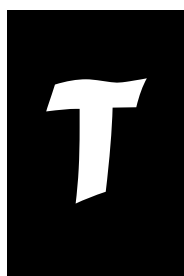




## Chapter 6

# *ECONOMIC SECTOR*



The economy of the profile area is heavily focused on agriculture, fisheries, and forestry, employing the majority of the labor force. Not surprisingly, this also means that much of the labor force does not earn high wages and many families are living in poverty. There is very little industry in the area outside of agriculture. Tourism has potential for growth and increased revenue.

### Labor and Employment

In 1996, the total labor force was 535,000 out of a working age population of 729,000, which is defined as household population aged 15 years old and above. The unemployment rate for the province was 8.2 percent. Approximately 491,000 were employed fully or partially, with an underemployment rate of 3.1 percent (PPDO 1998). An April 1996 survey showed that 301,000 (61.3 percent) of the 491,000 fully or partially employed are engaged in agriculture, fisheries, or forestry (PPDO 1998) (Table 6.2). In addition, nearly half of the total number of families of Negros Oriental derive their main source of income from this sector. Around 41 percent of the people in the profile area work as full-time fishers earning an average annual income of less than PhP17,500 (US\$438\*) (Calumpong *et al.* 1999) (Table 6.3). The poverty incidence in the province of Negros Oriental was 48.3 percent for 1991 (PPDO 1998) and the average family income for the province was PhP40,603 (US\$1,015\*) in 1994 (PPDO 1998). Those with the highest average incomes in the profile area are engaged as middlemen in fisheries-related activities. These activities include selling fresh fish, shells or other marine organisms, or the manufacture and trade of their products and other activities. These middlemen account for less than 8 percent of labor force and earn PhP52,281 per year (US\$1,307\*) (Calumpong *et al.* 1997).

\* US\$1 = PhP40 (1999)

**Table 6.1. Percent of population per age group (for profile area).**

Municipality/City	Age group (in percentage)		
	< 15 years old	15 - 64 years old	> 65 years old
Manjuyod	41	55	4
Bais	39	57	4
Tanjay	37	58	5
Amlan	36	58	6
San Jose	37	59	4
Sibulan	37	59	4
Dumaguete	32	64	4
Bacong	37	57	6
Dauin	34	59	7
Siaton	40	55	5
<b>Total</b>	<b>37.0</b>	<b>58.01</b>	<b>4.9</b>

**Table 6.2. Breakdown of the labor force by sector.**

Agriculture, fisheries and forestry		301,000
Other sectors		190,000
Community, social and personal services	76,000	
Wholesale and retail trade	45,000	
Manufacturing and construction	44,000	
Other	23,000	
Employed fully or partially		491,000

Source: Five-Year Provincial Development and Investment Plan 1998-2002

**Table 6.3. Average annual income by occupation.**

Livelihood	Ave. Annual income (PhP)	Percentage of those employed in this sector
Fishing full-time	17,383	41.03
Fishing part-time	22,696	4.21
Fisheries-related incomes	52,381	7.17
Salary	35,829	9.83
Business	37,520	5.77
Farming	7,878	1.72
Skilled labor	26,414	9.20
Unskilled labor	14,157	16.22
Other sources of income	13,879	4.37
No income	0	0.47

Source: Calumpong et al. (1997)

### Fisheries

The Tañon Strait, between Negros Oriental and Cebu, is one of the top 10 richest municipal fishing grounds in the country and as a result, Negros Oriental is a major exporter of fisheries products to the Visayas region and parts of Mindanao. According to the Bureau of Fisheries and Aquatic Resources (BFAR), the province produced a total of 32,360 mt of fishery products with a value of approximately PhP1.618 billion (US\$40,447,500) in 1998. Municipal fishers accounted for the highest recorded yield, 25,038 mt, followed by aquaculture pond production and commercial fisheries with almost equal amounts of production.

