

Sustainable Biodiversity Preservation in the Pacific

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Abstract

Biodiversity conservation is one of the key magnesian to preserve and protect the variety of natural environment and animals for the next trend of future generations to come. The biodiversity including plants, animals and sea or water creatures are equally important to be conserved and sustained as they play a key role in the preservation of ecosystem which ultimately maintains and balances the life of the planet including human being. The pacific island countries are blessed with varieties of unique breeds of plants and animals including birds and reptiles which are not found anywhere else around the world. Due to recent industrialization and increase in technology with the want of money or earning profits from huge companies, they have turned the forests, seas and environment into desert or polluted and completely change the phase of the natural beauties. This includes mining of both underwater and land which vastly destroyed the plants and animals or fishing without any sustainability mechanism to mitigate and minimize complete deterioration. In the recent past, the pacific islands country's hard woods have profoundly attracted logging companies and mining industries have played a key role in depleting natural resources and thus, biodiversity are vulnerable to destruction and depleting in the process. The government need to sustain the natural beauties including plants and animals for the benefit of the future and to maintain balance in ecosystem. This is so much concern and because more plants are destroyed, it leads to rise in sea level, increase in greenhouse gas and eventually small islands are sinking in the pacific. This is happening at the alarming rate and thus requires immediate actions to preserve and protect the biodiversity in the pacific and around the world.

Keywords

Biodiversity, Greenhouse Gas, Sustainable, Logging, Mining.

Introduction

The sustainable biodiversity preservation is the use of natural resources at the rate at which the earth can renew them. Pacific island countries stretch across the equator and are considered has tropical countries and home to varieties of natural resources and environment or ecosystem including sea and land species. The tropical climate of the pacific countries has endowed them with best natural resources such as different breed of animals wild and tame, reptiles, mammals' various types of both freshwater and saltwater fish (Biology et al. 2014). The countries are also rich in forest with different species of trees and plants of unique features which includes colourful flowers.

Furthermore, the pacific countries have different species of birds in each country of which are not found anywhere in the world and this makes the pacific countries some of the unique and beautiful places to live. Due to the nature of locality within the tropical climate, pacific countries are home to vast tropical rainforest with rich in all types of woods from soft to hardwood. Few countries in the Pacific Ocean are also blessed with natural resources such as gold, silver, oil, gas and other non-renewable minerals (Kinch et al. 2010).

However, with the engagement and entertaining different profit making companies have ultimately convert these once beautiful natural environments to deserts and pollution everywhere in the streams, rivers and seas. The pacific countries have been long overdue to effective coordination, management and sustainability mechanism to preserve the ecosystem by applying stringent environmental conservation policies. The continuous logging and persistent mining of both underwater and surface mine have turned the once beautiful virgin forests and beautiful beaches into deserts and pollutant thereby depleting the microorganism including plants that plays vital role in

balancing and maintaining ecosystem. The effect of careless management and conservation of sustainable environment has led to eye opening natural disasters which are very terrible and scary.



Figure 1. The deforestation in progress in the Pacific Islands. Source printerrest.com



Figure 2. Marine environment pollution. Source bbc.com

Cause of Greenhouse Gas

Due to nil preservation and sustainability methods of protecting environment and its ecosystem, the greenhouse gas has vigorously affected the ozone layer which directly have catastrophic effects around pacific islands countries including the world. The rise in sea level has been considered major concerns to be addressed due to limited supply of protection rendered to ozone layer which in turn causes global warming and rise in sea level as shown in figure 4. The environmental sustainability has been a challenge to all levels of people from top bureaucrats down to local community (Hills et al. 2011). It needs to be preserved and protected at all cost because the balance in life is determined by balance in ecosystem and sustainable biodiversity. The best and efficient possible approach needed to be taken immediately to preserve and protect the biodiversity is as designated on figure 3.

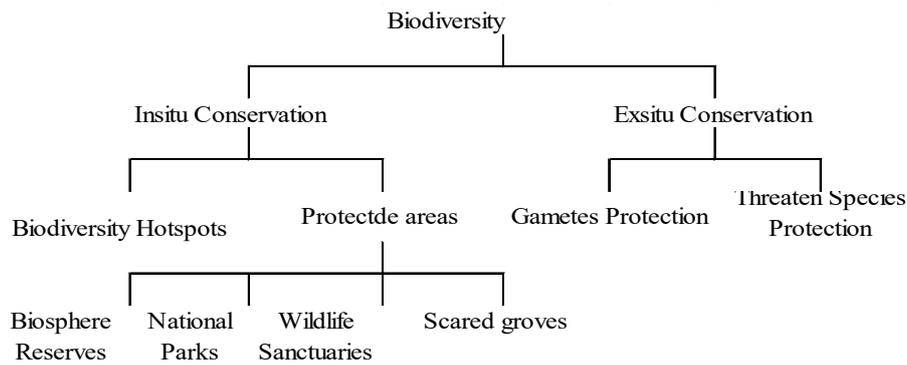


Figure 3. Stringent mechanisms needed to be approached in conserving biodiversity and ecosystem in the Pacific.

