



INSTITUTO UNIVERSITARIO SOBRE ESTUDIO SOBRE MIGRACIONES

“Past and present of the development model of Small Island Developing States. Case study: tourism as a determinant of the sustainable development of the Maldives”

MÁSTER EN COOPERACIÓN INTERNACIONAL AL DESARROLLO

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Abstract

Since 1972 Maldives has experienced a quick economic progress thanks to its self-promotion as a luxurious vacation destination. This new development model based on tourism has brought forward many positive and negative consequences. The present research illustrates the necessity to balance those impacts in order to achieve the population's wellbeing.

The research has been conducted using different foresight methodology techniques. A review of the relevant literature and semiquantitative interviews were carried out for data gathering. This information was then used to analyze the situation and build three different probability scenarios and two wildcards.

The research concludes stating the dependency of the country on tourism besides the necessity to implement a sustainable management where the impacts exposed are gradually reduced. Lastly, several recommendations aimed at policy makers and the field of International Cooperation are made.

Key words: Maldives, sustainable development, single-used plastics, international cooperation, tourism.

Resumen

Desde 1972 Maldivas ha experimentado un rápido crecimiento económico gracias a la promoción del país como destino vacacional de lujo. Este nuevo modelo de desarrollo ha supuesto muchas consecuencias positivas y negativas para el país. Esta investigación muestra la necesidad de encontrar un equilibrio que balancee estos impactos para lograr el bienestar de su población. El propósito es explicar la relevancia de los impactos ambientales en un pequeño estado isleño como Maldivas y la fuerte correlación que existe entre esos impactos con las condiciones de vida de la población.

La investigación se ha realizado mediante el uso de diferentes técnicas de la metodología de prospectiva. Éstas han sido la revisión de literatura y las entrevistas semicualitativas para la colección de información. Esta información se ha utilizado para el análisis y la construcción de tres posibles escenarios y dos cartas inesperadas.

La investigación concluye afirmando la dependencia del país del sector turismo pese a la necesidad de implementar una gestión sostenible donde los impactos expuestos vayan progresivamente reduciéndose. Por último, se emiten una serie de recomendaciones para lograr dicho objetivo, así como para orientar al campo de la Cooperación Internacional en su acción en Maldivas.

Palabras clave: Maldivas, desarrollo sostenible, plásticos de un solo uso, cooperación internacional, turismo.

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1. Introduction

The Maldives is an insular state located roughly 1.000 km south of Sri Lanka. The country is composed of tiny islands separated by the Indian Ocean. The islands' economic development has been traditionally difficult because of its isolation from the continent and geographic characteristics, being on the 29 Least Developed Countries list for years (UN, 2018). In hopes of boosting its economy, in 1972 the country began implementing a tourism policy positioning natural wealth as the main attraction for foreign visitors.

The resorts' luxurious services, a favorable climate and the natural beauty of the islands quickly attracted thousands of international visitors; including divers, couples on honeymoons, surfers and celebrities. This economic progress has entailed plenty of benefits for the country: higher life standards, higher alphabetization rates, more employment, international exposure and more economic wealth. Nevertheless, quick economic growth has also been the driver of less desirable consequences for the population and its environment. These include:

- From an economic perspective, uncontrolled growth has induced strong inequalities between the wealthy elite and the local population, while simultaneously deepening the country's economic dependence on tourism revenues.
- Socially, the country's privatization has had multiple ramifications: a lack of correlation between GDP's growth and social services improvement, high levels of corruption, amongst several other.
- Environmentally, the main consequence has been the increasing inability of the country to properly manage its own waste. The country's high amounts of imports alongside the lack of sufficiently developed waste management infrastructures have had a major role in the situation. Additionally, the geography of the islands and their isolation from the continent have made waste management more expensive and complicated. These problems are aggravated due to the lack of national environmental education and the consumerist tourism style embraced by the resorts.

2. Research Rationale and Motivation

The primary aim of this research is to explore the economic, social and environmental impacts of tourism in the Maldives in order to better understand the role of International Cooperation in the process of achieving a sustainable development model. Due to the Maldives' high dependence on its natural environment, the concept of environmental sustainability will be central to this research. Moreover, waste management has been chosen as the main area of study due to its current magnitude on the Maldives' paradigm.

