

**MT SOLAR I OIL SPILL: SOCIAL AND ECONOMIC
CONSEQUENCES IN NUEVA VALENCIA,
GUIMARAS, PHILIPPINES**

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ABSTRACT

This study was conducted to primarily determine the social and economic consequences of the MT Solar 1 oil spill in Nueva Valencia, Guimaras. This is a purely descriptive research which utilized a one-shot survey design. Three hundred nine (309) randomly selected household heads served as study respondents. Results revealed that the majority of the respondents were males, Roman Catholics and fisher folks. They were in their middle ages with either elementary or high school level of education. Their average household size was 4.73. Results also showed that after the oil spill, there was a significant increase in the proportion of respondents who reported an increase of incidence of the top three illnesses, namely: difficulty in breathing, skin itchiness and dizziness. Results of the study further revealed that the personal recreational activities of the respondents were affected by the oil spill but community recreational activities were not. There was a significant decrease in community cooperation and a significant increase in community conflict after the oil spill. Before the oil spill, fishing and related activities were the main source of income of a big majority of the household heads. Their mean monthly income was Php 9,661.41. After the oil spill, almost half of the respondents had no main source of income and their mean monthly income significantly dropped to Php 2,602.51. The perceived serious personal, family and community problems of the community as well as their needs were all economic in nature (financial, livelihood and food).

INTRODUCTION

The advent of industrialization has created new problems to ecology and the natural environment. Oil, being the prime source of energy for the industrial society has also been the source of various environmental and social problems in today's world. One of these problems brought about by the use of oil is oil spill.

According to Wikipedia, "an oil spill is the intentional or unintentional release of oil (generally petroleum) into the natural environment as a result of human activity. The term often refers to marine oil spills where oil is released into the ocean or coastal waters." Since oil is usually transported by sea, oil spill has become a nightmare that confronts humanity. The International Oil Tanker Owners Pollution Federation, Ltd. (ITOPF) has recorded nearly 10,000 incidents of oil spill all over the world since 1970.

Oil spills past and present had cost enormous damage to the environment as well as to the livelihood of people. If an oil spill occurs near coastal areas, the damage to the environment, especially to marine and wild life is incalculable. Oil is toxic or a poison to birds, fishes, and marine mammals. It can damage fish eggs, larva and young, thus it can wipe out entire species. Mangroves, sea grass and coral reefs are also severely affected and destroyed by oil.

Environmental damage caused by oil spill is translated into social and economic harm since many sectors depend on the sea for their livelihood. Communities living in coastal areas with fishing as their main source of livelihood are thus deprived of their source of living when oil spill occurs around or near their area.

In the oil spill that occurred on December 18, 2005 off the coast of the Semirara island in the province of Antique, about 364,120 liters of bunker fuel was spilled after a National Power Corporation (NAPOCOR) barge ran aground off the shores of the island (Burgos, 2006). The University of the Philippines in the Visayas (UPV) study estimated that 184 families were affected by the oil spill. It has affected the livelihood of the residents who were dependent on fishing, gleaning (shell-gathering) and seaweed farming for subsistence. The average fish catch of the fisher folks dropped. The study found out that although there was no change in their fishing pattern, the catch of the

fisher folks was significantly lower compared to their catch before the spill happened. The Semira oil spill also wiped out fishpond production in the area. Seaweed harvest as well as the volume of shells gathered, measured in plastic containers dropped from 9.32 to 11.41 kg before the oil spill to 2.7 kg after the oil spill.

In terms of health impact, the UPV study found out that there was an 8.1 % increase in the reported cases of stomach ache among the residents. A higher incidence of stomachache was reported among the residents hired for the clean up operations compared to other residents. Dizziness, headache, cough, vomiting, wet stool, skin rashes and skin itchiness were the other symptoms reported by the residents.

Among the recommendations of the study was compensation for the residents to offset the loss of their livelihood. It also recommended that there is a need to monitor and assess the long-term environmental and economic impact of the oil spill on the island and the residents.

