

Environmental Degradation (Dumped Vehicles) in Major Islands of the Federated States of Micronesia

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Abstract

Environmental degradation due to urbanization in major islands (e.g. Pohnpei, and Weno Island in Chuuk state) of the Federated States of Micronesia (FSM) is a growing problem for the future generations of the islanders. In this study, I highlight a major environmental degradation problem in these islands which is associated with the disposal of abandoned vehicles. The Island of Pohnpei, the capital city of the FSM, and the Island of Weno, a major city in the Chuuk state, are the most populous areas, comprising about 40 % of the population of FSM. Both these islands have partially to fully paved roads encircling the islands among which some roads extend to inside valleys to some extent. The main source of transportation within the islands for the inhabitants is either walk or via private vehicles. Since, there is no regular bus or public transport system; people tend to depend on own vehicles to move around. However, due to bad road conditions and non-availability of proper repair shops, the vehicles are abandoned after a few years. In addition, the absence of proper regulatory measures from the government sector and no vehicle scrappage facility, the abandoned vehicles stay forever on the islands and present a bad impression of the locals on the tourism industry. In this study, I suggest several remedial points that could be useful for the environmental protection of the country, hence will also attract more foreign tourists to contribute foreign revenue in the country. (1) If there is an arrangement of public transportation by the government or private sector, the level of dependency of local population on their personal vehicles will reduce. (2) If a proper scrappage program by public sector or used-cars traders is introduced (e.g. when someone buys a vehicle, it should be replaced with the old or damaged vehicle, or the issuance of vouchers/discounted tickets, or recycle certificates), people will begin to recycle their used vehicles which will be helpful for the preservation of natural beauty of the islands. (3) In addition, public awareness programs should be put in action in order to make these measures effective. The problem of environmental degradation is not yet very big, however, with passage of time and with no remedy it can be a big threat to the limited natural environment of islands and to its inhabitants.

Key words: environmental degradation, Federated State of Micronesia, Pohnpei, public transportation, scrappage, used vehicles

Introduction

The Federated States of Micronesia (FSM), situated in the western Pacific, comprises of four main states that have a total of 607 islands known as the Caroline Islands. The four main states: (1) Yap, (2) Chuuk, (3) Pohnpei, and (4) Kosrae, geographically spread from west to east in the Pacific low latitudes in the northern equatorial region (Fig. 1), and all these states have a considerable autonomy and uniqueness in their geography, ecology, language and culture (ASHBY 2003).

Based on the information from the FSM Visitors Board (available on line), the state of Yap is made up of 4 large islands, 7 small islands and 134 atolls, with a total land area of 45.6 square miles. The state of Chuuk has a total land area of 49.2 square miles and includes seven major island groups whereas the state of Pohnpei has 133.4 square miles of land area, of which 130 is accounted for by Pohnpei island, the largest in FSM. Kosrae is essentially one high island of 42.3 square miles. Among these four states Chuuk and Pohnpei are the biggest and most populated islands.

According to the World Fact Book (CIA, available on line), major problems in the FSM are large-scale unemployment, overfishing, and overdependence on US aid. Government sector and a number of non-governmental organizations (NGO's) are working to educate people related to marine environment and biodiversity. More efforts are needed to bring awareness in the people of those islands to protect and preserve nature of the islands for their future generations especially attention needs to be paid toward the environmental degradation due to urbanization. Based on the data from the World Fact Book, total population of the FSM is 105, 681 (July 2014, estimate),

