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## The Boracay closure: Socioeconomic consequences and resilience management

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DISCUSSION PAPER SERIES NO. 2018-37

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*Celia M. Reyes, Jose Ramon G. Albert, Francis Mark A. Quimba,  
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# The Boracay Closure: Socioeconomic Consequences and Resilience Management

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## **Abstract**

For many years, the Boracay island in the province of Aklan has been a favorite tourist destination in the country. The increasing influx of both international and local tourists, coupled with the improper management of wastes and poor implementation of environmental policies and guidelines, has aggravated the island's environmental condition and sustainability. This year, the government has decided to close down the island to address these critical concerns. This study looks into the potential economic effects of this recent directive, which is intended to last for six months from May to October 2018. Using secondary data, the study employs an Input-Output and computable general equilibrium (CGE) model analyses. Three scenarios, which are based on different percentage reductions in the Philippine tourism receipts, are examined to look at the projected losses in total output and compensation, as well as its effects on specific economic sectors. Results show that the aggregate economic loss in total output would range from PHP20.8 billion to PHP83.15 billion, while in terms of income, the loss in compensation would range from PHP 7 billion to PHP 27.9 billion. Tourism sectors would be most affected, as well as agriculture and services, albeit slightly. Overall, while the results may not be very significant at the national level, it will still have its direct and indirect effects to people living in the island and in the entire municipality of Malay. The study recommends the need to craft strategic and harmonized overall plan which lays out the various government efforts to safeguard the welfare of those who will be severely affected by the sudden closure of Boracay.

**Keywords:** Boracay closure, environmental sustainability, Philippine tourism, input-output analysis, computable general equilibrium

## Highlights of the Report

- **For several years, the Boracay island has continuously attracted visitors, which subsequently led to higher tourist receipts, with the peak of travel falling in months of April to May.** The island, part of the municipality of Malay in the province of Aklan, has been known globally for its white sandy beaches. In recent years, growth among foreign tourists has been significant particularly from South Korea and China. In 2017, Boracay had as much as 2,001,974 visitors (about half of whom were foreigners) up by 16.0 percent from 1,725,483 tourists in 2016. Correspondingly, tourist receipts from the resort island have been steadily increasing from PHP 4.9 billion in 2001 to PHP 56.1 billion in 2017 or at an average rate of 16.5 percent. While tourists travel throughout the year to visit the island, the peak of travel to Boracay is during April to May as the island transitions from the rainy season to the dry season.
- **Majority of the workers, as well as establishments, in Malay conduct business/livelihood in Boracay.** About 85.9 percent and 72.6 percent of the total workers and businesses, respectively, in Malay operate in Boracay. Most of the workers are employed in the passenger transport, accommodation and food and beverage businesses and others such as banks/pawnshops/forex/lending/money transfer, laundry shops, lessors/parking space/space rental, among others. Most businesses in the island fall under the retail trade, travel agents, tour operators, and guides, and other miscellaneous industries.
- **The economic loss from the closure of Boracay may not be significant at the national level, but it will still have its direct and indirect effects to people living in Boracay and in the entire municipality of Malay.**
  - About 1.1 million tourists are expected to visit Boracay during the period May-October 2018 and spend a total of Php 38.6 billion.
  - The projected economic losses for the entire economy for the period May to October 2018 were computed using the multiplier effects of tourism-related sectors. Below is a summary of the results:

	<b>Scenario 1</b> 5% reduction in PH Tourism Receipts	<b>Scenario 2</b> 10% reduction in PH Tourism Receipts	<b>Scenario 3</b> 20% reduction in PH Tourism Receipts
Projected Losses in Total Output	PHP 20.79 B	PHP 41.57 B	PHP 83.15 B
Projected Losses in Compensation	PHP 6.97 B	PHP 13.95 B	PHP 27.89 B

Notes: See section on Input-Output analysis for the specific description of each scenario.

- Using the estimated loss in tourist receipts in Boracay, the direct effects by industry in the island are roughly as follows: 1) PHP 10 billion on accommodation services for visitors; 2) PHP 9.7 billion on entertainment and recreation services and shopping; 3) PHP 9.3 billion on food and beverage serving services; 4) PHP 8.8 billion on transport services; and the remaining PHP 0.8 billion on miscellaneous activities.

- Based on the 2006 Input-Output (IO) and Computable General Equilibrium (CGE) analyses that have been conducted, the following are the likely economic impacts of the closing down of the island:
  - Total output in the affected sectors will contract between 0.56 to 2.23 percent because of the reduction in the demand for tourism characteristic products.
  - While it is understandable that tourism services and transportation would be affected the most, agriculture and manufacturing sectors would also be affected due to their linkages with the tourism-related sectors.
  - Tourism sectors (i.e. travel, accommodations, restaurants, beauty and recreation) would be most affected, as well as agriculture and services albeit, slightly. The transmission mechanism of the impact of the Boracay closure can be seen through the increase in prices resulting from the reduction in the supply of tourist characteristic products.
  - Based on the results of the CGE model, about 0.02 to 0.045 percent of the gross domestic product (GDP) would be necessary to bring back the households to the level of utility that they are enjoying before the closure of Boracay.
- **Government will need to provide some form of sustainable assistance especially to low-income workers in the island and in mainland Malay who will be affected by the six-month closure.** While laborers and unskilled workers, who dominate the occupation groups in Boracay island receive a daily wage of about 250 pesos, ranging from 50 pesos to 625 pesos, a quarter of them receive only around 150 pesos.
- **Improved policy implementation and governance, in addition to a more effective coordination among stakeholders especially among government agencies and local government, is crucial.** Various government initiatives have already been implemented in the past with the aim to look into the environmental situation of Boracay and the impending sustainability issues. Despite these efforts, problems that were long ago identified have greatly persisted. Part of the problem involves policy implementation deficits and overall governance, including the tendency for government agencies to formulate piecemeal policies and to work in silos, rather than adopting and practicing a whole of government approach to Boracay development.
- **The bigger issue is the very low compliance rate not just among business establishments, but more alarmingly, among residential customers who stay in the island.** Aside from business establishments, the sewerage systems of the residential buildings are not properly integrated in the island. Data from the Department of Environment and Natural Resources (DENR) and Boracay Island Water Company (BIWC) suggest that merely two thirds (383) of 578 business customers of the BIWC and about one in twenty (217) of (4,331) BIWC residential customers are connected to the BIWC sewerage treatment plant. More so, households covered by the Boracay Tubi System, Inc., the other water concessionaire in the island, have been reported to be not at all connected to the sewerage system.
- **There is a need to craft a strategic and concrete overall plan which details the various government efforts to safeguard the welfare of those who will be severely affected by the sudden closure of Boracay.** Recently, several national government

agencies have already signified their respective plans to help mitigate the negative impacts of the closure to the workers. For instance, the Department of Labor and Employment (DOLE), in cooperation with the Philippine Chamber of Commerce and Industry and the local government of Malay, is planning to implement livelihood programs (e.g. clean-up jobs) and provide assistance albeit limited budget. The Department of Trade and Industry (DTI) will also provide alternative employment by giving opportunities, loans, and training activities to the workers who will be displaced and also help them migrate to other potential tourist areas. The Department of Social Welfare and Development (DSWD) is currently preparing an assistance plan for Boracay through its regular programs and services. Meanwhile, the government could also look into the existing mechanisms for providing cash assistance to poor displaced workers. One such mechanism is the distribution of the cash transfer of the 4Ps program although this would only be limited to 4Ps beneficiaries.

- **In the matter of cash transfer, options include the provision of a monthly cash assistance or one-time lump-sum transfer.** The latter may be more preferable since this can allow the use of the cash transfer for entrepreneurial activities.
- **Several government agencies which have pledged assistance to displaced workers may need to prioritize poor and low-wage workers.** It is likely that the number of jobs that can be provided will be less than the number of displaced workers. Thus, the issue of targeting has to be addressed. Priority should be given to the poor and low-wage workers. Self-targeting will be achieved by the design of the employment program. For instance, offering wages at the minimum wage level will attract poor workers.
- **The results of this study point to the need for a registry of residents in any barangay.** This makes it easier to identify would-be-affected residents resulting from shocks. A Community-Based Monitoring System (CBMS) would be useful tool in generating such database. Malay is scheduled to implement its CBMS this year but has yet to start data collection.

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# The Boracay closure: Socioeconomic consequences and resilience management

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## 1. Introduction

To address ecological issues that have hounded Boracay Island for over two decades, the government has decided to close the island from entry of local and foreign tourists for six months starting April 26, 2018. This decision is based on a unanimous recommendation of an inter-agency task force of the national government comprising the Department of Environment and Natural Resources (DENR), the Department of Local Government (DILG) and the Department of Tourism (DOT). Further, the DILG has also proposed earlier the declaration of a state of calamity<sup>1</sup> for six months and a two-month commercial shutdown to speed up the rehabilitation of the island, located 315 kilometers south of Metro Manila.

Boracay, part of the municipality of Malay in the province of Aklan, has been known globally for its white sandy beaches. Since 2005, the island has been administered by the Philippine Tourism Authority (PTA) and the provincial government of Aklan. In 2017, the island has attracted over two million tourists, slightly less than half of whom were foreign tourists, while the rest were Filipinos (including overseas Filipinos). While tourism has an impact on the economy as it creates jobs, as well as promotes local culture and products, tourism must also be sustainable, i.e., it should account for impacts on the environment. Sustainable addresses present needs of visitors, the tourism industry, the environment and host communities, without compromising the ability of future generations to meet their own needs (WCED, 1987).