In May 1997, 5,000 barrels of oil was spilled in the saltwater Lake Barre off the coast of Louisiana. The spill occurred due to a rupture of a 16-inch pipeline bringing 170,000 barrels of oil per day from offshore facilities (Pulsipher, 1999).

The study on the economic and social consequences of the oil spill in Lake Barre, Louisiana was made to “ascertain and document the social and economic effects of the oil spill for the communities, business and individuals in an adjacent geographic area that is typical of the US Gulf Coast.” Interviewed by the study were officials of the Texas Company (TEXACO), subcontractors hired for the clean up, government officials, business owners and operators and other residents in the area most directly affected by the oil spill.

Findings of the study revealed a pattern of short and limited social and economic impact and disruption of the oil spill. Concerns that the oil spill will have a long term negative social and economic consequences particularly on fishing, shrimping and/or oystering was found by the study to have no persuasive evidence. The study concluded that “longer-term effects are difficult to characterize and evaluate so soon after the spill occurred.”

As to the modest short-term social and economic consequences of the oil spill, they provided the following explanation:

1) the oil spill clean up industry along the Gulf Coast was flexible and adoptive in dealing with large oil spills, 2) the relative short duration of the clean up activities, and 3) the spill site was geographically isolated.

Gunnar Knapp (2005) studied the potential effects and mitigation strategies of oil spill and the fisheries markets. The results of his study show that most oil spills may have a variety of potential economic effects on seafood industry, the biggest of which is lower fish production. Oil spill may have both supply effects and/or demand effects on fish markets and prices.

On the supply side, oil spill may have a large supply effect on local fresh markets near the area of the oil, causing decline and increasing prices to rise while it may benefit the competing regions.

On the demand side, Knapp found out that the significance of the perceived quality demand effects depends on the extent to which buyers think fish may have been tainted. He also found out that the significance of the market disruption demand effects depends on the extent to which buyers have alternative suppliers.

In conclusion, the study of Gunnar found out that it is very difficult to measure the effects of the oil spills on fish markets and prices due to limited data available on fish market prices; many different factors affect fish markets and prices, and it is difficult to separate the effects of these factors from the effects of oil spills.

The Greek ship *Tasman Spirit* also ran aground at Karachi beach on July 27, 2003. As a result, the livelihood of more than 90,000 registered fishermen of Sindh has been placed at stake. According to the Karachi Urban Resource Center (2003), the oil slick has led to a sharp decline in the sale of seafood in the city markets. Prices of different fish species have come down up to 60 to 70 %.

It was reported on The Pakistan Newswire, however, that the *Tasman Ship* oil slick has not affected the seafood exports of Pakistan as order from other countries including China and Japan remain unchanged. The report concluded that the *Tasman Spirit* spill appears to have had significant effects on local markets but not on export markets.

On December 16, 1999, Erika, a tanker, ruptured off the south coast of Brittany spilling 2,000 tons of oil and damaged 400 km of coastlines including valuable spots for foot fishing. Social and economic as well as environmental damages had been extensive. Total damages were estimated to 914 million Euros that include the following: 400 to 500 million to the tourism industry and 52 to 73 million in marine losses (Bonnieux & Reinelli, 2002).

A study to find out the different socio-economic impacts of oil spill, especially the non-commercial effects of the Erika oil spill was conducted by Bonnieux and Rainelli. Results of the study revealed that for residents in the affected area, particularly those of Nantes, the loss of amenity is a major component of the whole damage, particularly their leisure activities, mainly, fishing on foot. The majority of the respondents gave up the activity with two-thirds claiming to have replaced it by other recreational activities, particularly hiking.

Last August 11, 2006 an unfortunate and unexpected oil spill occurred off the coast of the island province of Guimaras. An oil tanker, MT Solar I of the Sunshine Maritime Development Corporation carrying 2 million liters of bunker oil for Petron Corporation was on its way to Zamboanga del Sur from Limay, Bataan, when it sank near the island province amidst bad weather. Lying 3,000 feet under water, bunker oil leaked from the oil tanker and more than 500,000 liters of bunker oil spilled from the sunken ship.