Rise in Sea Level

In the recent past, the rise in sea level was perpetuated by the lack of effective biodiversity preservation by the people. This has consequential impacts on the small Pacific Islands countries and gradually sinking into the Pacific Ocean (Report et al. 2010). The government down to local people really need to be serious in conserving the environment as there may be no life on earth after biodiversity have been greatly affected by the continuous pollution and degradation. It has been studied that since the civilization, increase in knowledge and technology, people have converted natural resources into other useful products in a consistent manner and this has caused great effects on the biodiversity depletion. The people and government have no intention in preserving the environment and biodiversity which is a great concern if this continues which the people will one-day regret. Ecosystem is dependable and life eventually existed. To preserve ecosystem is to sustain biodiversity or vice versa. As such, environmental conservation has become an issue to all government sectors and have planned various ways to preserve biodiversity since then. The cycle of life in the future is preserved by the actions taken today to preserve the environment. The magnitude and level of biodiversity preservation relies on the hands of the state at the moment because people have no care attitude and unlike western countries, 95% of the land is owned by the people and not the state. This is why people have that privilege of freely manipulating the environment and biodiversity and ecosystem (Port Vila 2012).

The Pacific islands will one day sink in the vast Pacific Ocean if people continue to carelessly use the land or allow logging and mining without prior concern and continue to dedicate biodiversity. World and the Pacific islands will suffer because approximately 50% of the oxygen supply is contributed from the forests of the Pacific island countries. Ultimately, the global warming will be escalated thus more islands will be submerged into the ocean. As such the sustainable biodiversity mechanisms needs to be stringently regulated by the Pacific islands countries with the possible support from third world countries such as Australia.



Figure 4. Rise in sea level in the Pacific countries. Source bbc.com

Logging-Deforestation

Biodiversity preservation occurs in its right environment. Fish and marine creatures are preserved in their marine environment and not in forest while birds and mammals are conserved in the forest and not in the sea. Process in which the environment conservation mechanisms application will greatly safe and protect the biodiversity in the pacific region. The marine and land resources in the pacific islands have been exploited and polluted since 1960s when western cultures have introduced and gradually crept into the islands (Sir et al., 2012). The forest, habitats and natural marine environments have been turned into deserts and polluted beyond control and repair artificially. The deforestation in larger landmass have been one of the most biodiversity depletion strategy which is still going on today. The state does not take stringent and tough actions or enacts laws that will give sufficient protection to the biodiversity. The innocent living creatures and ecosystems are vulnerable and susceptible to complete extinction if the deforestation continues. Magnitude of clear-felling of forest has drastically forced the wild life's and ecosystem flee or die in the process. This is one of the saddest part of the biodiversity when the environment they live in is destroyed by the people. The effects are expected to be catastrophic because the ecosystem balances the life on the planet. Like marine environment, land environment accommodates ecosystem in the forest and almost 99% of the biodiversity is conserved in the forest. When forest is destroyed means a lot of creatures depended on the forest escape and flee in search of better places and possibly die in the process.

The rate at which destruction of marine and land environment is alarming and beyond measure since 1960s. This is revealed in the table and the graph respectively. Curiosity in making profit margins including excel in the business sectors have been their major goals which give no attention to the preservation of the biodiversity (Brodie et al., 2013). This has been practised since until lately realized the importance of conserving biodiversity and natural environment as united nations also sent out the signals in relations to the environment conservations.

Table 1. Rate of biodiversity extinction since 1960s due to various human activities

Year	Rate of Biodiversity Depletion	Remarks
1960's	Low	Start of Exploitations & Preparation
1970's	Moderate	Start pollution due to Mining Activities
1980's	Moderate but accelerated	Into the peak of production
1990's	High	Mining & Logging activities popping
2000's	Very High	Big companies invested in logging
2010's	Worse	Islands are sinking as a result
2020's	Worse	Biodiversity extinction