Given the interest of the Philippine Institute for Development Studies to study issues of long term consequences, several of its research staff have come up with this paper which firstly describes socio economic conditions in Boracay, including environmental issues. The paper then discusses ways forward in rehabilitation as well as the likely implications to the island's closure, together with concrete recommendations for managing the resilience of people to be affected.

## 2. Profile of Boracay Island

Boracay consists not only of its 10.32 square kilometers of area in the island, but also its people and their livelihoods. As of August 2015, the entire island had a population count of 32,267 across its three barangays Manoc-Manoc, Balabag and Yapak, while mainland Malay had 20,706 residents. These figures were obtained from the mid-decade population census (POPCEN) conducted by the Philippine Statistics Authority (PSA). The total population in the island accounted for three-fifths of the entire population of Malay, Aklan where the island

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\* The authors are president, senior research fellow, research fellow, and research assistants, respectively of the Philippine Institute for Development Studies. They wish to acknowledge helpful discussions with colleagues Vicente B. Paqueo, Aniceto C. Orbeta, Jr., and Roehlano M. Briones.

<sup>1</sup> Republic Act No. 10121, also known as the Disaster Risk Reduction and Management Act of 2010, allows the President of the Philippines, upon the recommendation of the National Disaster Risk Reduction and Management Council, to declare a state of calamity in area. A state of calamity is defined as a condition involving mass casualty and/or major damages to property, disruption of means of livelihoods, roads and normal way of life of people in the affected areas as a result of the occurrence of natural or human-induced hazard. Proclaiming Boracay to be in a state of calamity would allow for price control for basic commodities, provision of zero-interest loans, the use of calamity funds for rehabilitation coupled with speedy procurement of services for rehabilitation.

belongs. As in most areas of the country, the population in Boracay has been increasing over the years. Rough projections put the total number of current residents in Boracay and the entire Malay at 34,880 and 57,797, respectively in 2018.

Residents of Boracay and mainland Malay are directly or indirectly affected by tourism in the resort island. As of December 2017, the local government of Malay reports that there have been around 4 thousand five hundred registered businesses/livelihoods with over 17 thousand workers employed across the entire municipality.

**Table 1. Number of Workers in Boracay and Malay, by Major Industry**

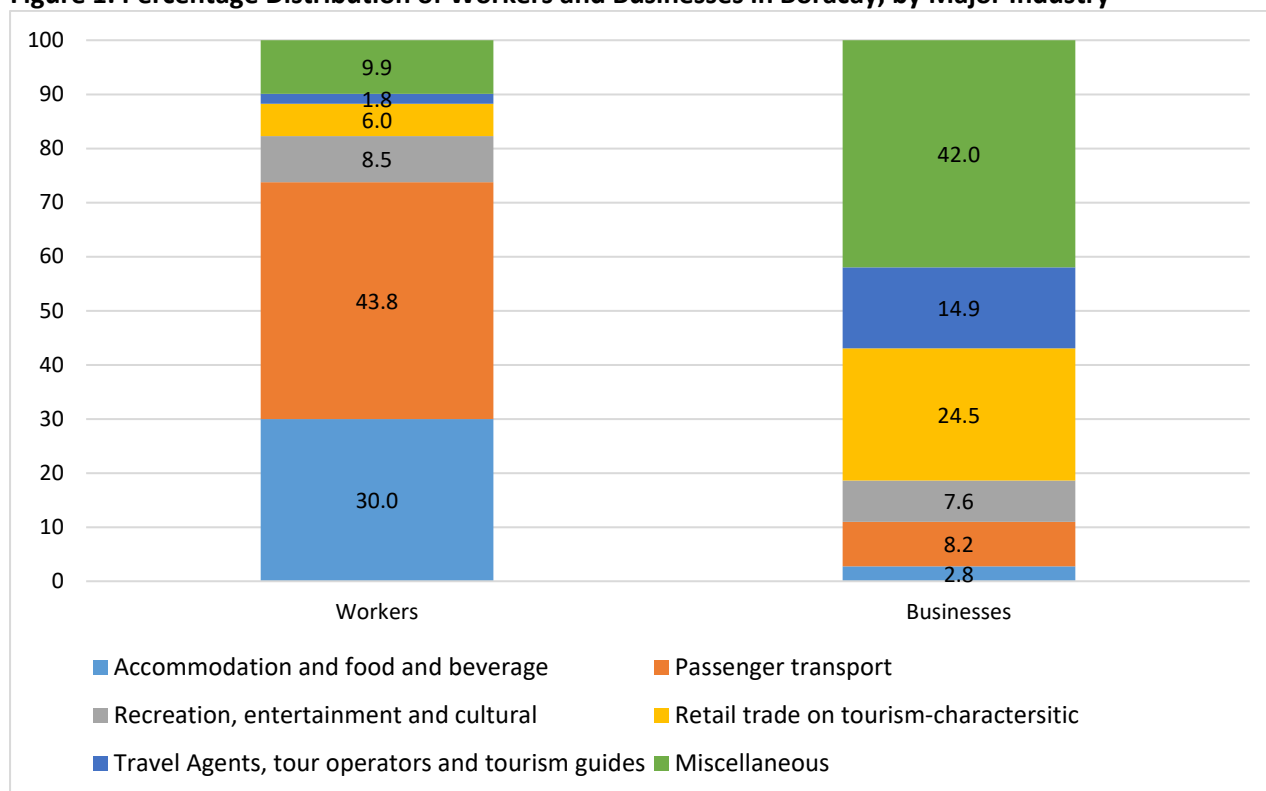
Major Industries	Workers			Registered Businesses		
	Boracay	Malay	% Share	Boracay	Malay	% Share
Accommodation and food and beverage	4,439	4,711	94.2	91	114	79.8
Passenger transport	6,478	7,645	84.7	269	346	77.7
Recreation, entertainment and cultural	1,264	1,329	95.1	248	270	91.9
Retail trade on tourism-characteristic	884	1,101	80.3	800	1,062	75.3
Travel Agents, tour operators and tourism guides	269	336	80.1	489	611	80
Miscellaneous	1,466	2,107	69.6	1,374	2,101	65.4
<b>Total</b>	<b>14,800</b>	<b>17,229</b>	<b>85.9</b>	<b>3,271</b>	<b>4,504</b>	<b>72.6</b>

Notes:

1. Accommodation and food and beverage contains the following businesses: bakery, bar & restaurant/eatery/kitchenette, boarding house, resorts/hotels/cottages, real estate brokerage, vendor of fruits/meat/seafood/vegetables, and water refilling station/water distributor.
  2. Passenger transport includes ATV/bug car rental, aquasports/dive shops/sea sports, e-trike, motorbike for rent, motorboat, paraw, tricycle cargoes, and tricycles.
  3. Recreation includes amusement/recreation center, beauty parlor & barber shop, internet café/computer center/video shops, manicurist and masseurs, souvenir shop/boutique/arts and crafts, spa and massage clinics, tattoo shop/association
  4. Retail trade covers drugstores/medical clinics, rice/feeds retailer/wholesaler, sari-sari stores, vendors
  5. Travel includes airlines/travel and tours/ticketing/booking office
  6. Miscellaneous includes associations/cooperatives/foundation, banks/pawnshops/forex/lending/money transfer, hardware/const./Alum./Glass supply, hauling services, laundry shops, lessors/parking space/space rental, mobile photographers, school, and others.
- Source of basic data: Local government of Malay

As shown in Table 1, 85.9 percent of the workers in Malay conduct livelihood activities in Boracay. Most of these workers are employed in the passenger transport (43.8 percent), accommodation and food and beverage businesses (30 percent), and others such as banks/pawnshops/forex/lending/money transfer, laundry shops, lessors/parking space/space rental, among others (9.9 percent). On top of the workers in the registered businesses in Malay, there are reportedly around 19 thousand unregistered workers in the island that would also be affected by the temporary closure of Boracay. Over 3 thousand of the establishments/businesses (comprising about three fifths of all the registered establishments in Malay) in Malay are in Boracay where most fall under the retail trade (24.5 percent), travel agents, tour operators, and guides (14.9 percent), and other miscellaneous industries (42 percent) (Figure 1).

**Figure 1. Percentage Distribution of Workers and Businesses in Boracay, by Major Industry**



Source of basic data: Local government of Malay

Data from the 2015 *Listahanan*<sup>2</sup>, conducted by the Department of Social Welfare and Development (DSWD) to identify poor households in need of social protection, provides a picture of the living conditions in Boracay Island. Table 2, for instance, shows the distribution of persons in the *Listahanan* database by major occupation and by poverty status. Most persons in Boracay, especially among the poor, are laborers and unskilled workers, though among the non-poor in Boracay, plant and machine operators and assemblers are slightly more dominant than laborers and unskilled workers. Even in Mainland Malay, laborers and unskilled workers, as well as plant and machine operators and assemblers are the most dominant occupations.