The incident is considered as the biggest oil spill in Philippine history. The damage to the island province is catastrophic. According to the Provincial Planning and Development Office of Guimaras Province, the oil spill has affected 53 of the 98 barangays in the island. It affected 3,918 families or 26,000 individuals whose main source of income is fishing. These people have lost their livelihood and are now dependent on relief goods provided by the government, non-government organizations and the private sector for their subsistence.

Damage to the environment in the island province is extensive. The oil spill has affected 99.6 kilometers of coastlines, 58 hectares of seaweed area and 454 hectares of mangroves. The eco-tourism industry of Guimaras was given a big blow by the oil spill. According to Tourism Secretary Joseph "Ace" Durano, resort owners in the island province has suffered an estimated loss of 3.54 million pesos from cancelled bookings and lost opportunities.

MT Solar I oil spill has also affected not only Guimaras but also the coastal areas of Panay and Negros. Areas threatened by the oil spill include the southern towns of Negros Occidental: Pulpandan, Valladolid, San Enrique, Binalbagan, Pontevedra, Ilog and Hinigaran. These areas are rich fishing grounds. The northern part of Negros Occidental has not escaped from the oil spill. It has reportedly reached the towns of EB Magalona, Manapla and Cadiz.

Strong wind and current have also brought the oil slick to the municipalities of Ajuy and Conception in Iloilo province. The Visayan Sea, a rich fishing ground in central Philippines where hundred of thousands of fisher folk depend for their livelihood is also threatened by the oil spill.

The Population, Health and Environment (PHE) Network, a non-government organization estimated that the oil spill cost the country more than 100 million pesos from key industries. The shrimp industry of Pulpandan and the anchovy industry in Valladolid had each lost an estimated amount of 50 million pesos affecting 10,000 fisher folks deprived of their daily income between 3 million to 5 million pesos.

The damage caused by the MT Solar I oil spill is so extensive and catastrophic that the national government had declared it a national calamity. President Gloria Macapagal-Arroyo in her visit to Guimaras urged Filipinos to cooperate and help in the relief and rehabilitation effort. She has initially released 20 million pesos to the affected provinces. The President also created Task Force Guimaras and designated it as the lead agency to deal with this national tragedy.

In response to this appeal from the President and also to the needs of the people of Guimaras affected by the oil spill, Central Philippine University (CPU) initiated Bulig Ulikid kag Limpyo sang Guimaras (BULIG). As an undertaking of the University in response to the devastation brought about by the oil spill, it specifically aims to: (1) be involved in ongoing immediate intervention activities, which include but not limited to supplying needed materials for clean-up and distribution of relief goods in affected communities; (2) implement long-term intervention programs, which include but not limited to the establishment of mechanism for alternative livelihood of the people in the affected communities as well as the environmental and health status monitoring; and, (3) conduct studies that will serve as the basis for the implementation and evaluation of the above-mentioned interventions.

This study achieved the third aim of BULIG. For CPU to make an appropriate response to the crisis of the oil spill, it must have the necessary information and data in order to engage in a long-term intervention program to help and support the people of Guimaras affected by MT Solar I oil spill. Therefore, this paper assesses the socio-economic impact of the oil spill to these people and determines their related problems and needs that have to be addressed by concerned government agencies and private organizations.

Results of the study are important to the relief and rehabilitation effort of CPU, the national government, municipal government of Nueva Valencia, non-government organizations and private sectors. Information provided by the study serves as valuable guide in their intervention efforts. Since oil spill is rarely experienced by Filipinos, the study contributes to the understanding of its effects on Filipinos.

Objectives of the Study

The study aims to assess the socio-economic impact of the MT Solar I oil spill on the residents of the affected areas in Guimaras as well as their needs. Specifically it intends to:

1. determine the profile of the household heads of the residents of the affected areas;
2. determine the social effect of the oil spill on the residents;
3. determine the economic effect of the oil spill on the people of the affected areas; and,
4. determine the problems and needs of the residents affected by the oil spill.

