

# **Environmental Depletion in Tawi-Tawi, Philippines: A Case for Strong Governance, Community Education and Capability Building**

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## **Abstract**

Tawi-Tawi at the southernmost tip of the Philippines has been a place of refuge for families displaced by armed conflict in Sulu. Its peaceful conditions have encouraged permanent settlement of these internally displaced peoples, especially in the Bongao poblacion.

Government institutions overseeing land use and settlement have however failed to regulate the manner of human settlement in the province. This has resulted in urban land zoning problems and the encroachment of human dwellings on wildlife areas along the coast, along tidal pools and lagoons.

Indiscriminate human settlement and human activities such as sand and coral quarrying, cyanide and dynamite fishing, fish corralling, mangrove cutting and neglectful waste disposal have caused considerable damage to the natural resources of the area. What is more worrisome is that environmental depletion is not receiving the serious attention it deserves, both from the province's leadership figures as well as the community itself.

Effective governance as well as civic engagement is needed in order to correct this environmental threat. Leaders need to realize the crucial role each small environment plays in the global web of life through retraining and consciousness raising. They also need technical support that will enable them to exercise stronger political will and engage the community in a participatory process that will address natural resource management issues.

The community on the other hand needs reeducation on civic responsibility, environment and natural resources management. They would also have to be provided with alternative livelihood opportunities so that they would cease to destroy the environment for the sake of income generation.

*Themes:* Governance and institutional change in relation to commons; Management of traditional natural resource commons

# Environment Depletion in Tawi-Tawi, Philippines: A Case for Strong Governance, Community Education and Capacity Building

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Tawi-Tawi province lies at the southernmost tip of the Philippines. It is bounded on the north and west by the Sulu Sea and by Celebes Sea on the east and south. Tawi-Tawi is made up of 307 islands and islets, 88 of which are distinctive for their extensive reefs. The province is part of the Sulu Archipelago reef complex, which in turn falls within the Coral Triangle, known as the apex of Global Marine Diversity. The reef complex plays two crucial functions to the larger ecology: as spawning ground and nursery of diverse marine species and as corridor for migratory marine mammals, fish stocks and turtles. <sup>2</sup>

The province has a land area of 1,087.4 square kilometers, comprising 0.4 % of the country's total land area. It has fertile and expansive agricultural areas, a range of rolling hills and lush forests. Many coastal areas are ringed with mangrove trees <sup>3</sup> With its beautiful coasts and wildlife areas, Tawi-Tawi has good ecotourism potential.

Major industries of the province are seaweeds, cassava, coconut and fisheries. Typically, these are personal or family industries and are carried out at subsistence level. Despite its rich natural resources and vast agriculture areas, the province lacks food self-sufficiency. It is a major importer of agricultural products such as rice, corn, etc from Malaysia and Zamboanga City. <sup>4</sup>

Tawi-Tawi is a 4<sup>th</sup> class province based on income classification<sup>5</sup> and belongs to the quartile of Philippine provinces with the highest number of poverty indicators<sup>6</sup>.

Tawi-Tawi, along with other provinces in the Autonomous Region in Muslim Mindanao has attracted a lot of development assistance in the past decade in terms of socio-economic infrastructure and technical support. Because of the province's natural resource potential as well as its strategic position in the Sulu archipelago reef complex, environment conservation and protection has recently become a significant feature in its plans for development.

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2 Filemon G. Romero, (2007). "Evolution of Coastal Resource Management In Tawi-Tawi: A Learning Process." (Unpublished occasional paper)

3 1998 Tawi-Tawi Demographic and Socio-Economic Profile, Provincial Government of Tawi-Tawi

4 Interview with Rodrigo Sicat, Consultant, Local Governance Support Program to the ARMM, April 2008

5 Kamahardikaan Tawi-Tawi Anniversary magazine, 2004

6 2002 Annual Poverty Indicators Survey, National Statistics Office-Philippines, p. 86

This is a timely development, as the province's natural resources are facing increasing pressures due to systematic oversight and community apathy.

## **Environment Issues and Problems**

The following issues and problems concerning natural resources management were culled from the Tawi-Tawi provincial development plan and related literature, as well as from key informant interviews with select development specialists in the province:

1. High population growth and human settlement
2. Improper classification and utilization of lands and coastal areas
3. Indiscriminate human activities
4. Weak regulation and enforcement mechanisms of local government units and line agencies
5. Lack of environment management program
6. Poor community awareness and education on environment management

### High population growth and human settlement

The province has seen a steady influx of migrants from other provinces. From the 1960 census, total population was pegged at 78,594, steadily increasing in the next two decades to 194,651. The biggest population increase occurred between 1995 and 2000, which was pegged at 71,599. From the 2000 census, total population of the province was 322,317.<sup>7</sup>

The high population growth puts increasing pressure on the province's natural resources, given other intervening factors. In a Participatory Coastal Resource Assessment conducted by a USAID-funded fisheries management project, majority of communities and local government units identified human settlement as the most prolific coastal activity in Tawi-Tawi<sup>8</sup>.