**Table 2. Distribution of Persons in Boracay, Mainland Malay, and entire Malay by poverty status and major occupation as of December 2017**

Major Occupation	Boracay			Mainland Malay			Malay		
	Poor	Non-poor	Total	Poor	Non-poor	Total	Poor	Non-poor	Total
Special Occupations	57	149	206	6	49	55	63	198	261

<sup>2</sup> The *Listahanan*, also referred to as the National Household Targeting System for Poverty Reduction (NHTS-PR), is an information management system first developed in 2008/2009 and maintained by DSWD to provide social protection stakeholders with information on who and where the poor are in the Philippines. The system makes use of data sourced from (46 variables collected in) a four-page family assessment form, coupled with a proxy means test procedure (to estimate family income from observable and verifiable proxy indicators of income such as materials used in housing structure, family's access to basic services and facilities, and asset ownership), and validation processes to determine economic conditions of families and identify the poor. The current proxy means test procedure involves two stages of models to estimate the poverty status of the household. See Information sourced from *Listahanan* has been used for the identification and selection of potential beneficiaries for various poverty alleviation and social protection programs at DSWD, including the *Pantawid Pamilyang Pilipino Program* (the government's conditional cash transfer program) and the Social Pension (SocPen) program that provides social assistance to poor elderly individuals (who do not have any form of pension or regular income/support from family). Data from *Listahanan* has also been used for distribution of health cards to poor households by PhilHealth, the state-run health insurance. The DSWD has subsequently updated *Listahanan* in 2015 and has plans to further update the database in 2019.

Gov't and Special Interest Org. Officials, Corp. Executives, Managers or Proprietors, Supervisors	9	158	167	11	211	222	20	369	389
Professionals	11	188	199	7	172	179	18	360	378
Technicians and Associate Professionals	11	153	164	21	311	332	32	464	496
Clerks	2	87	89	13	265	278	15	352	367
Service Workers and Shop and Market Sales Workers	39	331	370	51	631	682	90	962	1,052
Farmers, Forestry Workers and Fishermen	27	77	104	150	278	428	177	355	532
Trades and Related Workers	41	172	213	60	333	393	101	505	606
Plant and Machine Operators and Assemblers	47	483	530	108	1,000	1,108	155	1,483	1,638
Laborers and Unskilled Workers	143	424	567	329	1,301	1,630	472	1,725	2,197
None	1,538	4,270	5,808	2,447	7,965	10,412	3,985	12,235	16,220
<b>Total</b>	<b>1,925</b>	<b>6,492</b>	<b>8,417</b>	<b>3,203</b>	<b>12,516</b>	<b>15,719</b>	<b>5,128</b>	<b>19,008</b>	<b>24,136</b>

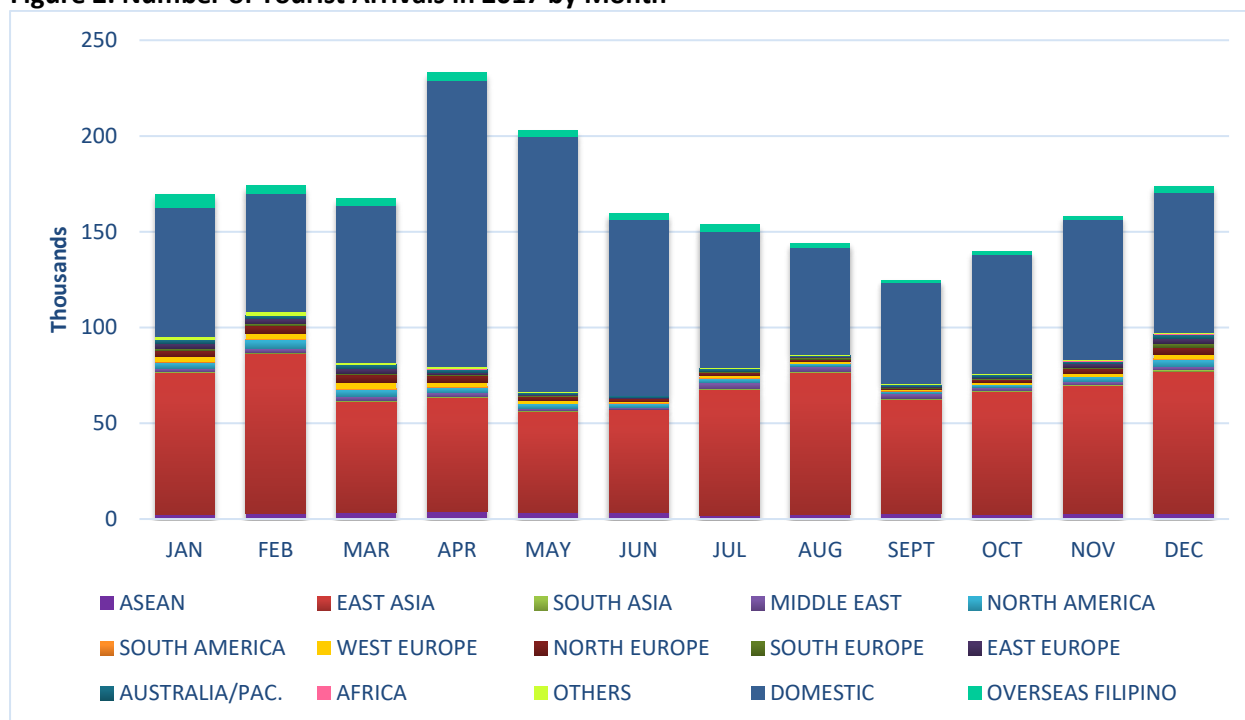
Source: 2015 Listahanan, Department of Social Welfare and Development

Tourism development in Boracay has changed its people's living conditions significantly, with their livelihoods which originally involved in subsistence agriculture and fishing activities, shifting to occupations dependent on tourism (Trousdale, 1999; Takashi *et al.*, 2011).

Data on barangay characteristics obtained during the 2015 POPCEN suggest that while Boracay Island has access to a national highway, all the three barangays in Boracay are more than two kilometers from the highway. This sense of remoteness and serenity, coupled with the white powder beaches and rich marine life provides Boracay its attraction to visitors. Tourist head counts in Boracay have been increasing annually for two decades, except in 1997 when tourist arrivals dropped significantly by 60 percent due to scares regarding the rising coliform bacteria from poor sewage and septic system in the resort island. At that time, the government established a potable water supply system, a sewage treatment plant, and a solid waste disposal system.

In recent years, growth among foreign tourists has been significant particularly from South Korea and China. While tourists travel throughout the year to visit the island, the peak of travel to Boracay is during April to May (see Figure 2) as the island transitions from the rainy season to the dry season. The most popular of its beaches is White Beach, stretching four kilometers, one of the longest of its kind in Asia. Most of tourism development is focused along Barangay Balabag, where White Beach is located. Leading alternatives to Boracay in Southeast Asia are Bali and Phuket in Indonesia and Thailand, respectively. Bali is visited most during July, August and December, while travel peak season for Phuket is November to February.

**Figure 2. Number of Tourist Arrivals in 2017 by Month**



Source: Municipal Tourism Office, Municipality of Malay

From 2001 to 2017, visitor head counts and tourist receipts in Boracay have been consistently increasing every year (Table 3). The highest increase in visitor arrivals in Boracay was in 2012 at 32.7 percent growth. In 2017, Boracay had as much as 2,001,974 visitors (about half of whom were foreigners) up by 16.0 percent from 1,725,483 tourists in 2016. Correspondingly, tourist receipts from the resort island have been steadily increasing from PhP 4.9 billion in 2001 to PhP 56.1 billion in 2017 or at an average rate of 16.5 percent. According to the National Economic and Development Authority (NEDA), revenues from Boracay account for merely 0.1 percent of the gross domestic product, which measures the country’s economic activity.

**Table 3. Visitor Arrivals and Visitor Receipts in Boracay, 2001- 2017**

Year	Visitor Arrivals	Visitor Receipts (in PHP million)
2001	264,807	4,868.05
2002	300,792	5,529.58
2003	339,434	6,239.95
2004	428,755	7,881.97
2005	499,457	9,181.72
2006	554,181	10,187.73
2007	596,707	10,969.50
2008	634,263	11,659.91
2009	649,559	11,941.10
2010	779,666	14,332.91
2011	908,874	16,708.21
2012	1,206,228	22,175.01
2013	1,363,611	25,067.62
2014	1,472,352	27,066.84
2015	1,560,106	43,950.00
2016	1,725,483	48,895.47

Year	Visitor Arrivals	Visitor Receipts (in PHP million)
2017	2,001,974	56,147.74

Source: Virola, et al. (2011) and Aklan Provincial Tourism Office as compiled by the authors

The government has opted to close Boracay Island for six months to address improper management of wastes and other environmental problems in the world-renowned tourist destination. The sewerage system is not properly integrated in the island for businesses and residents alike. Data from DENR and Boracay Island Water Company (BIWC) suggest that merely two thirds (383) of 578 business customers of BIWC and about one in twenty (217) of (4,331) BIWC residential customers are connected to the BIWC sewerage treatment plant (Macaraeg, 2018). Meanwhile, households covered by the Boracay Tubi System, Inc. are not at all connected to the sewerage system (Villanueva, 2018). According to the DENR, of the 2,700 establishments in the island, as many as 842 have been violating sewer and solid waste laws. Only one in five (18%) DOT-accredited hotels and restaurants are connected to the main sewer system, while the rest of these establishments dispose their waste-water by tapping into sewer lines that drain into the sea. Despite the implementation of the Malay LGU Ordinance No. 307 in 2012, which states the need for businesses and households to connect to the Boracay sewerage system, compliance among firms and residential customers has remained very weak. In 2014, the DENR Environmental Management Bureau (EMB) Region 6 reported through the Water Quality Monitoring Report, that Brgy. Balabag (location of White Beach) had violated the quality standard on total coliform concentration of the drainage outfall. It was noted that domestic wastes originating from unconnected residential and business establishments go directly to the drainage canal and empty in the coastal waters in Bulabog area which consequently flows through the coastal waters of Boracay. In the same report, the DENR EMB found the island's non-compliance to the oil and grease water quality standard owing primarily to the operations of motorized pump boards for commercial and transportation purposes.