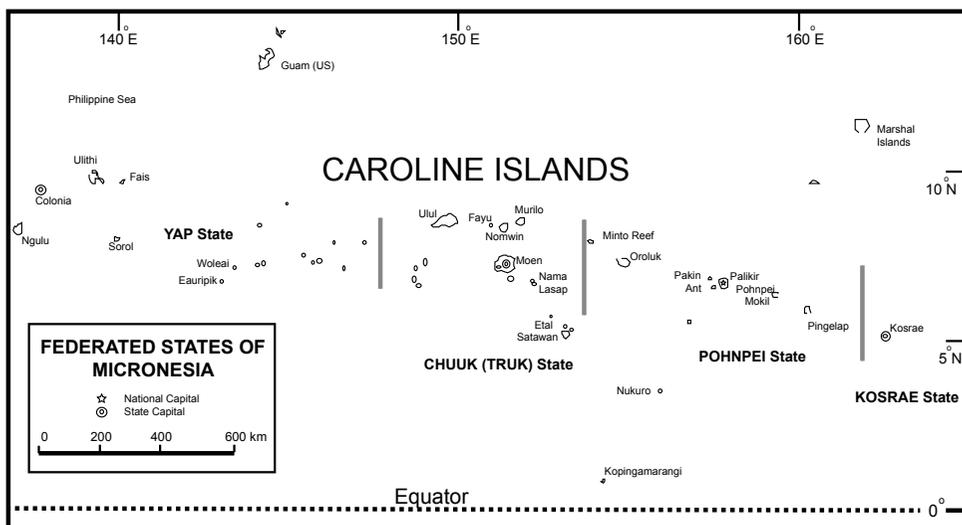


Fig. 1. Geographic location of the Caroline Islands in the Federated States of Micronesia, western Pacific. Map modified from the FSM government official site: <http://www.fsmgov.org/info/map.html>.

Table 1. Population of the FSM.

State	DEYAY <i>et al.</i> 1989 (1980 Census)	Population (%)	SMITH Jr. <i>et al.</i> 2014 & SBOC (2000 Census)	Population (%)	SBOC (2010 est.)	Population (%)	The World Factbook (July, 2014 est.)	Population (%)
Chuuk	38,650	50.8	53,595	50.1	48,654	47.3	52,101	49.3
Pohnpei	23,140	30.4	34,486	32.2	36,195	35.2	31,493	29.8
Yap	9,320	12.3	11,241	10.5	11,377	11.1	11,414	10.8
Kosrae	4,940	6.5	7,686	7.2	6,617	6.4	6,658	6.3
Others	-	-	-	-	-	-	4,016	3.8
Total	76,050	100	107,008	100	102,843	100	105,681	100

and the population distribution is Chuuk: 49.3%, Pohnpei: 29.8%, Kosrae: 6.3%, Yap: 5.7%, Yap outer islanders: 5.1%, Polynesian: 1.6%, Asian: 1.4%, and other 0.8% (2010 estimate). However, the FSM government database of 2010 census (Office of the SBOC, available on line), the total population of FSM is 102,843. Among the total population there are 48,654 people in Chuuk and 36,195 people in Pohnpei. These two states, hence, comprise more than 80% of the total population (Table 1). The reason for higher population in these states is, of course, the larger land size of these two islands, and because of the availability of facilities (such as education, employment, and developed infrastructure in the capital city of Pohnpei and Weno, a major city of the Chuuk state). In the last decade, due to development of infrastructure (roads construction, sanitation etc.), an increase in the use of private vehicles is observed. Unfortunately, there is no exact statistical figure available regarding the number of dumped vehicles but according to the world health organization (WHO) database (WHO 2013) the total number of registered vehicles in FSM are 8,337 (cars and 4-wheeled light vehicles: 7,356; heavy truck 747; buses: 138; and motorized 2- and 3-wheelers: 96; year 2010 data). In addition, the data regarding number of registered vehicles in each of the four states of FSM since the year 2001 to 2011 show no dramatic change (Table 2), however in the year 2011, drop in the number of registered vehicles can be observed which means that those vehicles were unregistered after their short term usage but ultimately remain on the islands as dump. Besides, there are no rules for the vehicles standards, penalty/dominant point system for safer road uses, and or laws to use helmet or seat-belts (WHO 2013). It is obvious, with an increase in the population and extension of roads, more people will start to use imported but used vehicles, the easiest and cheap way. But, when the vehicles have technical faults or broken parts, there, possibly, could not be a quick remedy.

