [illegible] NATIONAL ROADS IMPROVEMENT AND MANAGEMENT PROJECT WITHIN NATIONAL HIGHWAY OF BARANGAY NAGPAN JURISDICTION.

WHEREAS, the said Barangay Council of Nagpan, Malungon, Sarangani has received a copy of a Project Design from the [illegible] [illegible] [illegible] [illegible] [illegible] remedial works in specified landslide areas and slip sections within National Highway of Barangay Nagpan Jurisdiction;

WHEREAS, the body appreciates the significance of the project because it will institute repairs or programs that will ensure the safety of the commuters and the residents that travels to and from the specified areas;

WHEREAS, as a mandatory requirements for the implementation of the above-stated project, the [illegible] has requested a resolution for the Barangay Council of Nagpan, Malungon, [illegible] to express no objection in instituting remedial works in specified landslide areas and road slip section at certain portions within National Highway of Brgy. Nagpan jurisdiction.

NOW, THEREFORE, upon motion of Hon. Edwin Baldonada and jointly sponsorship by the body present in it.

Resolved as it is hereby Resolved, that Resolution of Sangguniang Barangay of Nagpan, Malungon, Sarangani Province, expressing no objection to the remedial works in specified landslide areas and road slip section by the [illegible] National Roads Improvement and Management Project within National Highway of Barangay Nagpan Jurisdiction.

Unanimously Approved;

I hereby certify to the truth and correctness of this foregoing resolution is true and correct.

ATTESTED BY:

MARIO T. TAN
Punong Barangay/Presiding

CERTIFIED CORRECT;

[illegible]
Barangay Secretary

Republic of the Philippines
Province of Sarangani
Municipality of Malungon
Barangay JP Laurel

OFFICE OF THE BARANGAY COUNCIL

EXCERPTS FROM THE MINUTES OF THE 16TH REGULAR SESSION OF THE BARANGAY COUNCIL OF JP LAUREL, MALUNGON, SARANGANI, HELD AT THE BARANGAY HALL ON OCTOBER 1, 2004 AT 10:00 IN THE MORNING.

PRESENT:

HON. HENRY L. LODOVICE	Punong Barangay/Presiding
HON. ROMEL RETUYA	Barangay Kagawad
HON. JUANITO MILLAMA	-do-
HON. SANTIAGO MALAZARTE	-do-
HON. MARCELO BARSALOTE, JR.	-do-
HON. ADIENITO GREGORIO	-do-
HON. DAMASO MALAZARTE	-do-
HON. MELHOR CAINGOY	SK Chairman

ABSENT : NONE

RESOLUTION NO. 16
Series of 2004

A RESOLUTION EXPRESSING NO OBJECTION TO THE REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS AND ROAD SLIP SECTION BY THE FIRST INTERNATIONAL BANK FOR NATIONAL ROAD IMPROVEMENT PROGRAM (NRIMP) OF THE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS (DPWH).

WHEREAS, the Barangay Council of JP Laurel has received a copy of the Project Design from Japan Overseas Consultant Co., Ltd., which elaborate their request for an endorsement from the Barangay Council of JP Laurel expressing no objection to the project of instituting remedial works in specified landslide areas and slip section at certain portion of the Davao-General Santos road;

WHEREAS, the body applauded the significance of the project because it will institute repairs or programs that will ensure the safety of the commuters and the residents that travel to and for the specified areas;

WHEREAS, the construction of the landslide areas and road slip section at certain portion of Davao-General Santos road more particular at JP Laurel will lessen the burden of the commuters and car owners;

NOW, THEREFORE, upon motion of Barangay Kagawad Romel Retuya and duly seconded by the body present, be it.

RESOLVED, as it is hereby resolved to express no objection to the remedial works in specified landslide areas and road slip section by the IBRD-NRIMP of the DPWH.

UNANIMOUSLY APPROVED.