Since the beginning of the ecological crisis, history has proven the detrimental impact of pollution on human beings. Cities with high pollution levels like Pekin have made evident the negative effects of air pollution on human health (Rohde & Muller, 2015). In Sahrawi countries, hydric resource scarcity, heat waves and desertification have forced populations to adapt their traditional productive activities due to the impossibility of farming and, consequently, to food scarcity (Maddison, 2007). In other extreme cases, like Bangladesh, entire populations have had to leave their homes in an attempt to escape the extreme climatic conditions, becoming climate refugees (Kartiki, 2011)

Like the cases mentioned above, SIDSs (Small Island Developing States) such as the Maldives are strongly vulnerable to the consequences of climate change. Given that climate change is a global-scale problem, developing a better understanding of the role played by international cooperation within this context is key in order to act effectively in favor of its habitants. Furthermore, while this case has been studied mostly from the perspective of the natural sciences, a social sciences approach may deliver a more complete understanding of the Maldivian context.

By following the foresight methodology, the future of the Maldives will be brought to the present. This methodology was born after the Second World War in order to understand the future and avoid the return of Nazism (Arbaiza, 2014). Following this same idea, this research aims to shed some light on the future of this country and inform the field of International Cooperation in order to avoid similar ecological crises.

3. Research Question, Objectives and Hypothesis

Research question:

How has tourism, specially its impact on local waste generation and management, affected the development model of the Republic of Maldives?

Objectives:

a. General objective:

- To explore the evolution of Maldives' development model since the booming of its tourism sector in order to formulate several recommendations focused on providing a sustainable development model.

b. Specific objectives:

- To analyze the impact of tourism on waste generation and management.
- To explore the effects of tourism on the local population's wellbeing.

Hypothesis:

The recent increase of tourism in the Maldives is producing a deficient national waste management model which is causing negative impacts on the social, economic and environmental development of the local population.

4. Methodology

The research conducted here will be qualitative in nature, as qualitative research methods provide an exploratory focus that have been proven useful when examining issues related to the oppression of individuals (Creswell, 2008).

Within qualitative research, the foresight methodology will be applied. This methodology is used for creativity and innovation, and aids in decision making and better organization (Conway M., 2019). Its primary aim is to screen a desirable future in the long run, which in the case of this research is achieving a sustainable development model for the Maldives. Popper's Diamond was used to screen and select the foresight techniques to be employed. The Diamond classifies different foresight techniques to guide researchers depending on their need for expertise, creativity, interaction or a more evidence-based approach (Popper, 2008). In this case, the techniques chosen have been literature review, interviews, wildcards and scenario-building. This combination balances the four approaches in order to obtain a more complete investigation.

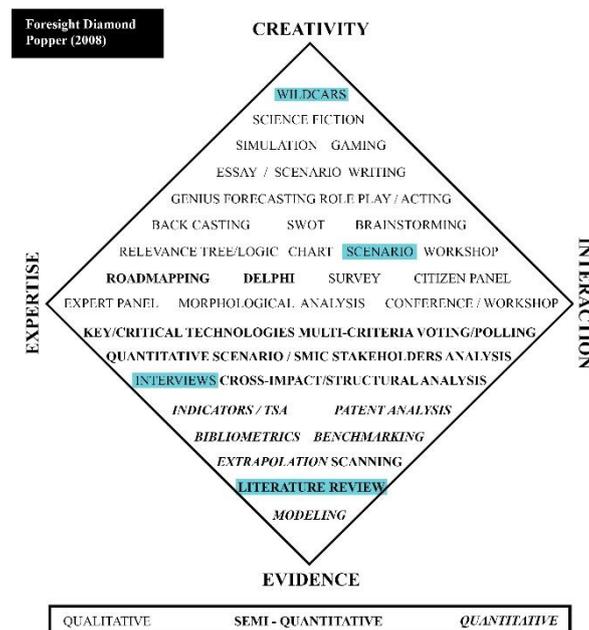


Figure 1: Foresight Diamond (Popper, 2008)

Lawrence and Brenda (2008) stated that a literature review is a written document that develops a comprehensive understanding of the current knowledge of the topic. The literature review is meant to synthesize current knowledge pertaining to the research question. It will be conducted to retrieve evidences and significant information regarding the subject. The literature review will be supplemented with interviews to

relevant individuals as a mean to gain a deeper understanding of the Maldivian situation. In order to make the interviews more flexible, a semi-structured interview style will be carried out, where a schedule is previously structured but the interviewer has the capacity to diverge if needed (Gill, Stewart, Treasure & Chadwick, 2008).