The main marine harvests in the province include tuna, anchovies, and sardines. Other sea products which generate earnings are: *bangus* and prawn fingerlings; *Eucheuma* seaweed (*E. cottonii*); shells; oysters; mussels; crabs; octopus; flying fish; squid; and sea cucumber. In addition to the traditional salting and drying of fish that is done in the area, there is the potential to expand and upgrade processing to include smoking and canning fish. However, overexploitation is evident; several municipalities within the profile area have reported through participatory coastal resource assessments that their fish catch has declined over the last 2 decades from just over 15 kg/fisher/day to under 3 kg/fisher/day.

While most of the fish sold to areas outside the province are pelagic (deepwater), the coral reef associated fish are primarily sold for local consumption. There has been a decline in the overall live coral cover in Negros Oriental from 1981 to 1995 and a 1995 survey showed that only 5 percent of the reefs have excellent cover, which is defined as more than 75 percent living coral cover (CEMRINO 1995). Thus, with the majority of the reefs in sub-optimal condition, the level of fish catch for local consumption is well below the potential harvest that could be obtained from healthy reefs. Destructive fishing, which includes dynamite and cyanide fishing, and drive-in nets are 2 of the primary threats to coral reef habitats and therefore, to the coral reef fisheries and the families that depend on this resource as well.

### Marine

In the profile area, open access to the fishery resources is practiced with a few exceptions, such as established marine reserve areas. Both commercial and municipal fisheries occur in the province of Negros Oriental; however, commercial fishing does not occur in the profile area. Data used in this section are based on the Calumpang *et al.* (1997) survey concentrating on 3 areas: Bais Bay, which comprises parts of Manjuyod, Bais City and Tanjay; Dumaguete City including part of Sibulan; and Apo Island, Dauin.

Based on the fisheries profile by Calumpang *et al.* (1997), the majority (81 percent) of the fishers were full-time fishers, and more than three-fourths of the boats were non-motorized (Table 6.4). The fishing boats, both motorized and non-motorized, are hand-made, wooden, outrigger canoes, ranging in length from 8 to 18 feet.

There are 18 gear types or methods of fishing reportedly used in Negros Oriental (Table 6.5). Fishers in Bais Bay employ 16 of these types and in Dumaguete they use 12 types, while Apo Island fishers use only 8 types of gear. Based on key person interviews, the top 3 gear types were: gill nets, fish corral, and hook and line. Most of the fishing gear in the profile area require an average of 1-8 individuals per operation (manpower). Catch per unit effort (CPUE) and income per unit effort (IPUE) in the surveyed sites vary for each type of gear from site to site. Table 6.6 lists the top 3 types of gear for CPUE in each area.

Table 6.4. Number of fishers and fishing boats in the profile sites surveyed by Calumpong *et al.* (1997).

Station	Barangay	Number of fishers				Number of boats					
		FT	PT	OC	Total	Motor	Non-motorized			Total	
						O	O	B	R		Subtotal
DAUIN	Apo Island	44	12	7	57	25	44		1	45	70
BAIS BAY		119	16	1	136	47	106			109	156
BAIS	Bat-ugan	2	2		4		6		1		6
	Barangay 2	3			3						1
	Canlargo	6			6	4	7			7	11
	Canibol	19	3		22	4	22			22	26
	Capinahan	16	6		22	1	20			20	21
	Lag-it	4			4	1	3			3	4
	Okiot	4	1	1	6		5	1	1	7	7
	Sanlagan	8	1		9	7	5			5	12
	<b>Subtotal</b>	62	13	1	76	17	68	1	2	71	88
MANJUYOD	Campuyo	42	1		43	29	18			18	47
	Dunggu-an	15	2		17	1	20			20	21
	<b>Subtotal</b>	57	3		60	30	38			38	68
DUMAGUETE	Agan-an	6	6	2	14		16			16	16
	Bantayan	23	4		27		27			27	27
	Lo-oc	2	1		3		4			4	4
	Piapi	14	5	1	20		29			29	30
	<b>Subtotal</b>	45	16	3	64	1	76			76	77
<b>TOTAL</b>		208	44	5	257	73	226		1	230	303
<b>PERCENT</b>		81	17	2	100	24				76	100

Legend: FT - Full-time, PT - Part-time, OC - Occasional, O - Owned, B - Borrowed and R - Rented.