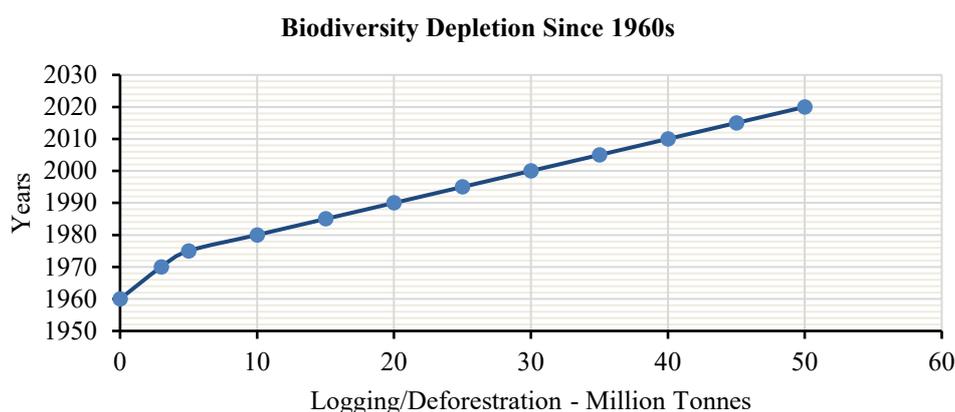


Figure 4. Rate of Biodiversity Depletion due to various human activities

As noted from figure 4, it can be concluded that the rate of destruction was increasing at the steady rate. This is because the magnitude of major company's destruction to environment in search of minerals, timbers and fish were in larger scale which perpetuated the destruction to biodiversity in large scale. Since 1960s, there were steady

increase in the production of waste, biodiversity destruction, pollution of all environment (both marine and land) including forest environment being the main target for destruction while in search for those precious minerals. As such the environment in the pacific including biodiversity are vulnerable to destruction and as time goes by, the magnitude of pollution is worse as shown on table 1 and figure 4.

Decrease in forest or land environment would mean there is a drastic decline in the marine environment. According to the graph, there is a steady decline in the forests since 1970s to this day. No mechanisms considered for biodiversity preservation. The trend will be maintained if the government do not take serious actions to maintain and protect the biodiversity from further extinction.

Mining (Under-water or Surface)

The unsustainable mining activity is one of the most polluting and environmental damaging and biodiversity pollutant activities in the world. The activities are considered most hazardous and dangerous to the surrounding environment including human beings depending on the nearby environment. Mining of both underwater or surface are all poisonous and pollutant to the ecosystem as it profoundly damages and inflect lasting impacts that may not be able to recover by the mother nature in more than 100 to 200 years' time. As such, the impacts are catastrophic where damages sustained to the environment is vast as it uses poisonous substance to purify and abstract useful minerals.

Unsustainable Mining's in the Pacific –

Porgera is one of the giant and world class mine, abstracting gold as the major mineral mine with other precious rocks such as copper, iron, silver etc. The mining has been in operation since 1980s and still continuing. The impacts rendered by the mine activities are beyond repair and catastrophic which the state has successfully halted the mine as they have legacy issues as in relations to environmental protection and sustainability. Considering all other mining in the pacific islands countries, there are threads that correlates to environmental damage and biodiversity extension in the not too distant future is imminent. There need to have well-coordinated plans and effective strategies in place using funding's and donations from donor agencies such as EU, Australia and USA (Fish et al., 2016). Making wise use of the available resources, managing mining waste in more biodiversity and ecosystem friendly manner is much required at such time of biodiversity crisis.

According to recent research, significant destructions to the environment and biodiversity in the Pacific Islands were considered to be from mining, logging and possibly fishing. Mining activities are conducted in both land and sea or rivers. This has drastically decrease biodiversity as dangerous and most hazardous chemicals are used in the process and dumped to the nearby rivers and streams including sea and land which profoundly contaminates the biodiversity which ultimately extinct all living creatures within the vicinity.

Table 2. Estimated quantity of biodiversity damage expressed in percentage (%)