Thematic analysis will help in organizing the information compiled from the interviews. The complexity of a research project increases when qualitative information is managed, as it provides open and subjective answers (Maguire & Delahunt, 2017). Thematic analysis helps the researcher to identify, organize and analyze relevant information from his/her dataset through the use of themes (i.e., patterns in the data) (Braun & Clarke, 2006). This research will follow Braun and Clarke's (2006) six-step framework for conducting thematic analysis: (1) become familiar with the data, (2) generate initial codes, (3) search for themes, (4) review the themes, (5) define the themes, (6) write-up.

Once the literature review has been carried out and the qualitative interviews have been transcribed, probability scenarios will be built for obtaining an interactive approach. Scenarios will be referred to as Pessimist Scenario (if the Maldives' situation gets worse), a Neutral Scenario (if the future of the state continues without positive or negative progress for their development), and an Optimist Scenario (if the future gets better). For building the scenarios, relevant trends and short, medium and long-term drivers will be analyzed, as well as wildcards, which introduce a creative exploratory approach to the research. Wildcards are low probability events that, if true, would have a big impact on the subject under study (Dingli S.M., 2016). It is useful to obtain a peripheral perspective of all the different possibilities.

Finally, conclusions will include recommendations in order to design a strategy that includes time frames with the purpose of achieving the "desired future".

5. Literature Review

The present chapter starts by covering the general background of the Maldives, including a review of its history, the start and evolution of tourism, and its effect on waste generation. Afterwards, an overview of the concept of Small Island Developing States (SIDSs) and their development peculiarities will be given, followed by the main development models characteristic of these countries and the role of International Cooperation in SIDSs. Finally, an introduction to the importance of sustainable development in this case study and the contribution of different kind of actors will be reviewed.

5.1. Background: The Republic of Maldives

5.1.1. Historical context

The Republic of Maldives is an insular state composed of 1.198 islands above the Indian Ocean close to the equator. Its total extension is of 300 km². The population estimate in 2018 was 436.330, but just 150.000 people live in the capital, Male, an island with a total area of 5.8 km². After the tsunami in 2004, many islands were destroyed, forcing locals to move to Male. Now, Male is one of the cities with the highest population density in the world. Islands are grouped into 26 different atolls. An atoll is a maritime island surrounded by coral reef. It was thanks to this reef that the superficial islands that compose the Maldives rose from above the ocean (Stevens & Froman, 2018).

The Maldives is considered the lowest country in the world. Its maximum natural elevation reaches 2.4 meters in height, with its lowest at 1.5 meters above the sea (Stevens & Froman, 2018). This peculiarity makes the area especially vulnerable to sea level rise and natural phenomena.

Traditionally, fishing was the main source of food, employment and trade. Population was self-sufficient, consuming only the islands' local resources; for instance, drinking rainwater instead of importing it (Stevens & Froman, 2018). Nowadays this model has completely changed. The country used to be a British protectorate. However, after the independence process from the Occidental colonialist, in 1968 it was established as the Republic of Maldives. The Republic started a successful tourist policy. The traditional

development model of the Maldives was quickly replaced by a capitalist model where each luxurious resort was built all along a single island, according to the one-resort-one-island policy (Stevens & Froman, 2018). Now tourism is the main source of trade, accounting for approximately 60% of foreign exchange receipts (EW Content Team, 2010). A demographic increase, brought to be by the sum of locals, tourists and foreign workers, changed their traditions: food production had to be outsourced, and basic goods like petrol or clothes had to be imported, making the country completely dependent on international trade (EW Content Team, 2010).

These measures were implemented to improve the economic development of the country but neglected to consider social and environmental needs and consequences for the Maldivian population.



Image 1: Male panoramic perspective. Retrieved from: Chelangat S. (2017) *What is the capital of Maldives?* World Atlas.