Human activities impact on the environment in increments. The effects of waste disposal, livelihood and recreation accumulate over a period of time.

Tawi-Tawi communities have a high interaction level with their natural environment. People earned their livelihood, obtained water and fuel from it. But they also regularly disposed personal and household waste onto it. The community's

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<sup>7</sup> Report No.2-91 O, Vol.1, Demographic and Housing Characteristics, 2000 Census of Population and Housing, National Statistics Office, p.1

<sup>8</sup> FISH Coastal and Fisheries Profile, 2005 (Unpublished report)

dependence on their natural environment is evident in the following data on population and housing:

### *Fuel Source*

Majority of the households used firewood as cooking fuel. This was commonly harvested from mangrove trees while wood from other trees served as alternative. Meanwhile charcoal was obtained from coconut shells and other wood types gathered from the brush land.

**Table 1. Households by Kind of Fuel used for Cooking**

<b>Type of Fuel</b>	<b>No. of Households</b>	<b>% of the Total</b>
1. Wood	37,900	69.73
2. Liquefied Petroleum Gas	5,949	10.94
3. Kerosene	4,091	7.52
4. None	3,723	6.85
5. Charcoal	2,016	3.70
Total number of households: 54,345		

Source: Report No.2-91 O, Vol.1, Demographic and Housing Characteristics, 2000 Census of Population and Housing, National Statistics Office, p.123

### *Water Supply*

The main sources of water for drinking and cooking were obtained from dug wells and natural water sources. The same sources support laundry and bathing needs, with dug wells serving 49.14% of the total number of households and natural water sources serving 25.54%.

**Table 2. Households by Main Source of Water for Drinking/Cooking**

<b>Source of Water</b>	<b>No. of Households</b>	<b>% of the Total</b>
1. Dug well	21,361	39.30
2. Spring, lake, river, rain, etc.	18,990	34.94
3. Own use, faucet, community water	4,054	7.45
4. Others	2,662	4.89
5. Shared faucet, community water	2,561	4.71
Total number of households: 54,345		

Source: Report No.2-91 O, Vol.1, Demographic and Housing Characteristics, 2000 Census of Population and Housing, National Statistics Office, p.121

### *Waste Disposal*

The most common form of garbage disposal was burning, followed by dumping in pits and disposing where convenient, like rivers, vacant lots, streets and the sea. From personal observations in Bongao, it is apparent that residents especially in the coastal areas believed that throwing garbage into the sea was acceptable since the sea simply washed it away. As to where the garbage was deposited no longer concerned them.

There were no indications that communities practiced the garbage segregation nor the reduce, reuse, recycle schemes. Both schemes would have significantly decimated the amount of garbage produced in the settled areas and lessened the toxic effects of non-biodegradable wastes on the environment.

**Table 3. Households by Manner of Garbage Disposal**

<b>Manner of Garbage Disposal</b>	<b>No. of Households</b>	<b>% of the Total</b>
1. Burning	22,444	41.29
2. Dumping in individual pits, not burned	13,292	24.45
3. Others (includes throwing into rivers, vacant lots, streets, sea, etc.)	10,528	19.37
4. Burying	3,152	5.79
5. Picked up by truck	1,917	3.53
Total number of households: 54,345		

Source: Report No.2-91 O, Vol.1, Demographic and Housing Characteristics, 2000 Census of Population and Housing, National Statistics Office, p.125

### *Toilet facilities*

Majority of toilet facilities are open pits and other types which include the pail system or toilets on stilts over the sea or other bodies of water. A significant number did not have toilet facilities at all. In some areas, these were shared by several houses. Outhouses on stilts are a common fixture by the coast, over lagoons, even in reclaimed areas in the urban center.

**Table 4. Households by Kind of Toilet Facility Used**

<b>Kind of Toilet Facility</b>	<b>No. of Households</b>	<b>% of the Total</b>
1. Open pit	17,617	32.41
2. Others (including pail system, direct to sea, etc.)	14,963	27.53
3. None	8,069	14.87
4. Closed pit	5,768	10.61
5. Water-sealed, sewer, septic tank, household exclusive	4,264	7.84
Total number of households: 54,345		

Source: Report No.2-91 O, Vol.1, Demographic and Housing Characteristics, 2000 Census of Population and Housing, National Statistics Office, p.124

The manners of disposal of personal and household waste pose dire implications not only on community health, but on the long-term condition of the environment as well.