METHODOLOGY

Research Design

The study utilized a one-shot survey design. The study's population included the 1,356 household heads in 5 coastline barangays of Nueva Valencia which were hardest hit by the oil spill. Task Force Sunrise of the Province of Guimaras identified the barangays Tando, San Roque, La Paz and Cabalagnan in the mainland

and the island barangay of Guiwanon composed of two islands. The sample size of 309 computed using Sloven's formula was proportionately allocated to the 5 barangays severely affected by the disaster. Nueva Valencia was chosen, as it is the municipality nearest to the location of the oil spill and was the most severely hit by the disaster among the 5 municipalities of Guimaras affected by the oil spill. Household heads included in the study were determined through on-site sampling.

Instrumentation

An interview schedule was utilized to gather the data. The panel members of the University Research Center that evaluated the proposal also validated the instrument.

Data Collection

The researcher, together with hired interviewers who were thoroughly trained gathered the data. Coordination with the Provincial Government as well as with the municipal officials of Nueva Valencia and barangay officials of the affected barangays was done for easy facilitation and collection of data.

Data collection lasted for three days. On the first day, the team visited the island barangay of Guiwanon and gathered data from the Guiwanon main and the Unisan Island. The Second day was spent on the mainland barangays of Cabalagnan and La Paz. The last day was spent on Tando and San Roque also in the mainland.

The provincial government sent two staff members from Task Force Sun Rise who served as guides. On the first day, the head of Task Force Sun Rise met with and provided assistance to the team. A Bantay Dagat unit of Guimaras also provided assistance and the patrol boat was used in going to the islands for data gathering.

Data Processing and Analysis

Data gathered were computer processed using the Statistical Package for Social Science (SPSS). For the descriptive part, measures of central tendency and measures of dispersion were used in the analysis and interpretation of data. The z-test was used to determine

the significance of the difference between proportions of respondents who perceived the social consequences of the oil spill before and after the incident. The t-test on the other hand was used to determine the mean difference of income of the respondents before and after the oil spill.

RESULTS AND DISCUSSION

Majority of the respondents were males (60.8%), married (79.0%), Roman Catholics (73.1%) and fisher folks (55.3%). About half (45%) had elementary level of education and more than a third (36%) had high school education level. Their mean age was 45.36 years and their mean household size was is 4.73 (Table 1).

Table 1. Profile of the Respondents

Personal Profile	f	%
Sex		
Male	188	60.8
Female	121	39.2
Civil Status		
Single	31	10.0
Married	244	79.0
Separated	7	2.3
Widowed	25	8.1
Live-in	2	0.6
Residence		
Island	83	23.9
Mainland	226	73.1
Religion		
Roman Catholic	226	73.1
Aglipay	71	23.0
Others	12	3.9
Educational Attainment		
Elementary	139	45.0
High school	110	35.6
College	60	19.4
Occupation		
Fishermen	171	55.3
Fishing related (shell gathering, fish vendor, etc.)	29	9.4
House wife	61	19.7
Farmer/laborer	16	5.3
Others	28	9.1
No answer	4	1.2
Mean Household Size	4.73	
Mean Age	45.36 years	

As shown in Table 2, the top three illnesses that respondents reported to have increased after the oil spill were: chest pain, skin itchiness and dizziness. Z-tests revealed that the difference in proportion that reported an increase of these illnesses before and after the oil spill was significant at the 5% level.

Table 2. Distribution of Respondents According to Reported Illness before and after the Oil Spill.

Respondents Illnesses	Three Months Before the Oil Spill				After the Oil Spill				z-value
	Yes		No		Yes		No		
	f	%	f	%	f	%	f	%	
Fever	180	58.3	129	41.7	194	62.8	115	37.2	1.15 ^{ns}
Influenza	174	56.3	135	43.7	192	62.1	117	37.9	1.48 ^{ns}
Cough	204	66.0	105	34.0	223	72.2	86	27.8	1.66 ^{ns}
Abdominal Pain	80	25.9	229	74.1	109	35.3	200	64.7	2.54*
Dizziness	87	28.2	222	71.8	177	57.3	132	42.7	7.66*
Vomiting	21	6.8	288	93.2	55	17.8	254	82.2	4.22*
Diarrhea	49	15.9	260	84.1	71	23.0	238	77.0	2.25*
Dermatitis	8	2.6	301	97.4	33	10.7	276	89.3	4.09*
Skin Itchiness	9	2.9	300	97.1	83	26.9	226	73.1	8.88*
Eye itchiness	0	0	0	0	24	7.8	285	92.2	5.10*
Chest Pain	0	0	0	0	74	23.9	235	76.1	9.86*