5.1.2. Tourism in the Maldives

Since 1972, the country's rich biodiversity, lush vegetation, sandy beaches and turquoise waters have attracted many foreign visitors, reporting increases of around 12% per year since 1979 (Stevens & Froman, 2018). Currently, there are 150 resort islands, 20 under construction. The productive sector has completely change and now tourism accounts for 30% of the national GDP while fishing has decreased to 1.3%. Many locals must switch their traditional jobs to tourist's jobs like souvenir selling, surf or scuba diving guides, hotel workers, etc. (Cowburna et al. 2018; Stevens, Froman,

2018; Kapmeiera & Gonçalves, 2018). In the beginning the constructions were built close to either the international airport or the capital; now they extend to other atolls (Stevens & Froman, 2018).

2017 registered 1.2 million tourists visiting the country; approximately three times the size of the local population (Stevens & Froman, 2018). This increase in population density has led to a new problem: supplying both tourists and locals with food and drinking water and, consequently, having to manage all the waste generated. Tourism has been declared the most polluting activity in the nation, producing 1 kilogram of CO₂ per dollar spent on tourism, against 0,8 kg per dollar spent on manufacturing and a 0,7 kg per dollar spent on construction (Gross, 2018). Carbon footprint is increasing at a rate of 3,3%/year (Stevens & Froman, 2018). Moreover, the Maldives have been found to be the touristic destination where visitors pollute the most, followed by Mauricio Islands, Cyprus and Seychelles (Gross, 2018).



Image 2: Sheraton Maldives Full Moon Resort & Spa. Source: TripAdvisor

5.1.3. Waste production and management in the Maldives

Traditionally, population was self-sufficient and used to keep imports at a minimum. With tourism as a new variable this model is no longer possible. Moreover, the most extended kind of tourism in the Maldives is characterized by offering a luxurious and

exclusive service to their visitors, which generates large amounts of waste. On average, a single tourist lodging at a Maldivian resort generates 3.5 kilograms of waste every day, while local population generates an average of 0,4 kilograms per person and day, and 0,9 kilograms in the case of Male citizens (Kapmeier & Gonçalves, 2018). In absolute terms, an approximation of 313.900 tons of solid waste per year is generated in the country (World Health Organization, 2018).

Currently, the country manages waste following one of these three practices: (1) since 2011 the local government decided to ship a low percentage of waste to India to be recycled (Surfer Rule, 2018); (2) Incineration, without waste type segregation (Kapmeier & Gonçalves, 2018); or (3) waste dumped onto Thilafushi, an island which currently holds around 70% of the waste generated by the resorts (Kapmeier & Gonçalves, 2018).

Thilafushi is a Maldivian island, which was declared by the local government “official landfill island” in 1992 (Kapmeier & Gonçalves, 2018). Daily, boats are sent to Thilafushi to dump waste on the island. Litter is not treated or separated and is left on the island for an unlimited time or until it is burnt. Around 40% ends up in the ocean, affecting coral reef and the marine biodiversity, and may enter the human food chain if polluted fish is consumed (Kapmeier & Gonçalves, 2018). Migrants and the impoverished population that work in Thilafushi are forced to breathe in highly polluted air daily, as well as locals and tourists when onshore wind rises. Local authorities have already recommended tourists to avoid lodging in hotels close to Thilafushi (Kapmeier & Gonçalves, 2018). Image 3 shows a Bengali worker in the “rubbish island”.



Image 3: Bengali worker in Thilafushi. Retrieved from: McGivern (2018).

Thilafushi – Rubbish Island. No plastic life.

Table 1 shows a comparison of the distribution of the overall waste generated by locals living in Male against waste generated by tourists.

Origin	Male	Resorts
Food waste	22,20%	40%
Yard waste	52,80%	38%
Plastic	2,50%	5%
Inorganic	18%	11%
Others	4,70%	6%

Table 1: Distribution of waste types in the Maldives. Own elaboration. Source: F. Kapmeier & P. Gonçalves (2018)

A relevant waste type is plastic, especially Single-Use Plastics (SUPs). SUPs have turned plastic waste into a global problem due to its wide-spread use as packaging material (Plastics Europe Association of Plastics Manufacturers & Consultic Marketing Industrieberatung GmbH, 2015). SUPs provide products which are used for several minutes and immediately disposed of afterwards, becoming waste that takes hundreds

of years to degrade. (UNEP, 2018). This material is very difficult to recycle and entails several health risks. Graphic 2 shows the main impacts of mismanaged plastic waste.