Further, the DENR suggests that five out of nine wetland areas have been destroyed by establishments and illegal settlers. Thus far, the DENR has recently closed more than 50 establishments found to have violated water, waste management, and land use regulations, with more closures expected once the sewerage pipes are unearthed and a thorough audit of land use is undertaken.

In 1978, Boracay was one of the islands in the country declared as "tourist zones and marine reserves."<sup>3</sup> Nearly three decades later, Proclamation 1064<sup>4</sup> series of 2006 classified Boracay Island into 400 hectares of reserved forest land for protection purposes and 628.96 hectares of agricultural land (alienable and disposable). The Supreme Court affirmed this proclamation in 2008. As a result of the Proclamation 1064 and the Supreme Court decision affirming this proclamation, the DOT initiated a comprehensive land use plan for Boracay Island that set limits on island developments. Further, the DENR came up with the Forest Land Use Agreement for Tourism Purposes (FLAgT)<sup>5</sup> to mitigate the impact on the land ownership crisis affecting businesses operating within the 400-hectares declared as forest lands. The DENR also has formulated the Boracay Environmental MasterPlan, covering the period 2008-2033, which provides for the island's development directions, strategies and specific programs and projects

<sup>3</sup> Proclamation 1801, Series of 1978, Declaring Certain Islands, Coves And Peninsulas In The Philippines As Tourist Zones And Marine Reserve Under The Administration And Control Of The Philippine Tourism Authority. 10 November 1978.

<sup>4</sup> Proclamation 1064, series of 2006. Classifying Boracay Island Situated In The Municipality Of Malay, Province Of Aklan Into Forestland (Protection Purposes) And Into Agricultural Land (Alienable And Disposable) Pursuant To Presidential Decree No. 705 (Revised Forestry Reform Code Of The Philippines)

<sup>5</sup> DENR Administrative Order 2004-28-Rules and Regulations Governing the Use of Forestlands for Tourism Purposes

that would address identified environmental concerns. Further, in support of sustainable tourism, the DENR has enacted Administrative Order 2013-19, also called the “Guidelines on Ecotourism Planning and Management in Protected Areas” (DENR, 2013). However, part of the problem involves policy implementation deficits and overall governance, including the tendency for government agencies to formulate piecemeal policies and to work in silos, rather than adopting and practicing a whole of government<sup>6</sup> approach to Boracay development. Current laws mandate that no man-made structure, whether permanent or movable, can be installed on a 30-meter stretch between the high-tide mark and the buildings, yet, establishments continue to encroach on the protected zones thus continuing to decrease the size of Boracay beaches.

Throughout the years, several studies have indicated a variety of critical issues that threaten the island's environment. Two decades ago, warnings were given that the sheer volume of people, the improper solid waste management practices, and lack of effective governance in Boracay have put severe pressures on carrying capacities of the island (Trousdale, 1997; Trousdale, 1999). The sewage problem in Boracay was found to be the main cause of stress to the coastal and marine degradation, particularly the depletion of coral cover in the seas surrounding the resort island (Goreau *et al.*, 1997). According to DENR, solid-waste generation in Boracay is estimated at 2.25 kilos per person, totaling 90 tons per day, but only 30 tons of garbage are actually collected and brought out of the island.

A research undertaking from 2010 to 2015 supported by the Japan International Cooperation Agency (JICA) under its Coastal Ecosystem Conservation and Adaptive Management (CECAM)<sup>7</sup> concludes that the coral reef ecosystem of Boracay has been seriously degraded by tourism-related activities. Making use of geospatial technology from satellite images, the CECAM study has pointed out that coral cover in Boracay declined from 1988 to 2011 by about 70.5%, with the highest decrease in coral cover observed between 2008 and 2011 when visitor head counts increased by 38.4%. The JICA-supported study also has suggested that unmonitored snorkeling and diving activities in coral rich areas have contributed to damage sustained by corals. According to sediment analysis, the talcum-like white sands in the island are mostly from coral fragments and the seaweed *Halimeda*. Further, coral reefs are also reported to lessen the impact of strong waves to the beaches, hence protecting the Boracay beaches from sand erosion.

In several parts of Boracay, coastal water quality level has been found to be poor (Limates *et al.*, 2016), owing to both natural and anthropogenic sources of pollution, such as the inflowing underground water and surface freshwater, the sewage discharge, coastal sea water dynamics, geological, geographic characteristics of the area, weather and climate. The direct discharge of partially treated and untreated domestic waste water from residents and commercial establishments is however the major source of poor water quality levels in Boracay, which, in turn, yields frequent algal blooms and coral reef deterioration. Other factors known to have contributed to coral degradation include unregulated fishing and (Goreau 2007; Tan *et al.* 2016).

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<sup>6</sup> Whole of government is defined by OECD (2006) as a public-sector management approach “where a government actively uses formal and/or informal networks across the different agencies within that government to coordinate the design and implementation of the range of interventions that the government’s agencies will be making in order to increase the effectiveness of those interventions in achieving the desired objectives”

<sup>7</sup> <https://www.jica.go.jp/philippine/english/office/topics/news/150528.html>

### 3. Aggregate Economic Losses from Closure

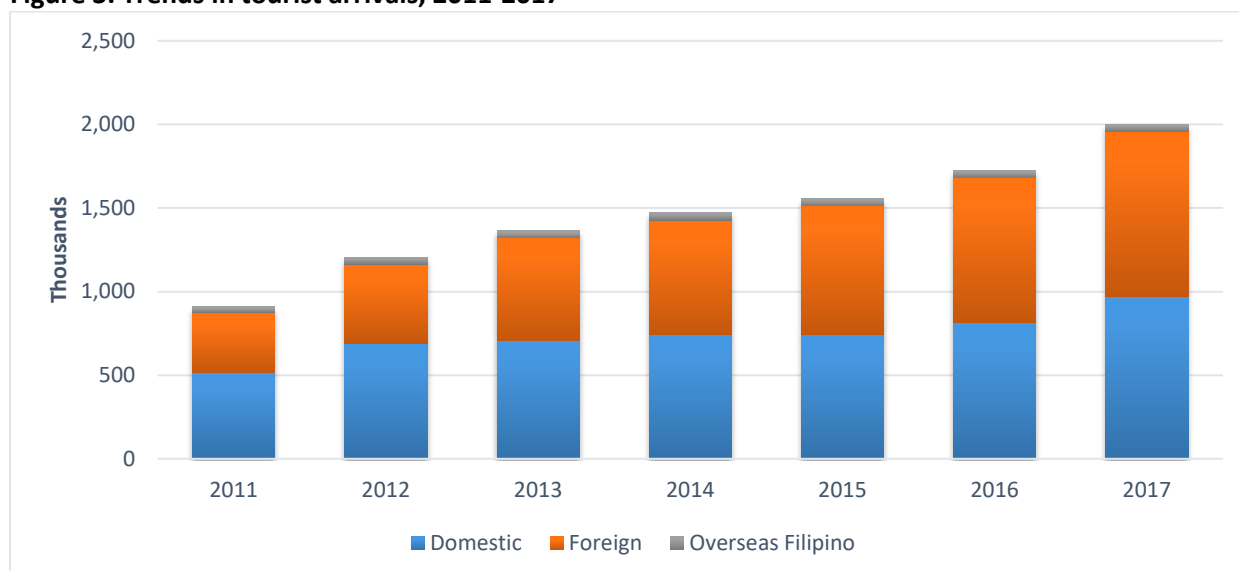
To assess the aggregate impact of the Boracay 6-month closure to the national economy, the following methodology was undertaken:

1. Using publicly available data on the arrival of foreign and local tourists, expenditure receipts, share to the total economy, the contribution of Boracay to the national economy was firstly estimated.
2. Employing the 2006 Input-Output table<sup>8</sup>, the linkages of the tourism industry to the rest of the economy were examined. From (1), the reduction in the demand for tourism services was then measured through the combined effects to the other industries.
3. Complementing the analysis from (2), we analyzed the impact of the Boracay closure using a computable general equilibrium (CGE) model which also provides the magnitude of the impact on other industries. The CGE model also provided an estimate of the equivalent variation as a proportion of GDP, a monetary estimate of the cost of bringing back the economy to the previous level.

#### 3.1. Analysis of Secondary Data

To preliminarily estimate the impact of the closure of Boracay to the national economy, we firstly examine the tourism industry in the area in terms of the number of tourists and the amount of expenditure. As pointed out in the previous section, data from the Municipal Tourism office of Malay, Aklan, suggested that a total of 2 million tourists arrived in Boracay in 2017. Further, historical data indicated that more domestic tourists arrived in Boracay relative to foreign visitors except in the last three years (from 2015 onwards). The share of domestic and foreign tourist arrivals in 2017 is relatively the same at 49 percent with overseas Filipinos accounting for the remainder (Figure 3). In the past years, tourist arrivals in Boracay also accounted for about one-third of the total arrivals in the Philippines (Table 4).