Percentage (%)			
Mining (Land)	Fishing	Logging	Mining/Sea
90	47	63	88

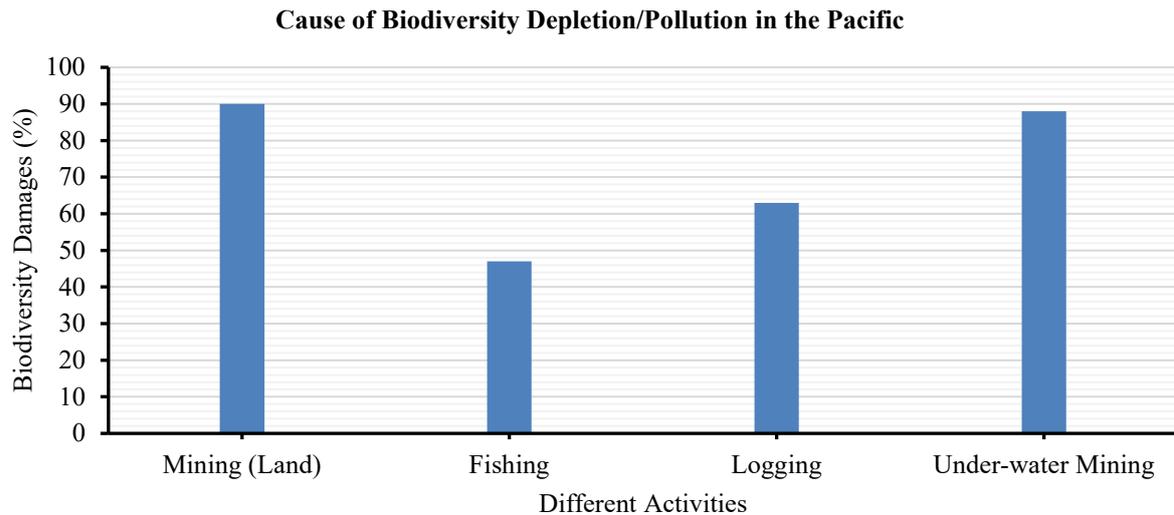


Figure 5. Main cause of biodiversity extension in the pacific island countries.

The mining, fishing and logging were the main cause of biodiversity depletion in the pacific islands countries. The increase in world technology has also contributed immensely towards biodiversity extension and depletion which the pacific island countries are really feeling the effect when global warming is at its peak. As noted from figure 5, there were significant contribution towards the biodiversity depletion mainly from unsustainable mining of both land and sea. This is because mining companies have more potential in open pit and underground mining in which the use of chemicals for various purposes in mining including purifications of minerals and other related work (Pratt & Govan, 2010). The waste is then dumped into the rivers, streams, and sea or land which ultimately become hazardous to the biodiversity and environment.

Papua New Guinea's unique species such as Regina Bird of Paradise and other different creatures are gradually missing from their place of origin. Such is shocking and this needs to immediately take necessary and appropriate actions so the biodiversity conservation is effectively carried out by all human from government to the local people.



Figure 6. Regina Bird of Paradise, the emblem of PNG

Conclusion

One of the best mechanism and strategy to use and to sustain biodiversity around the pacific island countries is by enacting tough laws within their own countries. this will effectively regulate, sustain and protect the country's most diverse and unique species without further extension as its very important for the benefit of humankind. The western countries such as Australia and US needs to step in to address the pacific countries on the importance of the biodiversity preservation and educate people of the environmental sustainability and conservation. This needed to be conducted in conjunction with world environmental protection acts and to fund adequate money for the betterment of all pacific island nations. A lot of mining activities popping everywhere in the pacific including undersea mining have drastically affected the biodiversity conservation. The major companies have reluctantly deployed enough machineries and hazardous chemical which are more harmful to the environment and thus consequences are catastrophic. The oil and gas companies have also setup complicated facilities which when spillage or mismanaged are somewhat very terrible to the environment therein.

Places like Papua New Guinea have experienced such hazardous chemicals as it entertained various companies which can mine minerals as well as oil and gas. This also includes fishing and logging where major destructions are expected (Jupiter et al., 2014). Logging being the main disadvantages as it profoundly exploits significant amount of forest thereby leaving nothing but the naked soils with missing and or destroyed biodiversity. As trees continued to be cleared in mass quantities where tonnes of logs are shipped overseas without stringent sustainable methodology to preserve, we gained nothing useful except naked soil and destroyed environment.

Additionally, Papua New Guinea prime minister Hon. James Marape has condemned carbon emissions in the first world countries which gives rise to the sea level. The size of biodiversity in the pacific islands countries are really affected due to continuous logging and mining including carbon emissions. This is one of the greatest concerns ever and address by PNG prime minister in United Nations General Assembly recently. The lungs of the world are fed by the worlds rainforest and biodiversity including 13% contribution from PNG and the south pacific biodiversity. As such, the strongest possible contamination and pollution in the world which gives rise to sea-level in the pacific is failure to sustain, preserve and protect the environment's biodiversity and effectively apply environmental laws and educate the people concern from the top to the bottom for the benefit of all doubts and to provide better environment for our planet.

World leaders have no concern and are ready to take necessary actions to ensure the worlds carbon emission and biodiversity depletion to be minimised and ensure to provide effective and stringent mechanisms to sustain and conserve biodiversity in the south pacific and around the world. United States of America, Chain and other first world nations are now concern to reduce the amount of carbon emissions which is one of the world's enemies that continue to impact the small islands nations by increasing sea-level thereby increase in global warming. The people are now ever convinced that if the world leaders have not taken actions and only talking, it would bring nothing but destructions in our very eyes and then it's too late to act when islands are already sinking.

Notes:

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Author contributions

NM collected, analysed and interpreted all the data related to this study and writing the manuscript and AM performed a major contribution in recommending for editing and guiding NM for better manuscript. All the authors read and approved the final manuscript.

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Compliance with ethical standards

Conflict of interest

The authors declare of having no conflict of interest.

Ethical approval

This study requires no ethical approvals.

Informed consent

Informed consent after explaining the nature of investigation was obtained from each participant in this study.

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