Graphic 2: Potential impacts of mismanaged single-use plastic waste. Source: UNEP (2018)

In the case of SIDSs, the amount of plastic imported inside the country is specially worrying. In countries like the Maldives, where most of the tourism is focused on all-included resorts, the use of SUPs is even higher. Other relevant types of waste generated in the country are pool chlorine, maintenance and cleaning products for boats, sewage and pesticides (Cowburna et al. 2018).

The last Tourism Management Plan (TMP) from 2013-2017 identified waste as one of the problems of tourism, mentioning the lack of a management system and consequent effects that it entails for the population's welfare. The TMP describes three challenges: lack of education on the topic, lack of management services and the exponential increase of imports.

Mismanaged waste is damaging life conditions of Maldivians by contributing to climate change: extreme weather frequency increase, ocean acidification, sea level rise and sea surface temperatures (UNEP, 2018). For instance, pollution increase has induced a decrease in the annual amount of precipitation, which led to less available drinking water for the population. Extreme weather events such as storms and intense rainfalls

have increased, causing economic losses in the agriculture sector (Stevens & Froman, 2018). Ocean pollution is contributing to a decrease in marine biodiversity and what is more worrying, coral bleaching.

Additionally, mismanaged waste is contributing to a quicker disappearance of the islands' traditional Maldivian homes, which will force population to migrate to nearby countries. Scientists state that sea level is rising 0.4mm per year, which implies a big threat considering the country's highest elevation point is 2.4 m (Stevens & Froman, 2018). As Gonzalo Sánchez Terán (2019), national director of the Jesuit Refugee Service, stated *“the main challenge of the current international cooperation is managing the great quantity of climate refugees that are going to exist in a few years, who are not even included in the definition of ‘refugee’.*

5.1.4. The Maldives as Small Island Developing States

As an insular state, separated from the continent and surrounded by sea, the Maldives is considered a Small Island Development State (SIDS). SIDSs have common development characteristics which need to be studied. A specific development model needs to be implemented, different to mainland countries, in order to meet these peculiarities.

The following section will contextualize these peculiarities as well as the main economic development models created for fostering SIDSs' economic progress.

5.2. Small Island Developing States (SIDSs)

SIDSs are small island states with a list of common challenges, consequence of being surrounded by water, which directly affect their development. The Maldives is one of those minority states classified as Small Island Development States (Zubair et al, 2011).

The geography of SIDSs entails several vulnerabilities to its population. The small territory of the islands limits basic goods supply, therefore missing food and water must be imported to cover both locals and tourists (Perry, 2016). Furthermore, their isolation from the continent makes acquiring basic resources expensive and complicated, which impacts on the prices of these basic goods, making everyday life more expensive. The frequency of natural disasters requires higher security and preparation, and even then, it still entails economic and social consequences. However, one of the most determinant

factors is the economic development limitations of SIDSs. Importing basic goods leads on an exponential trade deficit that needs to be compensated.

5.2.1. Economic development models for SIDSs

Trade deficit is regarded by most researchers as the main problem faced by island states (Bertram, 2018). Bertram stated that the situation gets worse when considering, on the one hand, small island states and, on the other hand, independent states with no holding nation that can contribute to the islands' economy. Both factors are present in the case of the Maldives.