**Figure 3. Trends in tourist arrivals, 2011-2017**



Source: Municipal Tourism Office, Municipality of Malay, Aklan

<sup>8</sup> The authors opted to use the 2006 IO Table since this contains greater disaggregation than that of the 2012 IO Table. Such disaggregation allows the identification of tourism-related characteristics such as beauty and recreation, restaurants, accommodation, among others.

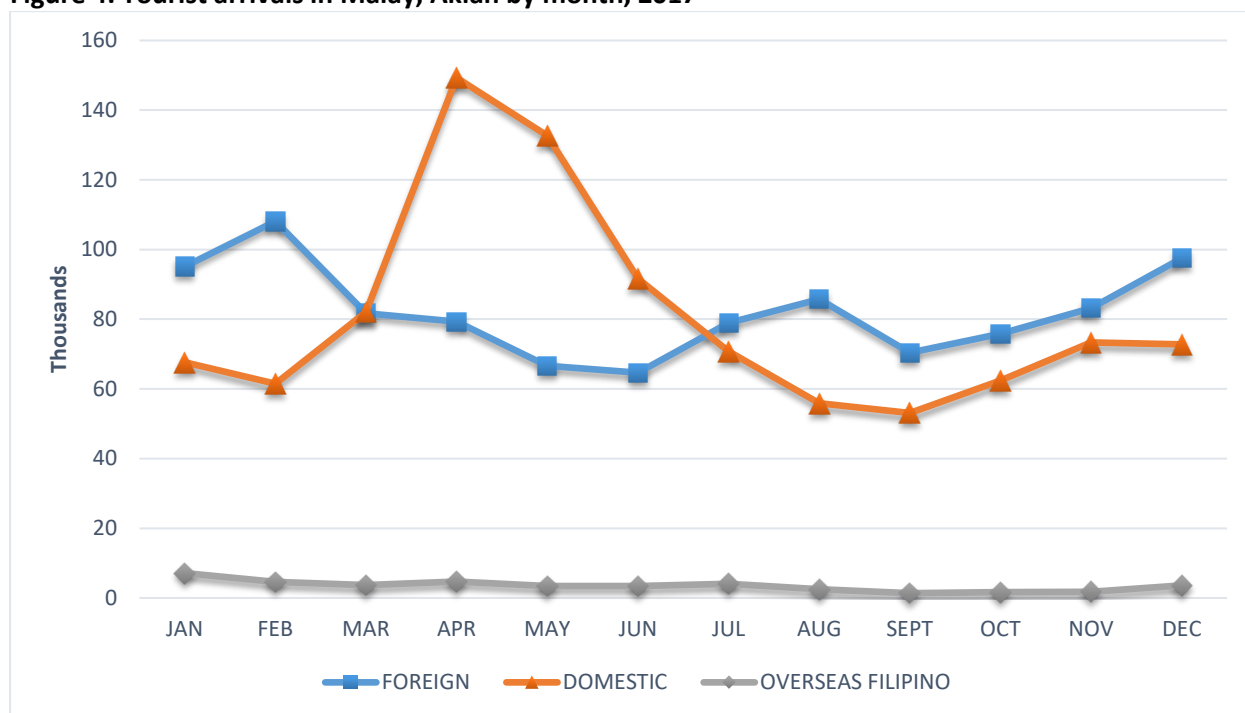


**Table 4. Share of Tourist Arrivals, Boracay and Philippines**

Year	Overseas Filipino		Domestic		Foreign		Total		Boracay as % of Philippines
	Number	% Share	Number	% Share	Number	% Share	Boracay	Philippines	
2011	33,102	3.6	515,751	56.7	360,021	39.6	908,874	3,917,454	23.2
2012	42,094	3.5	690,872	57.3	473,262	39.2	1,206,228	4,272,811	28.2
2013	42,691	3.1	705,402	51.7	615,518	45.1	1,363,611	4,681,307	29.1
2014	44,254	3	745,266	50.6	682,832	46.4	1,472,352	4,833,368	30.5
2015	42,529	2.7	745,266	47.9	769,560	49.4	1,557,355	5,360,682	29.1
2016	43,416	2.5	813,302	47.1	868,765	50.3	1,725,483	5,967,005	28.9
2017	42,060	2.1	972,994	48.6	986,920	49.3	2,001,974	6,620,908	30.2

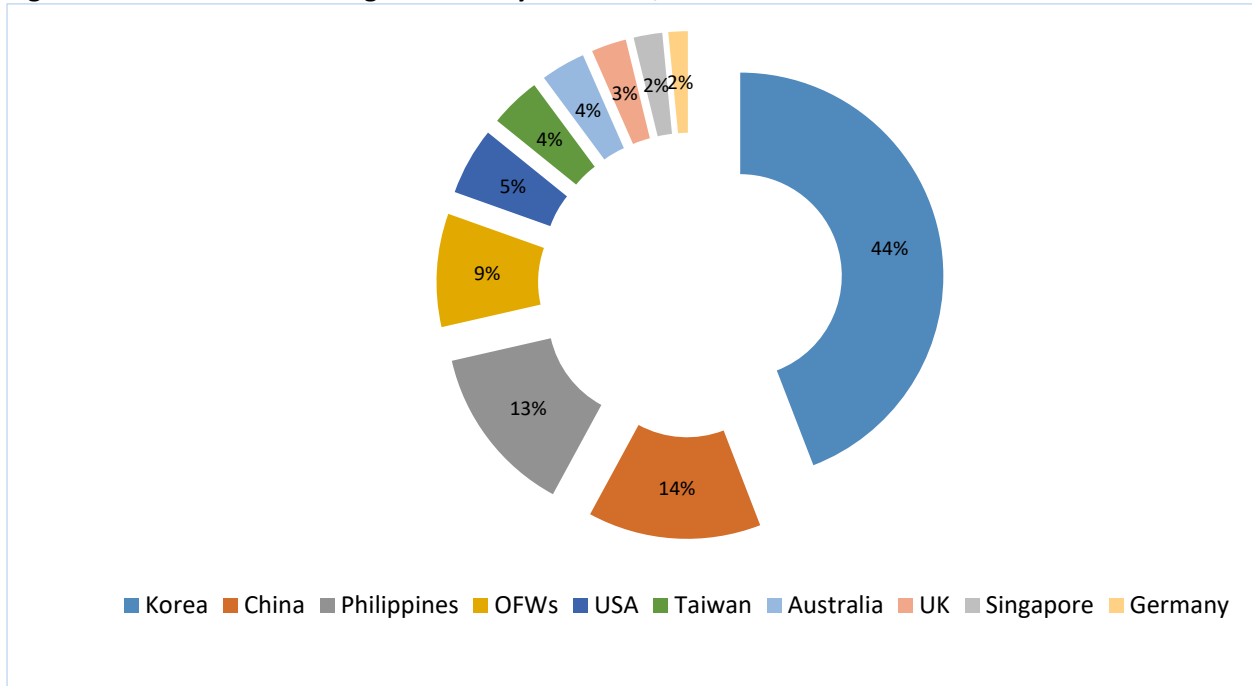
Source: Municipal Tourism Office, Municipality of Malay, Aklan

**Figure 4. Tourist arrivals in Malay, Aklan by month, 2017**



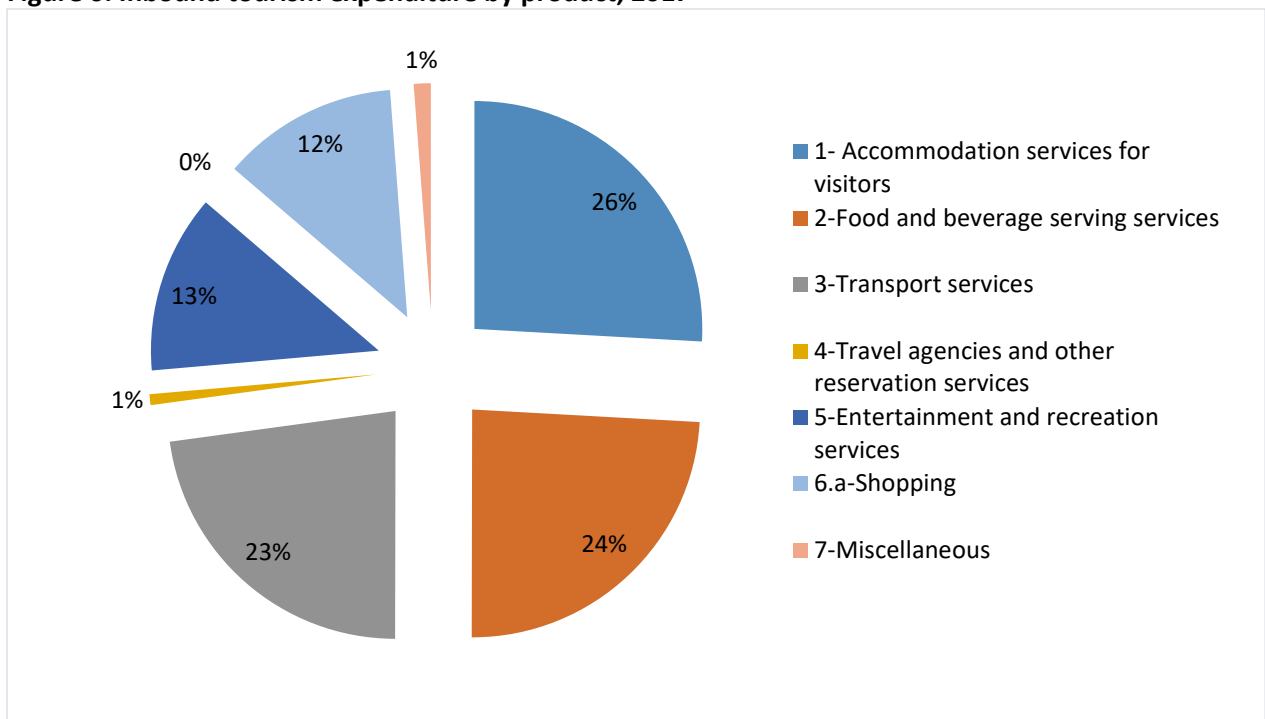
Source: Municipal Tourism Office, Municipality of Malay, Aklan