Table 2. Number of registered vehicles in FSM.

State	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Yap	1,564	1,556	1,681	1,683	1,821	1,739	2,107	1,724	1,894	1,921	-
Chuuk	579	223	1,277	768	1,790	923	1,035	783	664	132	503
Pohnpei	4,928	3,962	5,512	5,296	4,650	4,679	4,362	4,174	4,513	4,776	4,475
Kosrae	1,137	1,124	1,261	1,116	901	780	974	600	589	833	680
Total	8,208	6,865	9,731	8,863	9,162	8,121	8,478	7,281	7,660	7,662	5,658

Data from the FSM Transport and Communication Statistics Division.

This short report aims to highlight a major environmental degradation problem caused by urbanization which will be a real threat for the future generations of the FSM. In addition, the environmental degradation can pose a bad impact on the tourism industry of the country, through which a significant amount of revenue could be generated if promoted. The increasing number of dumped vehicles along the Island of Pohnpei and in Weno needs to be identified and proper public awareness should be brought to preserve the natural beauty of these paradise islands. Government can play a major role to overcome this problem by developing proper public transport system and/or by implementing regulatory systems on the business community dealing with those matters and the people who use vehicles. In additions, NGO's could play greater role to bring public awareness.

Background of the study

The Pohnpei and Weno Island in Chuuk atoll are developing due to the center of government bodies, construction of infrastructure, and providence of overseas funds for the development of educational, infrastructure and enhancing the business ties with foreign business firms. Besides, these remedies, large number of population faces problems of unemployment and heavy dependence on foreign aid, particularly US aid (for details refer to OSMAN 1989, DAHL 1993). On the other hand, residents of FSM, being a part of the US Trust Territory, move to USA (Guam or mainland) for work and send revenue to lookafter their family members back in FSM. There is nothing wrong in earning and living in this way rather it is an important source for the people of FSM to improve their livelihood. With improved life style and having some savings, people tend to buy vehicles for their daily use or for leisure. In particular, if there is no public transportation system, people need privately owned vehicles for their commuting to workplace, schools, and hospitals etc. Buying a new vehicle in a low

Table 3. Number of imported used vehicles from Japan to FSM.

Months	2013	2014
Jan	11	39
Feb	27	26
March	43	38
April	39	49
May	34	14
June	24	59
July	17	17
Aug	26	-
Sep	48	-
Oct	19	-
Nov	51	-
Dec	42	-
Total	381	242

Data source: OLIAC AUTOS (<http://oliac.com/autos/>).

income country might not be an easy task. Therefore, people try to buy cheap but used cars. Unfortunately, it is hard to present an accurate figure of the imported used cars to the FSM. The only, source of the used cars imported from Japan to FSM was OLIAC AUTOS, a Japanese used cars exporter (OLIAC AUTOS, available online). The number of exported vehicles to FSM by OLIAC AUTOS can be a minor part (Table 3), but at least it gives an idea that every month or year a certain number of used vehicles are coming in the FSM. Buying used cars mean the vehicles will run for lesser years and will have damages or broken parts quite often. For which they need to have proper repair shops or spare-parts stores. However, due to lack of such facilities it is hard for the residents to get their vehicles properly repaired once something is broken or damaged.