Most species caught by fishers from Apo Island are reef or reef-associated fish, while in Bais, most of the species in the catch are demersal. In Dumaguete, a little more than half of the catch is reef or reef-associated fish and the rest are demersals. The most dominant species in the catch of Apo Island fishers was *Caranx* spp. and in Bais it was the mullet, *Liza* sp. (Calumpong *et al.* 1997).

### Aquaculture

The aquaculture industry in the province is focused mainly on *bangus* (milkfish) and prawn production; there is no commercial production of freshwater fish, because the local people prefer saltwater fish and *bangus*. The total area of partially and fully developed fishponds is about 1,758.19 ha with 1,508.33 ha devoted to *bangus* production and 239.86 ha devoted to prawn production. The total annual production of *bangus* and prawn is 3,137.14 mt; *bangus* production comprises 1,735.45 mt, while prawn production comprises 1,401.69 mt (PPDO 1999).

Big fishpond areas are concentrated in the municipalities of Tanjay, Siaton, Manjuyod, Bais City, Sibulan and 2 non-profile area municipalities, Ayungon and Bayawan. Major industries, such as the Ayala Agricultural Corporation in Siaton and the Sycip Plantation, Inc. in Manjuyod, are intensifying fishpond production in these areas. Prawn farms are located in Amlan, Tanjay City, Bais City, and Manjuyod, as well as 2 municipalities outside the profile area.

Table 6.5. List of fishing gear used in the profile area.

General classification	English name	Local name
Net	Beach seine or drag net	<i>pahid; baling</i>
	Bottom set gill net	<i>taan; pana-an; pukot; pang-kiyampao</i> (specific for catching rays)
	Dip net	<i>sikpaw</i>
	Drift gill net	<i>pamo; pukot; panglamba or panganduhaw pukot or pang-gisaw</i>
	Fish net or mullet net	<i>pukot; bira-bira; pahubas; pamunuan; pandumog; pang-anduham; pang-ilak; panglamba; pang-lukohok; pataya;</i>
	Gill net	<i>pang-solid; sabay, taan; tapsay</i>
Traps	Fish corral	<i>bunsod; bunsod-pukot</i>
	Fish pots	<i>panggal; tayong</i>
	Fish traps	<i>bobo; panay-ong; agong-agong</i>
Hand Instrument	Gleaning	<i>panginhas</i>
	Jigger	<i>pangnukos; pangugita</i>
	Miracle hole	
	Multiple hook and line	<i>pasol</i> (for line); <i>taga</i> (for hooks); <i>bira-bira</i> (around 15 hooks); <i>pangare</i> (10-20 hooks); <i>palutan</i> or <i>pamalo</i> (around 20 hooks); <i>birik-birik; manabit; taktakon</i> (around 240 hooks); <i>salabay</i> (around 1,000 hooks); <i>katay</i> (around 1,800 hooks)
	Line without hook	<i>panguwat; birik-birik</i>
	Set gill net	<i>pukot; padumog; panaan; taan; patuloy</i>
	Single hook and line	<i>pasol; taga; birik-birik; pamalo; pangmamsa; pangtangigi; pahawin; pambutok; baolo; pamaulo; panaulo; pamangkulisa</i>
	Spear gun	<i>pana; pana-suga</i>
	Torching	<i>panulo</i>

Source: Calumpang et al. (1997)

Table 6.6. Top 3 types of gear for catch per unit effort (CPUE) in each area and their income per unit effort (IPUE).