**Figure 5. Distribution of Foreign tourists by residence, 2017**



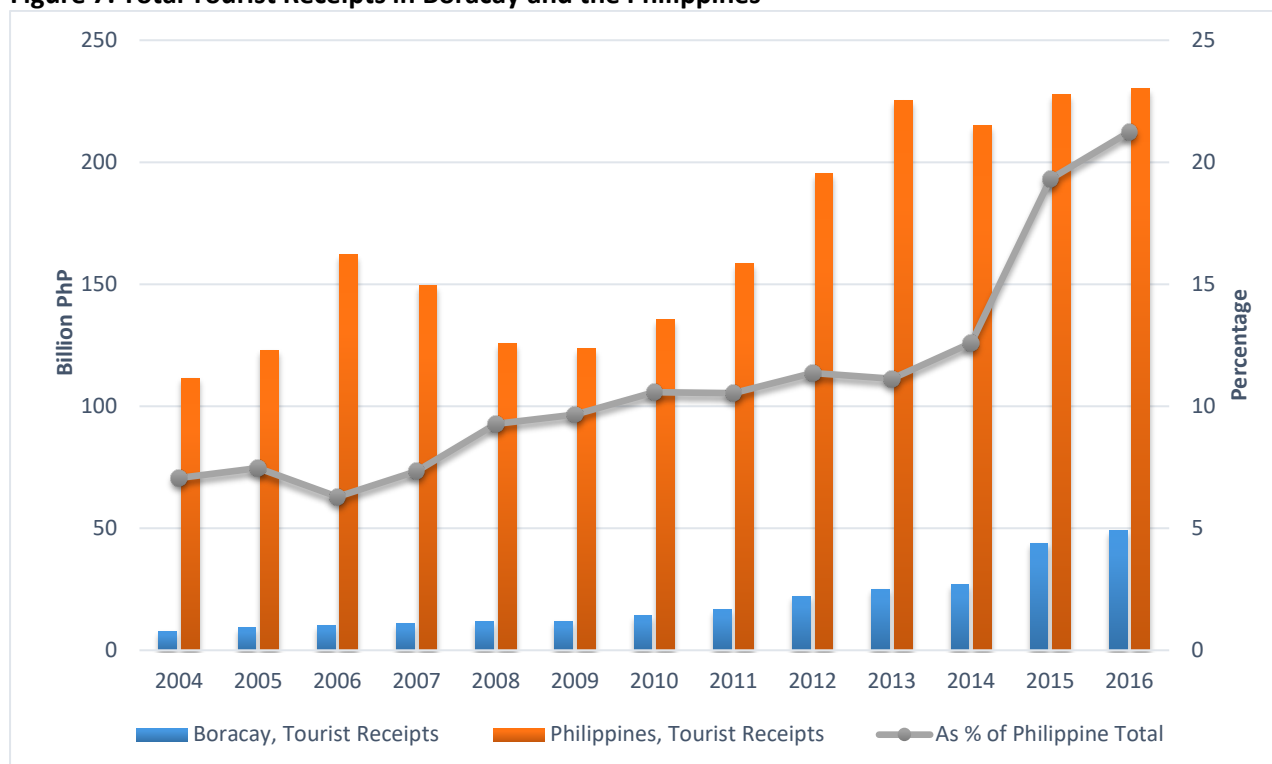
Source: Municipality of Malay, Aklan

**Figure 6. Inbound tourism expenditure by product, 2017**



Source: Philippine Statistics Authority

**Figure 7. Total Tourist Receipts in Boracay and the Philippines**



Source: Municipality of Malay, Aklan

**Table 5. Revenue Generation Program, Municipality of Malay**

Revenue Item, In Million Pesos	2012	2013	2014	2015	2016	2017
<b>Tax Revenues</b>						
Real Property Tax (Mun. Share)	14.52	14.53	16.87	14.95	14.91	20.65
Business Tax	46.44	51.60	65.11	75.40	86.42	105.62
Other Taxes	4.45	9.81	4.45	5.09	3.78	4.33
<b>Non-Tax Revenues</b>						
Regulatory Fees	27.28	33.25	56.57	45.20	52.91	54.18
Service/User Charges	108.38	128.24	129.12	148.58	169.29	192.15
Receipt from Economic Enterprises	8.14	9.28	11.99	15.22	15.90	19.86
Other Income/Receipts	3.72	2.77	5.54	1.77	1.66	1.08
<b>TOTAL LOCAL SOURCE</b>	<b>214.93</b>	<b>249.50</b>	<b>289.65</b>	<b>306.20</b>	<b>344.86</b>	<b>398.07</b>
<b>EXTERNAL SOURCES</b>						
Internal Revenue Allotments	48.35	65.45	74.21	84.71	93.41	110.44
Grants/Donations	5.00	0.25	-	1.00	-	-
Share E-VAT	-	0.81	-	-	-	-
Share LOTTO	0.43	0.86	0.66	0.89	1.01	1.30
Inter-Local Transfers	-	-	-	-	-	-
<b>TOTAL EXTERNAL SOURCE</b>	<b>53.79</b>	<b>67.37</b>	<b>74.87</b>	<b>86.60</b>	<b>94.43</b>	<b>111.74</b>
<b>TOTAL GENERAL Fund</b>	<b>268.71</b>	<b>316.87</b>	<b>264.52</b>	<b>392.80</b>	<b>439.29</b>	<b>509.81</b>
<b>SPECIAL EDUCATION FUND (SEF)</b>						
<b>INCOME SOURCES</b>						
<b>Tax Revenues</b>						
Real Property Tax (Mun. Share)	18.15	17.97	20.16	18.55	18.63	26.06
Other Receipt	0.06	0.06	0.06	0.04	0.04	0.06
	-	-	-	-	-	-

<b>TOTAL SEF</b>	18.20	18.03	20.21	18.60	18.68	26.12
<b>TOTAL GENERAL &amp; SEF</b>	286.92	334.91	384.73	411.40	457.97	535.93

Source of basic data: LGU of Malay, Treasury Office

The Treasury Office of the municipality of Malay reported that 98 percent of its annual revenues come from the Boracay island. Collections under service/user charges (coming from environmental fees in Boracay), regulatory fees, business taxes, and real property taxes serve as the municipality's main source of income. These fund sources will also be immensely affected once the closure of the island pushes through. Foreseeing the negative implications to those revenue sources, the current trend of the municipality's internal revenue allotment (IRA)<sup>9</sup> may not be able to sustain the needs of the LGU in the coming months. In 2016, Malay's IRA stood only at 0.85 percent and 0.06 percent of the total IRA of all the municipalities in Region VI and the Philippines, respectively<sup>10</sup>.

### 3.2. Input-Output Analysis

The input-output (IO) table reflects a snapshot of the economy for a given period by presenting the process of production, the use of goods and services produced, and the income generated in that production. The Philippines' 2006 IO table is an  $n \times n$  matrix wherein the total inputs (column total) are equal to total outputs (row total). For any column  $j$  of the IO table, the row value of the transaction matrix reflects the amount of output of that row that is used by that column as an input.

The IO Accounts provide a link between the final demand and industrial output levels in the country. It determines the effect of changes in the level of the final demand on total output as given by the following equation:

$$\Delta X = [I - A]^{-1} \Delta D$$

where  $X$  is total output,  $D$  is the final demand and  $[I - A]^{-1}$  is the Leontief inverse.

How can we measure the impact of the closure of a relatively localized economy, such as Boracay Island, to the entire country? The analysis can be done using the Input-Output table and some reasonable assumptions<sup>11</sup>. Data from PSA suggests that Boracay has contributed about 20 percent to total Philippine tourism receipts or about PHP 48.9 billion in 2016. Under the assumption that domestic and foreign tourists would behave differently when faced with the closure, the Philippines would only be losing a small portion of the 20 percent tourism receipts. Limitations in available data prevent modeling an accurate distribution of the loss from the closure differentiating between domestic and local tourists but it would be safe to assume that domestic tourists would be more likely to divert to other tourist spots in the country, thereby preserving tourist receipts. As for foreign tourists, their capacity to proceed to other tourist spots in the country would be dependent on their knowledge of other tourist spots, as well as their spending power.