#### Improper classification and utilization of lands and coastal areas

The province has yet no comprehensive classification system of its lands and coastal resources. Thus previous utilization policies allowed the encroachment of urban development and human settlements into prime agricultural lands, coastal and even protected areas.

For the past decades, public land such as foreshores, mangrove areas, forestlands and prime agricultural lands were open for personal application with the Bureau of Lands of the Department of Environment and Natural Resources. As recently as 2006, a housing project was built on reclaimed area from what was previously a teeming mangrove forest. It was common practice to buy or sell one's rights or ownership of such lands.

#### Indiscriminate human activities

The province's natural resources have been assaulted by a host of indiscriminate human activities. The assessment studies conducted by FISH and the World Wildlife Fund have identified these destructive activities. The most prevalent were dynamite and cyanide fishing. Others were sand and coral quarrying, mangrove cutting and poor waste disposal. Instances of logging in forest areas have been identified as well by government authorities.

These activities support community livelihood and would be difficult to arrest unless alternative livelihood activities are proven as better long-term options. When marine protected areas were established in the province, resistance was met in certain

locales. This was because some of the protected areas were the traditional fishing grounds of the community. Convincing a community to give up a source of livelihood would be a particular challenge especially if it their only source of livelihood.

Economic considerations are a very strong intervening factor in this case. From FISH community interviews in three municipalities, issues and problems relating to threatened or unmet basic needs consistently outweighed those that concerned the environment. These issues and problems apply to the province in general, per assessment studies by the World Wildlife Fund.<sup>9</sup>

In their estimation, poverty and underdevelopment have become stumbling blocks in conservation. In previous efforts to promote the Turtle Island marine sanctuary, the WWF have had to 'gain entry' into the local communities by first providing assistance with their basic needs. With their crucial concerns addressed, the communities were only then able to focus attention on pressing environment issues and get involved in marine turtle conservation work.<sup>10</sup>

Weak regulation and enforcement mechanisms by local government units and line agencies

The national government has a number of existing initiatives designed to protect the country's environment and natural resources. Among these are the National Integrated Protected Areas System, Agriculture and Fishery Modernization Act, Integrated Forestry Management Agreement, the Community Based Forestry Management Agreement, the Bantay Dagat Program, etc.

However, these are not well-implemented in the province so much so that all the critical environmental threats continue alarmingly. Reasons for this gap include a lack of comprehensive information and mapping of the province's natural resources, a shortage in financial capability to sustain regulation and enforcement programs, as well as a lack of qualified personnel to carry out corresponding activities.<sup>11</sup>

Lack of an environment management program

Because of previous indifference and a serious lack of information on its importance, environment management had not been a pertinent feature in policies and programs of the local government. This has resulted in improper solid waste

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9 Interview with Filemon G. Romero, Project Manager, World Wildlife Fund-Coastal Resources and Fisheries Conservation Project, April 2008

10 World Wildlife Fund Philippines, "Turtle Islands: Resources and Livelihoods Under Threat," A Case Study on the Philippines, p.9

11 Interview with Nur Harun, Site Manager, FISH Project, Tawi-Tawi, March 2008

management, an almost nonexistent ecological management program and the prevalence of human settlement challenges to the environment.

#### Poor community awareness and education on environment management

Local communities carry out a number of activities in the coast and inland. However, their communal use is not tempered by a sense of communal responsibility. Development specialists own that community awareness is very low that the process of engagement would need a lot of patience along with a sustained education and capacity building campaigns. The communities need to appreciate their place in the immediate ecosystem and how their activities consequently impact on it.

To determine the extent to which education on the environment transpires in the basic education level, the State curriculum's minimum learning competencies in Science and Social Studies were examined.

It was noted that Science competencies had limited coverage on environment and natural resources. Those covered are offered as discrete units of study which tend only to impart information rather than encourage in-depth learning. There is certainly an attempt to communicate the value of caring for and conserving natural resources. But as the lessons are few and far between, these could hardly make strong impressions on young minds. As there is no deliberate focus on environment and natural resources and corresponding issues, instruction on this will be very minimal unless a teacher arbitrarily decides otherwise.

Meanwhile, the Social Studies competencies do give more coverage, especially in the Geography component of the course. However, focus is at the macro level. The learning framework does not provide for in-depth study or for appreciation of concepts and issues in the local context. Although a more involved study is prescribed in the fourth year high school Economics course. Though the need for environment management and protection is alluded to in both courses, there are no provisions for building the necessary skills to carry out these recommendations, which could have been incorporated in the Civics component.