I hereby certify to the correctness of the foregoing resolution, which was duly adopted, by the Barangay Council of JP Laurel, Malungon, Sarangani on October 1, 2004 at 10:00 in the morning at the Barangay Hall.

SERGIO C. MEGIO, JR.
Barangay Secretary

CERTIFED AND DULY ADOPTED:

HENRY L. LODOVICE
Punong Barangay

Republic of the Philippines
Province of Sarangani
Municipality of Malungon
BARANGAY BANATE

EXCERPT FROM THE MINUTES OF THE 15th REGULAR SESSION OF THE BRGY. COUNCIL OF BANATE, MALUNGON, SARANGANI PROVINCE DATED ON OCTOBER 5, 2004 AT BRGY. SESSION HALL .

Present :

EDILBERTO S. YUZON	Barangay Captain/Presiding Officer
ARNELFO P. DOFILES	Barangay Kagawad
MARILOU N. GOMEZA	-do-
FLORENCIA Y. MALUYA	-do-
RAUL S. PADILLA	-do-
MARCIANO T. GORJA	-do-

Absent :

RODOLFO V. NUÑEZ	Barangay Kagawad
SIMPLICIO D. MADRIGA	-do-
EARL ARIES E. MAGNO	SK Chairman

RESOLUTION NO. 026
Series of 2004

RESOLUTION EXPRESSING NO OBJECTION TO THE REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS AND ROAD SLIP SECTION BY THE LGRD- ASSISTED FIRST NATIONAL ROADS IMPROVEMENT AND MANAGEMENT PROJECT .

Whereas , the Brgy. Council of Banate has received a Project Design from the Japan Overseas Consultants Co., Ltd. which elaborates their request for an endorsement from the Brgy. Council of Banate expressing no objection to the project of instituting remedial works in specified landslide areas and slip sections certain portions of the DIGOS - BANATE - GENERAL SANTOS ROAD;

Whereas , the body applauded the significance of the project because it will institute repairs or programs that will ensure the safety of the commuters and the residents that travels to and from the specified areas ;

Whereas , the construction of the Banate National Highway which form part of the DIGOS-GENERAL SANTOS ROAD positively lessen to any Vehicular accident if all portion of the roads especially Landslide areas and slip section be repaired .

Nowthorefore , upon motion of Brgy. Kagawad ARNELFO P. DOFILES, duly seconded by BRGY. KAGAWADS FLORENCIA Y. MALUYA and BRGY. KAGAWAD RAUL S. PADILLA, Jr it .

Resolved , as it is hereby resolved, expressing no objection to the remedial works in specified landslide areas and road slip section by the LGRD-assisted first national roads improvement and management project .

Unanimously Approved ;

CERTIFIED CORRECT :

NIDA M. LANTICSE
Brgy. Secretary

ATTESTED :

EDILBERTO S. YUZON
Barangay Captain

Republic of the Philippines
Province of Davao del Sur
Municipality of Malalag
Barangay Tagansule

OFFICE OF THE SANGGUNIANG BARANGAY

RESOLUTION NO. **20**
Series of 2004

RESOLUTION SIGNIFYING NO OBJECTION AND ENDORSING THE UNDERTAKING OF THE IBRD-ASSISTED PROGRAM OF DPWH TO INSTITUTE REMEDIAL WORKS IN SPECIFIED LANDSLIDE AREAS AND SLIP SECTIONS OF THE DIGOS-GENERAL SANTOS ROAD

WHEREAS, the said road has many slip sections and a landslide area within our barangay, that causes traffic accidents and damage to many crops below;

WHEREAS, the road has been closed many times because of landslide;

WHEREAS, to avoid accidents and to ensure the safety of the riding public;

WHEREFORE, on motion of Kagawad Felicisimo Bautista, duly seconded by Kagawad Ramon Vendiola, it was;

RESOLVED, AS IT WAS HEREBY RESOLVED, to signify no objection and endorse the undertaking of the IBRD-assisted program of DPWH to institute remedial works in specified landslide areas and slip ~~section~~ sections of the Digos-General Santos road.