* Significant at the 5 % level

^{ns} Not significant at 5 % level

Views of the respondents on their health situation after the oil spill are the following: not good for people/dangerous to people and more sickness appeared (Table 3).

Table 3. Distribution of Respondents According to their Views on their Health Situation

Views on Health Situation	f	%
Not good for people/dangerous to people	74	40.2
More sickness/illness appeared	40	21.7
It is natural/due to weather condition	36	19.6
Must be given adequate supply of medicine	34	18.5
Total	184	100.0

To the respondents, the following are needed to answer their health situation: complete medicine; doctor/medical team; and coastal clean-up (Table 4).

Table 4. Distribution of Respondents According to Needed Answers to Perceived Health Situation

Needed Answers to Perceived Health Situation	f	%
Complete medicines	93	71.0
Doctor/medical team	26	19.8
Coastal clean-up	12	9.2
Total	131	100.0

There was also a significant increase in proportion of respondents after the oil spill who observed the following (Table 5): coastal area murky, smelly and dirty and air not fresh and smelly. As such the respondents believed that the environmental situations of their place are: beach no longer usable/surroundings very dirty; big inconvenience to the people; and uncomfortable with the smell/suffering from dirt. They suggested total clean up and removal of the oil tanker to remedy the environmental situation of their place (Table 6).

Table 5. Distribution of Respondents According to Their Perception of Environmental Condition

Perceived Environmental Condition	Before the Oil spill				After the Oil Spill				z-values
	Yes		No		Yes		No		
	f	%	f	%	f	%	f	%	
a. Drinking water									
Clear	302	97.7	7	2.3	234	75.7	75	24.3	8.52*
Smelly	8	2.6	301	97.4	54	17.5	255	82.5	6.36*
b. Coastal Area									
Murky	1	0.3	308	99.0	205	66.3	104	33.7	24.38*
Smelly	6	1.9	306	98.1	266	86.1	43	13.9	39.70*
Dirty	5	1.6	304	98.4	228	73.8	81	26.2	57.18*
c. Air									
Fresh	299	96.8	10	3.2	31	10.0	278	90.0	43.73*
Smelly	4	1.3	305	98.7	247	79.9	62	20.1	33.22*

* Significant at the 5% level

Table 6. Distribution of Respondents According to their Views on Environmental Condition

Views on Environmental Condition	f	%
Beach no longer usable/surroundings very dirty	145	60.7
Big inconvenience to the people	63	26.4
Uncomfortable with the smell/suffering from dirt	14	5.9
Livelihood were affected	13	5.4
Dangerous to the people	4	1.6
Total	239	100.0

The top three personal recreational activities of the respondents includes listening to radio, sports (basketball, volleyball and baseball) and watching TV. Majority of the respondents reported that their personal recreational activities were affected by the oil spill as they were looking for other sources of income (Table 7).

They also claimed that there was a significant decrease of community cooperation after the oil spill which were due to conflict due to clean up project; competition in getting relief goods; and to each to his/her own) Respondents reported there was conflict on who should be hired in the clean up operation. Barangay officials, especially the barangay captain identified and recommended those who will be hired and usually his/her political supporters were given priority, respondents claimed. On the other hand, there was a significant increase in community conflict after the oil spill which was due to the same reasons given on the decrease of community cooperation (Table 8).