Certainly these educational gaps could be addressed were there more in educational delivery. But as the norm is traditional that is, using the rigid subject-centered curriculum design and the devoted adherence to the "textbook curriculum," knowledge and competencies outside the State-prescribed framework are rarely taken up by students in their basic education.

Accordingly there have been attempts to integrate environmental education into the basic education curriculum in Tawi-Tawi. However, its scope and extent has not been determined yet. The province's state university has responded by expanding its

oceanographic studies center into the Institute of Oceanographic and Environmental Sciences. Its Board of Regents had also approved the creation of a Center for Coastal Resource Management. The creation of both units hopes to generate more education, research and extension activities in these particular fields.<sup>12</sup>

## **Interventions**

It is regrettable but true that Tawi-Tawi's environment agenda is being delivered using a top-down approach. Further, it is more driven by national policies and development agency initiatives. Because these are not community-driven, they are not readily acceptable to the local populace and securing their engagement may be a protracted process.

The different projects have employed varied strategies to eradicate general apathy towards environment issues and thereafter engage community participation in working for the environment. These strategies have either been directed at the local government units and government line agencies or directly at the local communities. Thus interventions were undertaken at both policy level and implementation level. Table 5 shows a summary of their strategies:

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12 Interview with Filemon G. Romero, Project Manager, World Wildlife Fund-CRFC, Tawi-Tawi, April 2008

**Table 5. Summary of Development-Agency Strategies for the Environment, Tawi-Tawi**

<b>Development Agency/Project</b>	<b>Community organizing, direct interventions</b>	<b>Partnerships with LGUs, Line Agencies, Civil Society Organizations</b>	<b>Technical Assistance</b>
Local Governance Support Program for the ARMM (LGSPA)	Engaged local religious persons to deliberate on religious rulings concerning natural resources and their proper utilization; Helped dissemination of rulings via broadcast media.		Assisted the Tawi-Tawi provincial government in drafting its Provincial Development and Physical Framework Plan (PDFP);  Assisted local religious persons into developing a schedule of Friday congregation sermons which incorporate religious rulings on the environment
World Wildlife Fund (WWF)	Facilitated community processes to identify needs and preferred interventions; Conduct of information and education campaigns	Sought accreditation as a local NGO; Forged partnerships with local government units, civil society organizations and line agencies	Carried out the Coastal Resources and Fisheries Conservation Project using the Ecosystem approach; Provided capacity building for local government units and line agencies
Alliance for Mindanao Off-Grid Renewable	Provided solar or micro-hydro powered light	Cooperated with local government units and a civil	

Energy (AMORE)	facilities, communication facilities to remote areas in Tawi-Tawi	society organization to assist in the installation of solar-powered lights in 1 municipality, community organizing on coastal resource management and mangrove planting in selected areas.	
Fisheries Improved for Sustainable Harvest (FISH) project	Organized community networks and committees to help enforce environment protection mechanisms; Conducted information and education campaigns	<p>Established marine protected areas and other sanctuaries; Organized exposure visits to project sites with successful coastal resource management programs;</p> <p>Sub-contracted a local Tawi-Tawi CSO to conduct population management activities as an assisting strategy to coastal resource management.</p>	Assisted the Bureau of Fisheries and Aquatic Resources-ARMM in the formulation of implementing rules and regulations for its Aquatic and Fisheries Code; and the drafting of a Monitoring, Control and Surveillance protocol; Carried out the integrated fisheries management program using the Ecosystem approach to implement /promote growth, control and maintenance mechanisms

It is notable that the environment management and conservation programs especially by the World Wildlife Fund and FISH project consistently use the Ecosystem approach. Thus their activities have been multifaceted to engage both human and national resources.

All these initiatives appear to have dovetailed into a cohesive action network for the province of Tawi-Tawi. The question would be whether the province would be able to sustain them after these respective projects have ended.

A case in point is the non-implementation of the biological monitoring protocol. This was supposed to have determined the impact of the establishment of marine protected areas in the province. But since the project under which it was developed ended, the monitoring protocol was scrapped.<sup>13</sup> Regrettably, the provincial government and line agencies do not have the technical expertise to conduct the project. Due to this limitation, the potentially valuable information will not be available to the government and the communities themselves. More technical assistance is needed to build government and community capacity to a point that both would be full participants in the entire process of natural resource management and conservation.