Unanimously adopted and approved.

This 04th day of October, 2004 at Tagansule, Malalag, Davao del Sur.

Certified correct:

AMELIA C. ARMECIN
Secretary

Attested:

DIOSDADO M. ABASOLO
Punong Barangay
Presiding Officer

Republic of the Philippines
Province of Davao del Sur
Municipality of Malalag
BARANGAY BOLTON

Excepts from the Minutes of the Regular Session of the Sangguniang Barangay held at the Barangay Hall on October 5, 2004.

Present:	Hon. Manuel G. Cabije, Sr.	Punong Barangay/Presiding
	Hon. Joseph Molleta	Barangay Kagawad
	Hon. Joseph Lausa	-do-
	Hon. Roberto Loqueño	-do-
	Hon. Ignacia Diel	-do-
	Hon. Romedger Daligdig, Sr.	-do-
	Hon. Emma Mesoles	-do-
	Hon. Armand Montañes	-do-
	Hon. Romedger Daligdig Jr.	SK-Chairman
Absent:	None	

RESOLUTION NO. 39
Series of 2004

RESOLUTION

INTERPOSING NO OBJECTION AND SUPPORT OF THE PROPOSED PROJECT RE: REMEDIAL WORKS ON SPECIFIED LANDSLIDE AREAS AND ROAD SLIP SECTIONS ALONG THE DIGOS-GENERAL SANTOS ROAD

WHEREAS, a representative of Iwao Yokokawa, Team Leader of Japan Overseas Consultants Co., Ltd. informed us of the proposed project: Remedial Works in Specified Landslide Areas and Road Slip Sections along Digos-General Santos Road;

WHEREAS, the said road will traverse Barangay Bolton, Malalag, Davao del Sur and some of our farmer landowners and residents will ultimately be affected during project implementation;

WHEREAS, this council feel that the proposed project is necessary for the development of the area and the two regions XI and XII;

NOW THEREFORE, premises considered, be it

RESOLVED, as it is hereby resolved by the Sangguniang Barangay of Bolton, Malalag, Davao del Sur for Interposing No Objection and Full Support of the above-mentioned project as long the following conditions/mitigating measures are followed:

1. Public hearing/consultation of project affected persons shall be conducted before implementing the project as mandated by RA 7160;
2. Excabitions and debris shall not be dropped along the side of the road but hauled to the Barangay Roads of Barangay Bolton;
3. To facilitate employment in the area, the contractors shall hire the skilled and unskilled labor especially the project affected families; and
4. Damages as a result of project implementation shall be duly compensated.

RESOLVED FURTHER, that copies of this resolution be furnished the Japan Overseas Consultants Co., Ltd, Office of the Mayor and Sangguniang Bayan of Malalag, Davao del Sur for their information and appropriate action.

UNANIMOUSLY APPROVED.

Certified Correct:

GERARDO TABAGAY JR.
Barangay Secretary

Attested by:

MANUEL G. CABIJE, SR.
Punong Barangay

APPROVED:

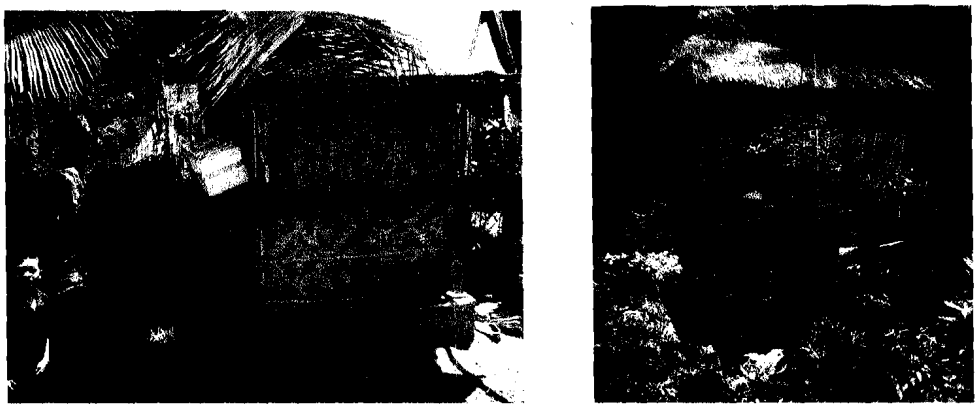
MANUEL G. CABIJE, SR.
Punong Barangay

Date

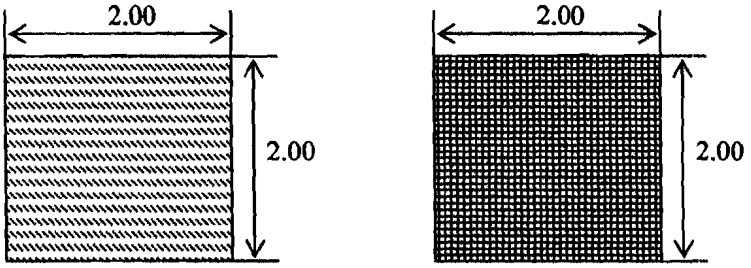
APPENDIX C
RESULTS OF PAP SURVEY
Location No. 13A

Appendix C-1

Loc. 13A of Digos-General Santos Road



Store house (left) and Rest house (right) owned by Victor Sanoria



Store house Rest house

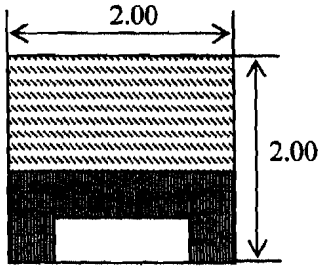
Materials	Unit	Quantity	Unit Price in Pesos	Price
STORE HOUSE				
Gemelina (2"x2"x7')	pcs	4.0	180.00	720.00
Gemelina (2"x3"x6')	pcs	12.0	180.00	2,160.00
Gemelina (2"x2"x8')	pcs	4.0	180.00	720.00
Corr. GI Sheet No. 31x8'	pcs	4.0	252.00	1,008.00
Common Nail	kg	1.0	65.00	65.00
GI Nail	kg	1.5	85.00	85.00
Sawali Wall	pcs	24.0	95.00	2,280.00
Miscellaneous				100.00
Construction Cost		40%	7180.50	2872.20
Sub-Total				**10,052.70**
REST HOUSE				
GI Nail	kg	0.5	85.00	42.50
Bamboo Stick (20')	pcs	6.0	150.00	900.00
Common Nail	kg	1.0	65.00	65.00
Corr. GI Sheet No. 31x8'		5.0	252.00	1,260.00
Miscellaneous				100.00
Construction Cost		40%	2367.50	947.00
Sub-Total				**3,314.50**
TOTAL				**13,367.20**

APPENDIX C-2
SUMMARY OF PAP SURVEY

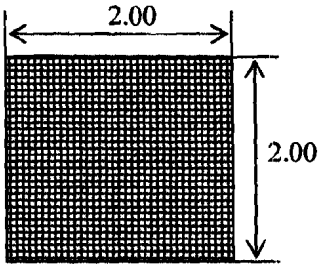
Appendix C-2

Loc. 13A of Digos-General Santos Road

Store house (left) and Rest house (right) owned by Juana Sanoria



Store house



Rest house

Materials	Unit	Quantity	Unit Price in Pesos	Price
STORE HOUSE				
Gemelina (2"x2"x7')	pcs	16.0	180.00	2,880.00
Gemelina (2"x3"x8')	pcs	4.0	180.00	720.00
Gemelina (2"x2"x6')	pcs	8.0	180.00	1,440.00
Nipa Roof	pcs	4.0	45.00	180.00
Common Nail	kg	0.5	65.00	32.50
Miscellaneous				100.00
Construction Cost		40%	1752.50	701.00
Sub-Total				**2,453.50**
REST HOUSE				
Bamboo Stick (20')	pcs	6.0	150.00	900.00
Common Nail	kg	1.0	65.00	65.00
Nipa Roof	pcs	4.0	45.00	180.00
Miscellaneous				100.00
Construction Cost		40%	2367.50	498.00
Sub-Total				**1,743.00**
TOTAL				**4,195.50**