One of the major reasons for the vehicles to get broken or damaged is the lack of good and/or asphalted roads. The roads are becoming better in the recent years and construction work on some parts is in progress. Once, the situations get better vehicle damage problems will be resolved to some extent. Presently, old vehicles, bad roads, and the lack of repair shops, are major contributing factors for the degradation of island's natural environment. The vehicles once broken have no place to go but stay at the owners place forever or at the place where the vehicles had been broken. Along the major roads around the islands of Pohnpei and Weno (Fig. 2), a large number of dumped vehicles were observed (Figs. 3 & 4). The coastal lagoons, beautiful atolls, the green and scenic mountains, and fantastic waterfalls, and not to say, the historical Nan Madol in Pohnpei, all present a unique and picturesque view of these paradise islands (for example see DAHL 1993). However, looking at the dumped vehicles, a strongly negative impression one develops upon the first sight on these environmentally degraded places. It is not to blame the local citizens only but local and overseas traders, particularly from the developed countries, contribute an equal share toward these problems. The number of dumped vehicles is increasing on those islands as can be seen from the shape of the vehicle, from the degree of weathering of the surface of vehicle, and from the growth of plants/grass around and in the vehicle (Figs. 3 & 4). It can be easily estimated that dumping of this heavy urban pollution started at least more than a decade and the number is continuously increasing. Unfortunately, there is no source available to know the exact digital figure on the imported vehicles.

Remedial measures for the control of environmental degradation

Below, several remedial points are explained which could be useful to improve the urbanization-related environmental degradation problems in the major islands of FSM.

Public awareness and proper regulatory measures

It is the utmost duty of government sector to make proper legal measures and bring awareness to the people about the environmental degradation. In the beginning, people may not feel of the problem of increase in dumped vehicles but with time it will