Area and gear type	CPUE (kg/person-hour)	IPUE (PhP/person-hour)
Apo Island		
Spear gun	4.40	139.50
Single hook and line	2.20	83.50
Fish trap	1.40	41.80
Bais Bay		
Drift gill net	114.80 *	5,886.00 *
Fish corral	6.40	335.70
Multiple hook and line	4.00	124.30
Dumaguete		
Beach seine	10.00	144.00
Fish trap	2.51	76.30
Gleaning	2.30	55.10

Source: Calumpang et al. (1997)

\* This catch is an anomaly of drift nets when a school of fish happens to enter. It also shows the potential of drift nets to cause overfishing.

### Commerce and Industry

In 1992, the number of businesses increased by about 8 percent but total investments in pesos increased by 87.5 percent over that of 1991. Employment also increased to 1,530 from 1,473 in 1991. Table 6.7 shows investment and employment data from 1988 to 1992.

**Table 6.7. Investments and employment data from 1988 to 1992.**

	Year				
	1988	1989	1990	1991	1992
No. of businesses registered	419	517	514	536	493
Investments	103	89	49	37.7	70.7
Employment	1,899	2,214	1,803	147.3	1,530

Source: PPDO (1998)

Sugar is the leading export product, with raw sugar exports totaling US\$47.7 million and molasses exports totaling US\$6.4 million in 1992. Other exports include ammonium nitrate by Dyno-Wesfarmers, US\$4.1 million; copra, US\$1.2 million; and dehydrated fruits, US\$1.4 million. Table 6.8 shows the total exports of each industrial product from 1986 to 1992.

**Table 6.8. Negros Oriental exports from 1986 to 1992.**

Product	Exports (US\$ millions)						
	1986	1987	1988	1989	1990	1991	1992
Dried fruits	0.70	0.86	1.15	0.79	0.88	0.54	0.43
Ammonium nitrate	5.09	3.49	3.64	2.07	3.19	5.38	4.13
Raw sugar	32.82	29.25	18.56	25.24	40.52	72.49	47.74
Molasses	7.70	3.27	3.96	5.29	8.48	6.5	6.4
Copra	3.72	6.16	2.76	0.00	0.32	1.26	0.00
<b>Total</b>	<b>50.03</b>	<b>43.03</b>	<b>30.07</b>	<b>33.39</b>	<b>53.39</b>	<b>86.17</b>	<b>58.70</b>

Source: PPDO (1998)

Sugar is produced by 3 sugar centrals: Central Azucarera de Bais (CAB), Universal Robina Sugar Milling Company (URSUMCO), and Herminio Teves Company Inc. (HTCI) of Santa Catalina. In 1992, the total revenues from these sugar centrals amounted to PhP4,120,760. CAB paid to Bais City PhP1,194,520; URSUMCO paid to Bais City PhP85,640 and PhP2,560,100 to Manjuyod; and HTCI paid to Santa Catalina PhP85,640. Table 6.9 shows the production data of the sugar industry as of 1992. Other industries include coconut oil mills in Bacong, Manjuyod, and Jimalalud.

### Tourism

Negros Oriental, as well as the Philippines in general, realizes the growing importance and opportunities of the tourism industry to generate earnings (Figure 6.1). Within the last decade, Negros Oriental has grown in popularity as a tourist destination; tourist arrivals

**Table 6.9. Production data of the sugar industry as of 1992.**

Area planted	31,109 ha
Percent of total provincial area	5.6%
Average increase in area planted, 1988-1992	15.23%
Number of farms	4,881
Number of planters	4,833
Average number of farm workers/hectare	10
Average annual production (picul), 1988-1992	12.62%
Average production per hectare (picul)	78.8
Average production cost per hectare	PhP4,108

Source: PPDO (1998)