To examine the impacts when not all of the tourists are diverted to other destinations, we consider three scenarios, viz.,

1. Scenario 1 (5% reduction in Philippine tourism receipts): a scenario where only a modest 5

<sup>9</sup> About 26 percent of Malay's total local sources of income in 2016

<sup>10</sup> Source of basic data: Bureau of Local Government Finance and LGU of Malay

<sup>11</sup> Further research would be necessary to validate the assumptions made in this paper.

percent decline in tourism receipts, accounting for the fact that Boracay has remained open in the first 4 months of 2017 and possibly in the last quarter of 2017;

2. Scenario 2 (10% reduction in Philippine tourism receipts): another scenario where all foreign receipts would be lost but domestic tourists would divert to other tourist spots resulting to only half of the 20 percent of the Boracay revenue would be lost;

3. Scenario 3 (20% reduction in Philippine tourism receipts): the worst case scenario where all of the 20 percent of the tourist receipts from Boracay would be lost. This means that the tourists who were intending to visit Boracay were not diverted to any other tourist destination in the Philippines.

Further, we identify the specific industries that would be affected by the reduction in expenditure from tourist receipts. For our analysis, these are: Accommodation services for visitors, Food and beverage serving services, Transport services, Travel agencies and other reservation services, Entertainment and recreation services and shopping as these are the industries that produce tourism characteristic products. Given the scenario, total final demand for all these sectors would be reduced equally. Table 5 presents the results of the IO analysis.

**Table 6. Impact to final output by sector and by scenario**

Sectors	Scenario 1	Scenario 2	Scenario 3
	5%	10%	20%
Agriculture	-0.26	-0.52	-1.04
Industry	-0.37	-0.75	-1.49
Services	-0.2	-0.4	-0.8
Transport	-3.75	-7.5	-14.99
Travel	-4.66	-9.33	-18.66
Accommodation	-4.46	-8.91	-17.83
Restaurants	-4.83	-9.65	-19.3
Beauty and Recreation	-5	-10	-20
Total Output	-0.56	-1.12	-2.23

Source: Authors' calculations using 2006 IO Table

Because the IO analysis is linear in nature, the resulting scenarios tend to have a linear impact with Scenario 1 having an impact that is half of that of scenario 2 while scenario 3 is twice that of scenario 2. While it is understandable that transportation and tourism services would be affected the most, agriculture and manufacturing sectors would also be affected.

Particularly, the total output of transportation sector would decrease by about 3.8 to 15 percent. Assuming that this 2006 IO Analysis applies to the current structure of the economy, such decline in transportation sector's output in 2017 would be equivalent to an amount ranging from PHP 16.6 billion (Scenario 1) to PHP 66.2 billion (Scenario 3). The agriculture sector would also shrink by a considerable amount ranging from PHP 4 billion to PHP 15.9 billion.

Overall, total output is estimated to contract between 0.56 (Scenario 1) to 2.23 percent (Scenario 3) because of the reduction in the demand for tourism characteristic products. Looking at the 2006 national accounts, this would be equivalent to a PHP 35 billion to PHP 139.89 billion contraction (Table 7). For 2017, figures show a PHP88.15 billion to PHP 352.59 billion decline.

**Table 7. Reduction in Final Demand on Tourism-Related Sectors (in million PHP), 2006**

Sectors	Scenario 1	Scenario 2	Scenario 3	2006 Final Demand
AGRICULTURE	-919.36	-1,838.73	-3,677.45	353,600.98
INDUSTRY	-9,642.07	-19,544.73	-38,828.86	2,605,963.65
SERVICES (excluding sub-sectors below)	-5,276.39	-10,552.78	-21,105.55	2,638,194.17
Transportation	-	-24,170.60	-48,308.96	322,274.61
Travel	12,085.30	-1,060.55	-2,121.09	11,367.05
Accommodations	-529.7	-7,452.57	-14,913.50	83,642.72
Restaurants	-3,730.47	-13,394.03	-26,788.06	138,798.22
Beauty & Recreation	-6,703.95	-11,731.54	-23,463.08	117,315.40
ECONOMY WIDE	-5,865.77	-69,943	-139,887	6,271,157

Source: Authors' calculations using 2006 IO Table

Aside from calculating the impact of changes in the final demand to total output, it might be more relevant to researchers and policy makers to measure the economic impacts of the change in the final demand through increased household earnings. The approach used in this paper is through simply converting the elements of the Leontief inverse matrix into the monetary worth of employment using household income coefficients (Tables 8 to 10).

**Table 8. Derived Output and Income Multipliers, 2006 IO Table**

Sectors	Output Multiplier	Income Multiplier
AGRICULTURE	1.6572	0.3754
INDUSTRY	2.5014	0.3072
SERVICES (excluding sub-sectors below)	1.5803	0.3454
Accommodations	2.1425	0.3526
Restaurants	2.6605	0.3538
Beauty and Recreation	1.7032	0.3294
Transportation	2.1515	0.2973
Travel	2.2807	0.3404

Source: Authors' calculations using 2006 IO Table

To compute for the projected receipts from May to October 2018, we first derive the projected number of tourists from May to October 2018 using the monthly data of tourist visitors in Boracay provided by the LGU of Malay. Once we get this, we multiply the projected average receipts per person<sup>12</sup> to the projected number of visitors for the covered period. The estimated number of tourist arrivals is 1,076,543 while the amount of tourist receipts is around PHP 38,588 million. Using the projected receipts for May to October 2018, we estimated the output and income effects to the economy by sector. Tables 9 and 10 reflect the amount of losses by scenario, where Scenario 3 reflects the loss of the entire PHP 38,588 million.

<sup>12</sup> This was calculated based on the average receipts per person in 2017 adjusted for 2018 inflation rate at 3.47 percent.

**Table 9. Output Effects using May to Oct 2018 Projected Receipts in Boracay (in PHP M)**

Sectors	Scenario 1	Scenario 2	Scenario 3
	5%	10%	20%
Accommodations	5,348.94	10,697.87	21,395.75
Restaurants	6,198.30	12,396.61	24,793.21
Beauty and Recreation	4,336.04	8,672.07	17,344.15
Transportation	4,734.36	9,468.72	18,937.45
Travel	169.42	338.83	677.67
Total	20,787.06	41,574.11	83,148.22

Source: Authors' calculations using 2006 IO Table

As shown in Table 9 above, the output effects due to change in final demand ranges from PHP20.8 billion to PHP83.1 billion. This reflects the value of loss in output due to the fall in demand should the closure of the island push on. Accommodations and restaurants are the top two industries that are most seriously affected, followed by transportation and beauty and recreation. The result of Scenario 2, which assumes a 10 percent decline in tourist receipts or half of the approximated tourist receipts from May to October, is close to the estimate of the Boracay Foundation Incorporated which amounted to PHP56 billion<sup>13</sup>.

**Table 10. Income Effects using May to Oct 2018 Projected Receipts in Boracay (in PHP M)**

Sectors	Scenario 1	Scenario 2	Scenario 3
	5%	10%	20%
Accommodations	1,886.28	3,772.56	7,545.11
Restaurants	2,192.84	4,385.69	8,771.38
Beauty and Recreation	1,428.09	2,856.18	5,712.35
Transportation	1,407.70	2,815.40	5,630.81
Travel	57.67	115.34	230.68
Total	6,972.58	13,945.17	27,890.33

Source: Authors' calculations using 2006 IO Table

The income effects, which ranges from PHP 7 billion to PHP27.9 billion, indicates the change (i.e. decline) in household income due to changes in each industry's output. Similar with the results of the output effects, household income in sectors such as restaurants and accommodations are the ones that are mostly affected by the closure. Note that about one-third of the workers in Boracay are in the accommodation and food and beverage industries (Figure 1).

### 3.3. Computable General Equilibrium Analysis

The discussion in this paper has thus far established the importance of Boracay as a travel and recreational destination in the country. The repercussions of its temporary closure, therefore, needs to be looked into in order to understand the impact to the national economy. Using a standard CGE model<sup>14</sup>, we simulated the impact of a reduction in the output of 5 key tourism/travel-related industries to the entire economy. These include Travel and tourism

<sup>13</sup> <http://news.abs-cbn.com/business/03/22/18/boracay-shutdown-36000-jobs-p56-billion-revenues-may-be-lost>

<sup>14</sup> This paper extended and implemented in GAMS the standard Computable General Equilibrium (CGE) model by Hosoe et al. (2010). The 2006 Input-Output (IO) table produced periodically by the now defunct National Statistics Office (now Philippine Statistical Agency) was used to obtain the following information necessary to create the Social Accounting Matrix: (1) inter-sector demand for intermediate inputs (2) total factor demand for each sector, (3) total Final demand of households, investment, government and the external sector. Because the table contains the input demand and output supply of 240 industries, there is a need for it to be summarized in order to have a reasonably-sized model.

sector, transportation sector, Hotels and motels, restaurants and food, and beauty and recreation. Three scenarios were simulated using the model:

1. Simulation 1 (Scenario 1): Reduction of five percent in all the 5 key tourism-related sectors.
2. Simulation 2 (Scenario 2): Reduction of ten percent in all the 5 key tourism-related sectors.
3. Simulation 3 (Scenario 3): Reduction of twenty percent in all the 5 key tourism-related sectors.