Digos-General Santos Road

Impacts on Land

Loc./Bgy. Municipality	Name of Claimant	Land Classificat'n	Area Affected	Total Area (sq.m.)	Current Value/sq.m.	Cat. of Impact	Amount	Affected Crops Trees/Perrenials	Qty. each/sq.m.		Amount	Amount	Total Amount
Loc 2 Loc 2a Sulop, Digos City	Carol Tubak	Agricultural						Banana Hill	each	10	34.00	340.00	340.00
Loc 5-2nd :Loc 5-3rd	Atty. Leopoldo Geones	Agricultural	1,045.676	50,000	1.714	M	1,792.29	Coconut Tree	each	12	493.60	5,923.20	36,920.95
Loc 6 and 6'		Agricultural	10,649.63	120,208	1.714	M	18,253.47	Coconut Tree	each	5	493.60	2,468.00	
								Mango Tree		4	1,920.00	7,680.00	
Sulop, Digos City								Gemelina		2	402.00	804.00	
Sub-Total							20,045.75					16,875.20	
Loc 8A-1 Loc 2a Malalag, Digos	Lazaro Mazanto	Agricultural						Coconut Tree	each	16	493.60	7,897.60	7,897.60
Loc 9 Malalag, Digos	Ernesto Sasumal	Agricultural						Banana Hill	each	4	34.00	136.00	136.00
Loc 13F Banate, Malungon Sarangani	Pendes Family	Agricultural						Coconut Tree	each	2	500.00	1,000.00	1,150.00
								Guabano		1	150.00	150.00	
Sub-Total												1,150.00	
Loc 13G	Eduardo Duaso	Agricultural						Banana Hill	each	4	150.00	600.00	600.00
Banate, Malungon Sarangani	Atty. Romualdo Garcia							Mango Tree	each	2	700.00	1,400.00	1,400.00
Loc 13A Banate, Malungon Sarangani	Felix Dauzo	Agricultural						Gemelina tree		4	150.00	600.00	800.00
								Langka tree		1	200.00	200.00	
	Ike Duazo							Gemelina tree		12	150.00	1,800.00	3,050.00
								Banana		1	150.00	150.00	
								Langka		3	200.00	600.00	
								Taisay tree		1	500.00	500.00	
	Apolomalazart							Gemelina tree		17	150.00	2,550.00	7,310.00
								Mango		6	700.00	4,200.00	
								Banboo		2	30.00	60.00	
								Coconat		1	500.00	500.00	
	Arsenio Estano							Suha		1	500.00	500.00	1,350.00
								Guava		1	200.00	200.00	
								Langka		1	500.00	500.00	
								Gemelina		1	150.00	150.00	
Total for Land													60,954.55

Impacts on Structure

Digos-eneral Santos Road

Loc. /Bgy. Municipality	Name of Claimant	Use of Bldg.	Area Affected (sq.m.)	Total Area (sq.m.)	Replacement Cost	Cat of Impact	Other Structure	Replacement Cost, ₱	Has an area to relocate	Other entitlements, ₱		Total Amount, ₱
										Transpotaion Allowance	Inconvenience Allow	
Loc 13A Banate, Malungon, Sarangani	Victor Sanoria	Store	1.2	8	10,052.70	M	Resthouse	3,314.50	Yes			13,367.20
	Juana Sanoria	Store	4.8	8	2,453.50	M	Resthouse	1,743.00	Yes			4,196.50
Total for Structure and Other Entitlement												**17,563.70**

Total for Land, Structure and Other Entitlement ₱ **78,518.25**