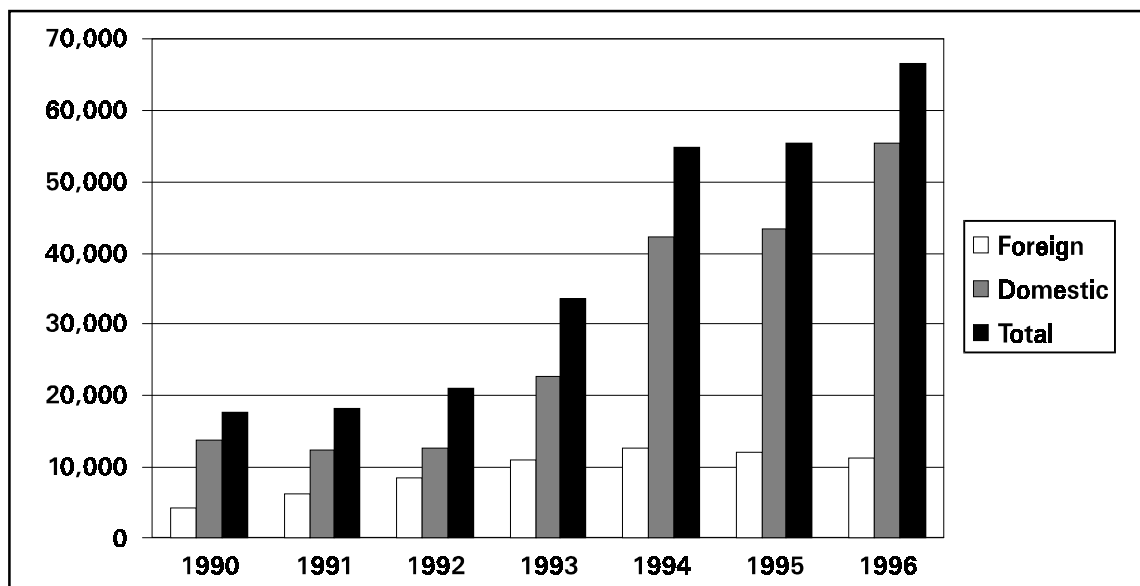


Figure 6.1. Tourist arrivals in Negros Oriental.

Source: PPDO (1999)

have nearly quadrupled between 1990 and 1996. Dumaguete receives and accommodates the bulk of these tourists, more than 80 percent of whom are domestic tourists. The province has a total of 574 rooms, most of which are located in Dumaguete City; all 7 hotels and 25 of the 28 pension tourist inns are located there. Of the 21 resorts in the province, 16 are found within the profile area (PPDO 1999).

Natural tourist attractions in the profile area consist mainly of beaches and coral reefs (Table 6.10). Beaches and beach resorts line the coasts of Sibulan, Dumaguete City, Bacong, Amlan, Bais City, Siaton, Dauin, and San Jose. SCUBA diving and snorkeling are popular, especially on Apo Island which is renowned for its diversity of coral and marine life as a result of its marine sanctuary. Other natural attractions are the resident dolphins and whales in Tañon Strait. This is a source of income for the government of Bais City which holds whale and dolphin watching excursions. Natural attractions found inland in the province include waterfalls, lakes, mountains, and caves.



**Table 6.10. Types and locations of tourist attractions in the profile area.**

<b>Tourist attractions</b>	<b>No.</b>	<b>Location</b>
<b>Natural</b>		
Beaches and beach resorts	13	Sibulan, Dumaguete City, Bacong, Amlan, Bais City, Siaton, Dauin and San Jose
Whale and dolphin watch	1	Tañon Strait
<b>Man-made</b>		
Historical landmarks	16	Dumaguete City, Sibulan, Amlan, Bacong
Museums	2	Dumaguete City
Parks and boulevard	4	Dumaguete City, Bais City, Tanjay
Showrooms and sports/cultural complexes	2	Dumaguete City
Festivals	5	Tanjay, Bais City, Dumaguete City
Restaurants/discotheques	> 30	Dumaguete City, Bais City, Tanjay
Conference/convention halls	10	Dumaguete City
Sports/recreation centers	8	Dumaguete City, Sibulan