At the moment, the Tawi-Tawi provincial government has been able to develop a Provincial Development and Physical Framework Plan which reflects a more comprehensive environment agenda. Per analysis, the strategies fall under six main strands: law enforcement, rebuilding of resources, sustainable productivity, generation of regulating mechanisms, community education and resource information systems. Table 6 shows how these strategies are fleshed out.

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13 Interview with Filemon G. Romero, Project Manager, World Wildlife Fund-CRFC, Tawi-Tawi, April 2008

**Table 6. Tawi-Tawi Environment Agenda Implementing Strategies**

<b>Law Enforcement</b>	<b>Rebuilding Resources</b>	<b>Sustainable Productivity</b>	<b>Generation of Regulating Mechanisms</b>	<b>Community Education</b>	<b>Resource Information Systems</b>
<p>1. Enforce total log ban</p> <p>2. Regulate conversion of agricultural lands into urban developments</p> <p>3. Strictly implement environment laws</p> <p>4. Prevent new encroachment of settlements into protected areas and prime agricultural lands</p> <p>5. Enforce the strict observance of comprehensive land use plans and provincial development and physical framework plan</p> <p>6. Penalize all</p>	<p>1. Conduct reforestation</p> <p>2. Rehabilitate degraded forests and coastal resources</p>	<p>1. Maximize productivity within sustainable land area</p> <p>2. Observe inter-cropping and multi-storey methods of farming</p> <p>3. Maximize utilization of low slopes, mountains with less than 18 degree slopes</p> <p>4. Adopt the Society, Agriculture, Land and Technology (SALT) method</p> <p>5. Award certificates of stewardship to deserving upland farmers</p>	<p>1. Enjoin local government units to enact ordinances prohibiting the establishment of settlements in prime agricultural and protected areas</p> <p>2. Enjoin local government units formulate/ update comprehensive land use plans and zoning ordinances</p> <p>3. Enact pertinent resolutions enforcing environment laws</p> <p>4. Declare Sanga-Sanga water catchment area as protected area</p> <p>5. Compose a</p>	<p>1. Conduct dialogues, information and education campaigns and public announcements</p>	<p>1. Request pertinent line agencies to conduct geographic surveys identifying protected areas and prime agricultural lands</p>

violators			Protected Area Management Board to protect and maintain the Turtle Islands sanctuary		
7.Enforce moratorium in conversion of prime agricultural lands for non-agricultural purposes					
8.Implement the Comprehensive Agrarian Reform Program Law strictly					
9. Regulate sand and gravel quarrying through permits					

Clearly, significant remedial measures to arrest critical environment threats are in the agenda. Much is intended to be done in terms of law enforcement and governance mechanisms. This is where the exercise of political will cannot be overemphasized. Building the capacity of government units and agencies to plan and carry out governance mechanisms is also a crucial complement to this action plan. Regeneration of resources meanwhile will need a collaboration network comprising of government and civil society in order to be widely implemented.

Proactive measures are in the agenda as well. Generating comprehensive information about resources is notable since the information will guide resource utilization policies and will be a basis for correcting previous errors. In addition, adopting innovations for land use and agriculture will optimize productivity. However, the capability to implement and sustain these programs need to be ensured. It is noted that there is as yet no comprehensive plan to undertake community education and capability building. This oversight must be corrected because the above initiatives could take root only with community empowerment and cooperation.

## **Recommendations**

In addition to government and private sector initiatives and plans towards the management and protection of traditional natural resources, the following measures are suggested:

### *Maximization of Technical Support*

The provincial government should be able to solicit all technical assistance necessary to enable all pertinent sectors to carry out any technical activity relating to resources management competently and independently. This way, the province could mobilize on its own to secure and manage its resources even after external assistance has ended.

### *Common Areas*

The provincial government should delineate "common" areas for livelihood, community building and recreation activities in every locale. Common livelihood activities could be co-managed through cooperatives. In such venues, community members could learn to work together for common economic benefits while building their livelihood skills. Community building and recreation activities will strengthen community connections. More importantly, communal responsibility, civic-mindedness and general empowerment through consciousness-raising activities and non-formal training could be established.

### *Education*

Basic education institutions should infuse the Civics component of Social Studies with skills that would encourage critical thinking and skill building to include environment issues and common management of traditional natural resources.

Education in the non-formal mode could be sustained with the use of the civil society network already in place in the province. This network should be able to plan its action program and assign their roles and functions among themselves.

### *Community Paradigm*

In planning for community engagement, it is important to recognize their context and point of reference. A good model for engagement should regard, among others the following: means of communication and knowledge transfer; gathering places; authority figures as well as socio-cultural perspectives and idiosyncrasies. With all these considered, the appropriate engagement tools could be determined.

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