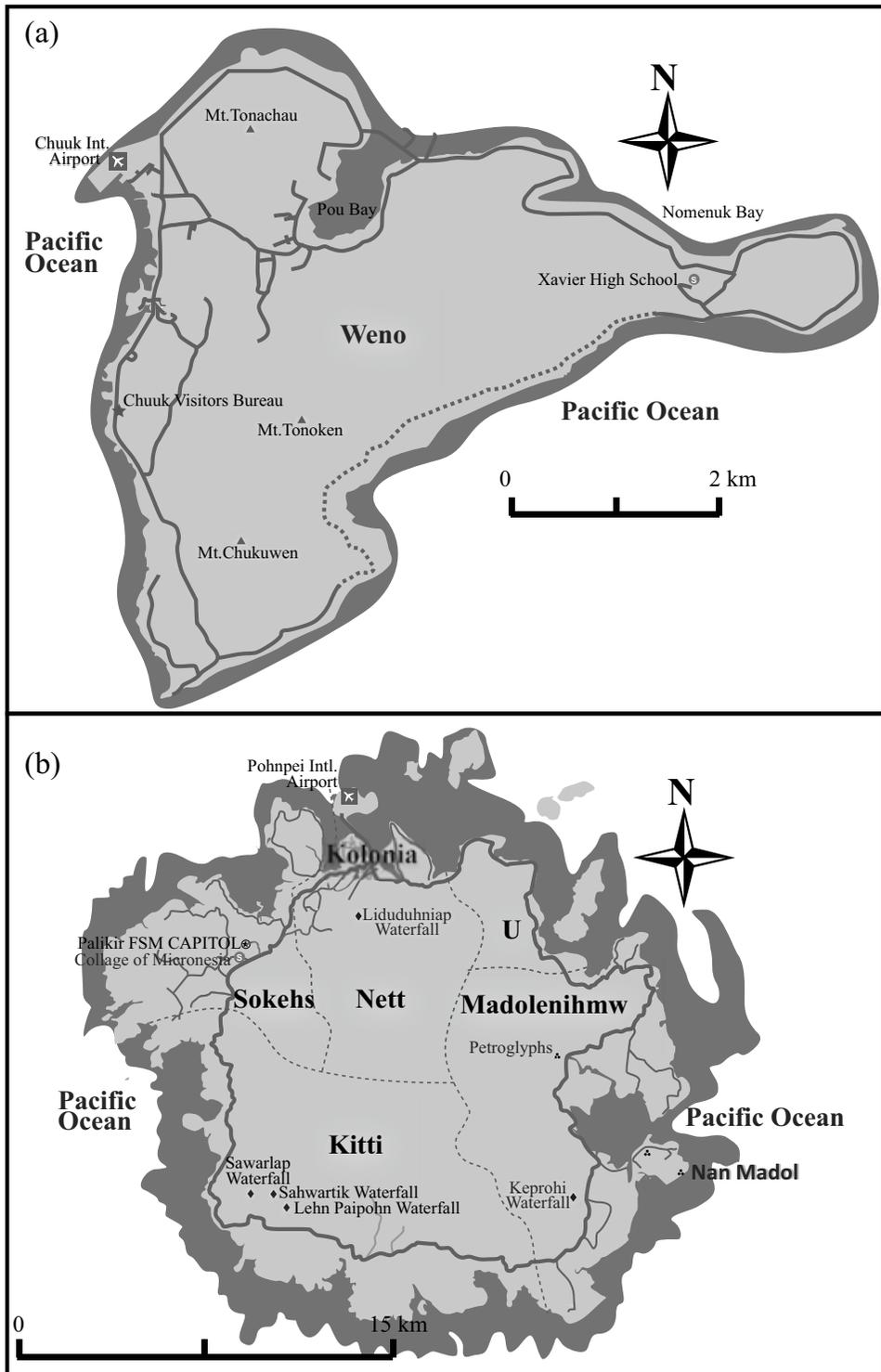


Fig. 2. Geographic maps and roads on Weno Island in Chuuk state (a) and Pohnpei Island (b). Maps modified from the FSM visitors' Board data.

be a big environmental issue. However, they have no option to the remedy. They do not know what to do if there is no place to recycle, scrap or to sell their vehicle after they no more need it. Government sector can make legislations and implement legal rules



Fig. 3. Photographs evidencing environmental degradation in Weno Island, Chuuk state. For privacy the locations or identification are obscured if needed.

which should be obeyed by the users of vehicles. In addition, when some resident of the area gets driving license, he/she should be educated about the vehicle use and the recycling policies.

Government should also implement legal obligations on the business community and importers of used-vehicles to properly recycle the vehicles when these are not used anymore. It might be hard and discouraging for the people or business community to enforce them to carry such measures, however, a small surcharge or fee if implemented on people upon purchase of vehicle and the deposited funds could be pooled for recycle or scrappage activities. In return, the people should receive vouchers or recycle certificates of certain amount which could be reimbursed upon proper recycling of the dumped vehicles. In the beginning the funds may not suffice, however, if the process goes on for several years, the concerned governmental department may be able to



Fig. 4. Photographs evidencing environmental degradation in Pohnpei. For privacy the locations or identification are obscured if needed.

overcome this problem.

Establishing a public transport system

One of the biggest reasons for the dumping of vehicles is the non-availability of proper public transport system. There is a system of private taxis, but it is an irregular system and people are not sure if they can get some or not on time. If a timely transport system is available, people will utilize, hence, their dependency on privately owned vehicle might drop. This can, to some degree, reduce environmental degradation.

Developing repair centers or spare-parts stores

It is not to say, when public demand rises, there will be car-repair shops and spare-parts stores however at present facilities are not sufficient. If people have no replacement for the broken parts in their vehicle, they cannot use that vehicle anymore, ultimately the vehicle stays, at the place where broken or where parked, forever. By improving repair facilities or developing technical skills of the people involved in the repair work, the situation will get better.

Recycling and Implementing vehicle scrappage programs

In the islands of Pohnpei and Weno, where citizen use vehicles, government should implement a vehicle scrappage programs (VSPs). For details on such programs (implemented in the US) readers are referred to see ZOLNIK (2012). Through the implementation of VSPs, the vehicle owners should be encouraged with vouchers or discount tickets that could be used upon the purchase of vehicles. Such programs could be useful as the owners can manage to bring their abandoned vehicles to the scrap center or to a car dealer where they can replace them with their new and/or used vehicle during the new purchase. In addition, government should advise the used-cars dealers to make the trade smooth so that the process goes on. Moreover, building scrappage facility where the vehicles and heavy machinery, if exist, should be turned into scrap and could be easily transported to places where they can be recycled. Such measures will greatly help in improving the environmental degradation; a major problem of the country for its future if persists.

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