Table 7. Distribution of Respondents According to their Personal Recreational Activities Before the Oil Spill (Multiple Response, N=234)

Personal Recreational Activities Before the Oil Spill	f	%
Listening to radio	67	28.6
Sports (basketball/volleyball/baseball)	62	26.5
Watching TV	53	22.6
Drinking alcoholic beverages	38	16.2
Fishing	36	15.3
Gambling (tong-its/majong/bingo)	33	14.1
Swimming	29	12.4
Walking on the beach	22	9.4
Planting crops	15	6.4
Talking with neighbors	15	6.4
Fishing-related activities	4	1.7
Jetski	1	0.4

Table 8. Distribution of Respondents According to Observed Social Processes

Observed Social Process	Before the Oil spill				After the Oil Spill				z-values
	Yes		No		Yes		No		
	f	%	f	%	f	%	f	%	
Cooperation	269	87.0	40	13.0	244	79.0	65	21.0	2.69*
Competition	92	29.8	217	70.2	86	27.8	223	72.2	0.53 ^{ns}
Conflict	49	15.9	260	84.1	75	24.3	234	75.7	2.63*
Family Separation	297	96.1	12	3.9	267	86.4	42	13.6	4.24*

* Significant at the 5% level

^{ns} Not significant at the 55 level

There was also significant increase in the number of families who experienced separation of members after the oil spill due to the following: work, scattered in different evacuation centers; and living alone (Table 9).

Table 9. Distribution of Respondents According to Reasons Given for the Separation of Family Members (Multiple Response, N = 33)

Reasons for Separation	f	%
Work	10	30.30
Living alone	7	21.21
Different evacuation center	6	18.18
Separated long time ago	3	9.0

Before the oil spill, fishing and fishing related activities were the main source of income of a big majority (84.1%) of the household heads. More than half (57.6%) of the household heads had no other source of income before the oil spill. The mean total monthly income of the household heads before the oil spill was Php 9661.41 (Table 10).

Table 10. Distribution of Respondents According to their Income Before the Oil Spill

Monthly Income (Php)	f	%
1-5000	117	37.9
5001-10000	112	36.2
10001-15000	39	12.6
15001-20000	10	3.3
20001-25000	7	2.3
25001 and above	17	5.5
No income	2	0.6
No answer	5	1.6
Total	309	100.0

Mean Monthly Income (Php) = 9,661.41

After the oil spill, about half (43.4%) of the household heads have no main source of income as the government imposed a total ban on fishing in the area. Bunker cleaning was the main source of income of 20.4% of the household heads while only 12.6% of them still engaged in fishing and fishing-related activities. The mean total monthly income of the household heads after the oil spill was Php 2,602.51 and the decrease in the mean monthly income compared to that before the oil spill was statistically significant (Table 11).

The mean monthly income of household heads living in the mainland before the oil spill was Php 8,034.67 while their mean monthly income after the oil spill was only Php 2,755.98. Furthermore, before the oil spill, the mean monthly income of household heads living in the islands was Php 1,4212.46, but after the oil spill, their mean monthly income decreased Php 2,201.25. The income of household heads living in the islands was more affected by the oil spill than those living in the mainland as shown by the bigger drop in their mean monthly income before and after the oil spill.

Before the oil spill, there was significant difference in the mean monthly income of household heads living in the mainland and those living in the islands was significant with those living in the islands having a higher income. After the oil spill, the difference in their mean monthly income was no longer significant.

Table 11. Mean Monthly Income of the Household Heads Before and After the Oil Spill.

	Before the Oil Spill	After the Oil Spill	t-value
Mainland	Php 8034.67	Php 2755.98	12.28*
Island	Php 14121.46	Php 2201.25	4.033*
t-values	3.041*	1.038ns	
Combined island and mainland	Php 9661.41	Php 2602.51	7.959*

*Significant at 5% level

^{ns}Not significant at 5% level

Whether the respondent lives in the mainland or in the island, his/her mean monthly income after the oil spill was significantly reduced compared to that before the oil spill.

The significant decrease in household income is further felt by the respondents when they identified the serious personal, family and community problems after the oil spill which were: financial, livelihood and food. The desired alternative livelihoods of the household heads were: livestock/poultry, small business and gardening project.

For the household heads, the following are the reasons that hinder them from considering the desired alternative livelihoods: lack of budget, no program for business and problems with barangay officials.