Source: PPDO (1999)

Other attractions include historical landmarks, museums, parks, a boulevard, festivals, restaurants, and discotheques. Sports and recreation centers are also available, including Olympic-standard facilities that attract national and regional games, such as basketball, volleyball and swimming. Most of these are concentrated in Dumaguete City, but some are also located in Tanjay City, Bais City, and Sibulan. Also, all showrooms, event complexes and conference facilities are located in Dumaguete City. In addition, industries, such as the Bacong Weaving Center and 2 sugar mills of Bais City, the CAB and the URSUMCO, are tourist attractions (PPDO 1999).

### **Agriculture**

Agriculture and agriculture industries constitute the largest sector in the economy of Negros Oriental and will continue to do so into the foreseeable future. In 1995, about 245,427.6 ha of land were devoted to agriculture, an increase of almost 40,000 ha since 1992. An additional 106,182 ha were used as pasture or range lands, which is an increase of approximately 85,000 ha since 1992 (Table 6.11). Together, agricultural land and pasture/range land account for 65 percent of the total land area of the province, the vast majority of which is not irrigated. This land produces food crops, livestock, and poultry valued at nearly P2.5 billion. The most important crop in the province is sugar, followed by coconut. Rice and corn are staple crops and other important crops include legumes, vegetables, root crops, and fruits.

Agricultural products make up the bulk of the exports for the province and among total exports, sugar is by far the leading export product. For the period of 1991-96, about US\$312.7 million worth of agricultural products were exported out of the total exports of US\$358.1 million. Seventy-five percent of the total value was due to the exports of sugarcane and its by-products, which are produced by 3 sugar centrals: CAB, URSUMCO and HTCI of

Table 6.11. Areas devoted to agriculture (1992).

Land use	Area
Crop land	207,246.76 ha
Food crops	85,800.76 ha
Commercial crops	121,446.0
Pasture and range land	21,073.6
Water source	
Rainfed	195,484.26 ha
Irrigated	11,762.5 ha

Source: PPDO (1999)

Table 6.12. Quantity and value of production.

	Quantity (mt)	Value of production (PhP)
Food crops	219,650	1,317,899,640
Livestock and poultry		
Backyard	35,582	969,149,942
Commercial	2,639	79,309,035
<b>Total</b>	<b>35,222</b>	<b>1,048,458,977</b>

Santa Catalina. Coconut and its by-products accounted for 12.3 percent of the total value (PDIP). Other exports include ammonium nitrate, copra, and dehydrated fruits.

Production of food crops is greater than production of livestock and poultry. Table 6.12 shows the quantity and value of production.

## SUMMARY

Except for the cities of Dumaguete and Bais, most of the municipalities in the profile area are dependent primarily on fisheries and agriculture. The majority of the municipal fishers in the profile area live below the poverty level. Although the Tañon Strait is one of the richest municipal fishing grounds in the country, the income of the municipal fishers fishing in this basin is below the minimum level. This is due to the continued depletion of the coastal resource due to overfishing and degradation of environment. To augment the income of the coastal dwellers, alternative and supplemental livelihood activities are being undertaken. Projects such as diversified farming, small-scale mariculture of finfish, invertebrates, and seaweeds and small-scale "cottage industries" are being implemented in the profile area by various national agencies, LGUs, and other NGOs. Commercial-scale aquaculture of *bangus* (milkfish), both in fishponds and in fish cages, is also undertaken in the profile area.

Tourism is also generating income for the LGUs and the people living in the profile area. Domestic tourism has doubled in the last decade. The beaches, coral reefs, sanctuaries, dolphins, and other landmarks serve as tourist attractions.