Due to the difficulties of economic progress of SIDSs, in the mid-80s several researchers described different economic development models catered to the particularities of island states. The general objectives of these models were to describe a way to finance all the imports that island states must manage. The most relevant are:

- I. **MIRAB** (**M**igration, **r**emittances, **f**oreign **a**id, **p**ublic **b**ureaucracy): based on countries with high levels of emigration which can significantly rely on remittances, as well as in foreign aid (Bertram and Watters, 1985). This model was heavily criticized as it describes emigration as the path to achieve economic progress (Baldacchino, 2014). Additionally, remittances increase internal inequalities, as the same families are always the ones benefitted (Iglesias, 2011).
- II. **TOURAB** (**T**ourism and **f**oreign **a**id). Combines development through tourism and foreign aid (Baldacchino, 2014).
- III. **PROFIT** (**P**eople (migration), **r**esources, **o**verseas management, **f**inance and **t**ransport). This model takes advantage of the globalized market dynamics in order to attract foreign businesses. This includes low taxes, offshore banking centers or duty-free manufacturing exporters (Baldacchino, 2014).
- IV. **SITE** (**S**mall **i**sland **t**ourism **e**conomies). This model is focused on an intensive tourist policy, as it is not just enough to provide a paradisiacal landscape, but also affordable and frequent transport, national safety, etc. (Baldachino, 2014; Bertram, 2018). SITE model is the model implemented in the Maldives. The vacation destiny has become famous for scuba diving and surf, given its attractive coral reefs (Baldacchino, 2014).

5.2.2. The role of International Cooperation in SIDSs

Governments have strong interests in maximizing the economic wealth and growth of their countries. In the case of SIDS, as economic development shows several difficulties that mainland countries lack, social and environmental development remains especially vulnerable, and therefore should not be forgotten.

In this context, International Cooperation is specially focused on maritime and animal conservation projects as well as other environmental fields, in order to preserve natural beauty that usually characterized SIDS. In the Maldivian case, other projects are developed such as HIV prevention, poverty reduction or education.

5.3. Sustainable Development of the Maldives

Maldivian welfare is strongly dependent on environmental preservation. Both aspects have been affected since the entrance of international tourism.

5.3.1. Sustainable Development

The Brundtland Report (1987) defines sustainable development as one that must “*ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987, p. 16). Thus, development models should be valid for both current and future societies (United Nations, 2015).

The current development model of the Maldives does not meet this condition, as it is focused on economic growth, leaving behind the provision of basic services and infrastructures to the local population. Moreover, big waste generation without an appropriate management risks the limited resources available on the islands, which consequently promotes global warming. Waste accumulates exponentially, as a big percentage of the “old” waste remains on the islands while “new” waste is dumped. Concurrently the number of tourists, which is the group of people on the island that most waste generates, continues increasing as more resorts are being built and the existing increase their bed capacity. Why does waste break development? Because waste pollutes living spaces, affects the ecosystem and biodiversity, produces greenhouse effects, deteriorates human health, entails waste management costs and creates precarious jobs.

5.3.2. Environmental policies of the Maldives

This section reviews the government's legal and regulatory initiatives for promoting environmental protection.

Regarding the internal regulations established by the government since the beginning of the Republic, legislation regarding waste generation is scarce. Of highlighted importance is the 2016 ban on single-use plastic bags (Schnurr et al. 2018). Additionally, both government and resorts have implemented conservation programs like the Maldives' National Biodiversity Strategy and Action Plan (NBSAP), which designated by 2025 some areas under national protection (Stevens & Froman, 2018).

Nevertheless, from an international perspective, the government has always been participative towards climate change international agreements. The country has ratified both the Kyoto Protocol (UNFCCC, 2009) and the Paris Agreement (King, 2016). Other international treaties with Maldivian presence are the Global Code of Ethics for Tourism, created by the World Tourism Organization in 1999, or the Guidelines on Sustainable Tourism in Vulnerable Ecosystems, approved by UNEP in 2003. This last one includes, for instance, policies like community participation in cleaning the environment or capacitation of locals in coastal management, in order to involve the Maldivian society in their own tourism sector (Pandey, 2004). This way, the strategy is not just minimizing tourism's negative impact on the environment, but also using tourism as a tool for protecting it (Pandey, 2004). Finally, the Male Declaration should be highlighted, where for the first time in history SIDSs spoke together to raise awareness on the importance of climate change amongst the global community (Jawaharlal Nehru University, NA).

A relevant personality that defended the importance of environmental care for the Maldivian population was President Mohamed Nasheed, who made his presence in international organizations like the UN, UNEP, SAARC, etc. He focused his speech on the dangers The Maldives faces with sea level rise and global climate change. *"The environmental threat is a security issue and a human rights issue for the Maldivian people as much as an environment issue"* stated President Mohamed during his presidency (Zubair et al., 2011).