The results of the simulation are presented as follows:

**Table 11. Percent change in the output, by sector**

<b>Sectors</b>	<b>Scenario 1</b>	<b>Scenario 2</b>	<b>Scenario 3</b>
Agriculture	-0.125	-0.250	-0.526
Industry	-0.024	-0.054	-0.152
Services	-0.183	-0.352	-0.740
Transportation	-2.506	-5.114	-10.721
Travel	-10.213	-17.576	-30.997
Accommodations	-7.309	-14.079	-26.447
Restaurants	-4.489	-9.006	-18.137
Beauty & Recreation	-5.503	-8.191	-14.872
<b>ECONOMY WIDE</b>	<b>-0.36</b>	<b>-0.69</b>	<b>-1.40</b>

Source: Authors' calculations using 2006 IO Table

Understandably, the tourism sectors would be the most affected, but Table 1 also shows that other sectors like agriculture, industry and other services would also be affected albeit, slightly. One thing that can be observed from the IO and CGE results is that the magnitude of the impact will be borne by the tourism industry and with only limited impact to other sectors of the economy.

To get a glimpse as to the extent of the closure's possible implications to the final demand for tourism-related industries, we examine the 2006 situation due to data availability limitations:

The transmission mechanism of the impact of the Boracay closure can be seen through the increase in prices. The Boracay closure, by reducing the supply of tourist characteristic products, increases the supply price of these products (Table 12). Higher prices reduce the consumption of households (Table 13). They also reduce consumption of tourists as measured by reduction in exports (Table 14) resulting in the overall reduction in output.

**Table 12. Change in the supply price of the  $i^{\text{th}}$  good**

<b>Sectors</b>	<b>Scenario 1</b>	<b>Scenario 2</b>	<b>Scenario 3</b>
Agriculture	0.10	0.20	0.40
Industry	0.10	0.20	0.50
Services	0.10	0.30	0.60
Transportation	2.30	4.70	10.60
Travel	3.10	5.80	12.50
Accommodations	2.70	5.60	12.60
Restaurants	1.60	3.30	7.50



Beauty & Recreation	4.80	7.40	14.50
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Source: Authors' calculations using 2006 IO Table

**Table 13. Change in household consumption of the  $i^{\text{th}}$  good**

Sectors	Scenario 1	Scenario 2	Scenario 3
Agriculture	-0.042	-0.087	-0.191
Industry	-0.068	-0.138	-0.297
Services	-0.072	-0.150	-0.334
Transportation	-1.69	-3.472	-7.373
Travel	-4.646	-8.284	-15.644
Accommodations	-3.543	-7.052	-14.034
Restaurants	-1.442	-2.945	-6.176
Beauty & Recreation	-4.742	-7.038	-12.923

Source: Authors' calculations using 2006 IO Table

**Table 14. Percent Change in exports**

Sectors	Scenario 1	Scenario 2	Scenario 3
Agriculture	0.085	0.158	0.282
Industry	0.164	0.309	0.563
Services	-0.013	-0.029	-0.121
Transportation	-4.77	-9.673	-19.902
Travel	-13.111	-22.477	-39.324
Accommodations	-9.892	-19.004	-35.369
Restaurants	-5.968	-11.952	-23.926
Beauty & Recreation	-10.402	-15.164	-26.73

Source: Authors' calculations using 2006 IO Table

Finally, the CGE model also allows us to calculate the change in welfare of households as measured by the equivalence variation. The results show that about 0.045 to 0.02 percent of GDP would be necessary to bring back the households to the level of utility that they are enjoying before the closure of Boracay.

#### 4. Ways Forward

Government clearly has its hands full with rehabilitation efforts particularly in implementing sewage clean-up and finding waste-to-energy (WTE) solutions for dealing with garbage. It will also need to work to increase mangrove cover, restore coral reefs, protect and rehabilitate seagrass beds, carry out effective zoning, relocate informal settlers, as well as regulate fisheries and water sports. Further, government will need to identify the island's carrying capacity and determine if new firms, e.g. a proposed casino, will potentially overload carrying capacity.

While the economic value of Boracay can mostly be seen in the revenue generated from tourism, and thus the economic value of closure is equated to the potential loss of revenues from various streams as suggested in the previous section, which may not be significant at the national level, the closure will still have its direct and indirect effects to people living in Boracay, and in the entire municipality of Malay. As in any calamity, the ecological crisis in the island will seriously affect living conditions of the poor as well as non-poor with low incomes. Even if the closure of the island will only last for six months, such a period may possibly put these vulnerable groups into irreparable harm.

Results of the PSA’s Labor Force Survey (for the April and October rounds of 2017) provides various statistics on regular daily wages received across occupation groups in the entire Aklan province (see Table 9). While laborers and unskilled workers, who dominate the occupation groups in Boracay Island, receive a daily wage of about 250 pesos, the actual wages can go from 50 pesos to 625 pesos. A quarter of them even receive only around 150 pesos. Government will need to provide some assistance especially to low income workers in the island and in mainland Malay who will be affected by the island’s closure.

**Table 15. Selected Statistics on Daily Wages in Aklan by major occupation April-September 2017**

Major Occupation Groups	Statistics					
	Average	Min	Max	First Quartile	Median	Third Quartile
Special Occupations	204	204	205	204	204	205
Gov't and Special Interest Org. Officials, Corp. Executives, Managers or Proprietors, Supervisors	1,124	300	1,988	346	1,364	1,955
Professionals	767	115	2,500	364	863	990
Technicians and Associate Professionals	352	100	818	250	346	385
Clerks	354	80	1,045	250	307	431
Service Workers and Shop and Market Sales Workers	281	39	818	200	295	310
Farmers, Forestry Workers and Fishermen	.	.	.	.	.	.
Trades and Related Workers	313	30	545	270	346	350
Plant and Machine Operators and Assemblers	308	250	400	250	300	350
Laborers and Unskilled Workers	227	50	625	150	250	298
Total	315	30	2,500	200	273	350

Source: April and October rounds of 2017 Labor Force Survey, Philippine Statistics Authority

The Department of Labor and Employment (DOLE) is reportedly planning to implement livelihood programs and provide assistance through its Tulong Panghanapbuhay sa Ating Disadvantaged/Displaced (Tupad) Workers program. With its P2.3-billion budget for 2018, the Tupad program aims to provide assistance to laid-off or retrenched workers, and to self-employed workers whose livelihoods have been damaged by disasters and other crises. The DOLE, however, suggests that this program can only afford to provide emergency employment to some 5 thousand workers, falling short of the number of affected workers, and other unregistered workers in Boracay that may be as many 36 thousand.

In addition, the DSWD is currently preparing an assistance plan for Boracay through its regular programs and services such as the Sustainable Livelihood Program, Cash-for-Work, and Assistance to Individuals in Crisis.

It may be important, however, that as regards assistance for employees from registered establishments, there should be some distinction between environmentally compliant businesses from those that were non-compliant. Extra temporary assistance in the form of tax reliefs and other financial incentives should also be given by the Department of Trade and Industry (DTI) to environmentally compliant micro, small and medium enterprises in the entire Malay, especially in Boracay.

Meanwhile, the government could also look into the existing mechanisms for providing cash assistance to poor displaced workers. One such mechanism is the distribution of the cash transfer of the 4Ps program although this would only be limited to 4Ps beneficiaries.

In the matter of cash transfer, options to include the provision of a monthly cash assistance or one-time lump-sum transfer. The latter may be more preferable since this can allow the use of the cash transfer for entrepreneurial activities. The government could provide increased assistance to the Pantawid Pamilyang Pilipino Program beneficiaries in Boracay (as well as in mainland Malay) who would be affected once the Boracay closure begins. For instance, Pantawid household beneficiaries in Malay could be provided an unconditional grant of 3,000 pesos in a single tranche for the six-month period, while those in Boracay could be given 6,000 pesos in two tranches (half in a first tranche without condition, and the other half in a second tranche conditioned on attending several family development sessions on ecological solid waste management. However, this assumes that Pantawid beneficiaries who are residents in Boracay can be easy to locate, and will not be displaced by a demolition of dwellings built within the 30-meter shoreline easement. This assistance will also be limited to current Pantawid beneficiaries, but other vulnerable families especially the near poor, may also need support.

The declaration of a state of calamity in Boracay could accelerate rehabilitation efforts in the island, as well as allow government access to calamity funds to help address the needs of those to be displaced by the closure. Calamity funds for the year, amounting to P19.6 billion, however, may also not be enough to cushion the impact of the island closure, especially as we anticipate other hazards to affect the country in the months to come.

Several government agencies have pledged assistance to displaced workers. It is likely that the number of jobs that can be provided will be less than the number of displaced workers. Thus, the issue of targeting will need to be addressed. Priority should be given to the poor and low-wage workers. Self-targeting will be achieved by the design of the employment program. For instance, offering wages near or below the minimum wage will attract poor workers.

This study points to the need for a registry of the residents in any barangay. This makes it easier to identify would-be-affected residents resulting from shocks. A Community-Based Monitoring System (CBMS) would be useful tool in generating such database. Malay is scheduled to implement CBMS this year but has yet to start data collection.

Government will need to spell out a concrete detailed plan with specific timetables not only for the renovation of the island but also for supporting affecting people, and to have a clear communication plan to avert the possibilities that people who planned to visit the island may decide not to ever visit the tourist destination.

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