Discussion

Results of studies on oil spill showed that its impact on the health of people in the affected areas are alike. The illnesses reported by the respondents in Nueva Valencia, Guimaras that increased after the oil spill were similar to the illnesses reported by the residents in Semirara Island in a study conducted by the University of the Philippines in the Visayas in 2005 (Burgos, 2006). The common symptoms reported were cough, abdominal pain/stomach ache, dizziness, vomiting, diarrhea and skin diseases.

The findings of this study also support the findings of Bonnieux and Rainelli (2002) that the people in the affected areas lost some of their amenities after the oil spill. The victims of the Erika tanker oil spill in the south coast of Brittany reported that they lost their leisure activities like fishing on foot. On the other hand, the victims in Nueva Valencia, Guimaras became too busy looking for other sources of income that they had no more time for their personal recreational activities like listening to radio, sports and watching TV. Looking for alternative sources of income was also cited as one of the reasons why there was a significant increase in separation of family members after the oil spill.

The decrease in the mean monthly income of the household heads after the oil spill compared to that before the oil spill was statistically significant. This is because fishing and fishing-related activities were their main sources of income before the oil spill and these livelihood activities were totally banned in the area after the oil spill. More than half of these respondents do not have other source of income. The impact on livelihood activities of the people in Nueva Valencia, Guimaras is similar to what was experienced by the oil spill victims in Semirara Island. Result of the UPV study as cited by

Burgos (2006) indicated that the oil spill affected the livelihood of the residents who were dependent on fishing, gleaning (shell-gathering) and seaweed farming for subsistence. This finding also supports the results of the study of Knapp (2005) on the potential effects and mitigation strategies of oil spill and the fisheries markets. The results of his study show that most oil spills may have a variety of potential economic effects on the seafood industry, the biggest of which is lower fish production. Knapp further explained that oil spill may have both supply effects and/or demand effects on fish markets and prices. Furthermore, the finding of this study on the economic consequence of oil spill is also similar to the finding of the Karachi Urban Resource Center (2003) in Pakistan. The Tasman ship oil slick in Karachi, Pakistan led to a sharp decline in the sale of seafood in the city markets. Prices of different fish species have decreased by 60 to 70 %.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the results of the study, it is concluded that the oil spill had severely affected the economic and social life of the residents of the study area. There was an increase in the reported incidence of respiratory and skin diseases among the residents. Contamination of bunker fuel in the beaches and surrounding environment had inconvenienced the people for they have to endure the foul smell, affecting the quality of air they breathe.

The oil spill also affected the personal recreational activities of the respondents as they have to look for other sources of income due to the total ban in fishing imposed by the government. Social relationships among the residents likewise suffered. There was an increase of the reported cases of conflict and a decrease of cooperation in the community. The residents were competing for the limited job on bunker clean up as well as on how to secure relief goods distributed to them from government and private agencies.

But the greatest impact of the oil spill was on the economic life of the people in the area. Before the oil spill, the household heads, on the average, earned Php 9,661.41 a month. After the oil spill occurred, this drastically decreased to Php 2,602.51. With a total ban in fishing imposed by the government, three out of four respondents (75.7%) had no other source of income, making them dependent on dole outs given by the government and private sectors.

Recommendations

1. Considering the results and conclusions drawn from the study it is recommended that further investigation on the health effects of the oil spill on the affected residents should be conducted by appropriate medical practitioners because of the increase in the incidence of respiratory and skin problems. Health problems can further worsen the economic difficulties experienced by the people because of the high cost of medicines and hospitalization.

2. Dialogues, group therapy and counseling sessions among the affected residents should be conducted because of the deterioration of community cohesion evident in the decrease of community cooperation, increase of cases of conflicts and growing number of family breakdowns due to evacuation and problems on employment.

3. But more importantly, the drastic economic impacts of the oil spill must be given immediate attention considering that at stake is the source of life of the residents. Provisions for alternative livelihood, just compensation for the economic and social damages among others are the things that must be done while efforts to rehabilitate the affected areas are being undertaken by concerned government agencies and private organizations.

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