5.3.3. The Role of International Cooperation and Aid in the Sustainable Development of the Maldives

In the field of International Cooperation, relevant agents are the EU International Cooperation Strategy and the Cooperation of the UNDP, both working in sustainability and poverty removal.

For instance, one of the working fields of The European Union has been helping the Maldives in rising its international voice to talk about its vulnerability towards climate change and looking for international support. The EU is also implementing a “safe islands” approach, by supporting the development of sustainable infrastructures, renewable energy, and waste removal (European Commission, 2013). On its side, the UNDP is developing a variety of projects in the Republic. Of relevance is the Tourism Adaptation Project (TAP). The UNDP has also become aware of tourism development in the country (UNDP, 2016). The aim is fostering public and private investment partnerships between the government and the resorts in order to balance the economic and environmental benefits of tourism development in order to increase the resilience of the sector (UNDP, 2016).

Additionally, in 2017, the Maldives joined alongside 56 nations the UN environment’s Clean Seas campaign, whose objective is to achieve a vast reduction in plastic use (UNEP, 2017). Moreover, many NGOs work on environmental issues, poverty reduction, HIV or other fields. Two of them are Parley and Care Society.

International aid.

Historically, the most relevant international donors that have given financial assistance to the Maldives, especially after the tsunami suffered in 2004, are the European Union, The Global Environment Facility and neighbor countries like India, China or Japan (Jawaharlal Nehru University, NA).

International initiatives

Several independent initiatives aimed at ameliorating common social and environmental development challenges of SIDSs by tapping into SIDSs’ community knowledge have appeared over the years. Two examples are SMILO and GLIPSA. However, the Maldives is not currently participating in either of them.

SMILO was created in 2016. Its aim is giving consultancy to small island states in order to achieve the best equilibrium between human development and internal resource management. GLIPSA is an international partnership that assist small islands' leaders to take steps towards sustainability. It works as a platform that lets the islands create synergies between them to find solutions to common problems.

5.4. Summary of the Literature Review

The Maldives is an insular state composed of 1.198 little islands. Traditionally, habitants were able to self-supply themselves, living humbly.

After the independence from Great Britain, the Republic needed to look for an economic model that enhances GDP growth. As an insular state, its economic development possibilities were complicated, as the islands did not produce enough exports to provide a minimum of foreign exchange. Thus, since 1972 tourism was incentivized as a tool to equilibrate the balance trade.

With the entrance of tourism, the productive model was completely modified to open to the international market as a paradisiacal and luxurious holiday destiny. Among other consequences, this has led to an increase in the amount of goods imported in order to supply the necessities of both locals and visitors, creating a dependency on imports that did not exist before. This also induced an increase in basic goods prices and the need to obtain tourism benefits to pay those imports, entering a vicious cycle of difficult exit.

Due to this increase of consumption inside the islands, total waste grew considerably, making it increasingly difficult to manage when taking into consideration the islands' dimensions. The main management method is transporting mixed waste to Thilafushi, an island where a mountain of waste is accumulated or burnt, which produces harmful fumes for the people that live close to the island. Especially worrying is the amount of plastic packaging that arrives daily to the island, result of all the imports, and the big percentage of waste that is dumped in the ocean as the method to manage it.

The vital dependence of the local population on their ecosystem has drawn many international actors as well as NGOs to work towards devising sustainable development strategies, looking for social wellbeing and not just economic progress.

6. Analysis

The present chapter presents the information collected, combining secondary data and data obtained through semiquantitative interviews. It begins with a brief presentation of the four interviewees. For privacy reasons, pseudonyms will be used to identify each interviewee. Several sub-sections regarding topics identified in the thematic analysis will continue. Finally, three scenarios that illustrate three possible future situations based on the set of data collected will be presented, as well as two wildcards in order to consider extreme impact events.

6.1. Interviewee presentation

Planet names have been chosen as pseudonyms to refer to the interviewees throughout this work. The table below shows a summary of their curriculum vitae and some relevant observations regarding the case study concluded after the interview.

Name	Curriculum Vitae	Observations
Mercury	Used to work in economic development consultancy of SIDS. His last work was for 4 years in the island state of Maillot. He worked along with the government by making a diagnosis of an area in order to implement and action plan whose aim was economic improvement.	Currently he is not working in the sector due to the difficulties of working on SIDS development. He remarked the complexity of SIDS economic development.
Jupiter	Degree on marine science and master in NGO management. 10 years working for NGOs, environmental consultancy and international organizations. He worked for the UNDP as environmental specialist in Panamá. In the Maldives he was an environmental consultant outsourced by the hotel chain Four Seasons.	Currently living in Costa Rica due to the frustration he experienced in the Maldives. He is in generally disappointed with the general situation of the Maldives.
Saturn	Mechanical materials engineer specialized in plastics. He worked in Germany and Switzerland for 8 years in product development and technical support. Currently he works in Barcelona in a technological center called EURECAD in plastic investigation and in parallel he is doing a doctoral thesis on plastics properties.	Travelled to the Maldives as a tourism twice. The first time was three years ago and the last time two weeks before the interview.
Neptune	30 year old Maldivian. Worked in Tourism Admnistry to elaborate environmental adaptation to the Tourism Adaptation Program. Undergraduated in International Political Economy. Master in Environmental Management and Policy with focus area on Waste Management and Circular Economy.	She sounded emotional when talking about waste impacts and the few social benefits and the inequality that tourism has brought. At the same time, she highlighted the positive transformation the sector meant for the country.

Table 2: Curriculum Vitae and observations of the interviewees. Source: Own elaboration

6.2. Thematic analysis results

After the interviews, topics were identified through the Thematic Analysis Methodology (discussed in Section 4. Methodology) in order to perform the research analysis. All the codes identified in the interviews to select the topics are included in the annexes. The topics identified were:

- The importance of tourism
- Environmental impacts
- Socio-cultural impacts
- National government
- Maldivians' perception and education
- The role of International cooperation

These topics have been used to structure the results. Firstly, the relevance of tourism and its benefits for the Maldives is analyzed. Then, two sections explain the environmental and socio-cultural impacts derived from tourism, respectively. Once both benefits and impacts are covered, the results conclude with the identification of development drivers in order to mitigate the former impacts.

1. The importance of tourism

SIDSs have economic development brakes which leave them with additional difficulties compared with continental countries. *“We have a small country, surrounded by sea, with minimal exposure to the outside world”* said Neptune to remark the vulnerability of the country. Mercury believes that economic development in island states is especially complex. Tourism is an ally for island states in economic terms. It is a strong revenue source that provides the population with better life conditions. *“A country cannot work with half of the population working for the public sector, as it happens in some SIDSs”*, said Mercury. Tourism is a powerful tool for adapting a country to the new globalized world. It decreases trade deficit by providing foreign investment to the country, which, in the case of the Maldives, would otherwise rely on tuna and coconut exports. Neptune claimed tourism has entailed many benefits for her country. *“We used to be inside the 29 Least Developed Countries list until 1979, but in few years our economy has been transformed and now Maldives is classified as an upper-middle income country. We used to lack services like transport which were introduced thanks to tourism.”* Mercury

was conscious about the negative impacts of tourism but remarked that development options of SIDSs are very limited.

Moreover, Saturn added that tourism has created a substantial amount of jobs. Maldivians work as guides, fish providers, scuba divers or surf monitors, hotel workers, etc.

Nevertheless, as Neptune pointed out, the economy now entirely depends on tourism, which is economically dangerous in the long run. Additionally, the efficient and quick economic development that tourism has provided to the Maldives has multiple impacts for the environment and for locals. The environmental impacts will be covered first, followed by the sociocultural impacts.

2. Environmental impacts

Several factors were identified through the interviews as drivers of negative impacts on the natural environment of the Maldives.

Waste management: focusing on waste generation and management, Jupiter clarified that currently Thilafushi is not the only waste island in the country; three more already exist. As all the waste is accumulated and incinerated when wind blows, polluted air goes to populated islands, including Male, making it difficult for people to breathe. Neptune confirmed the smoke of Thilafushi is usually visible from several parts of Male.

Neptune explained that, in this sense, the country has limited infrastructures, identifying the problem as one of the most relevant. On the one hand, local islands lack regulations, so the fact is that they burn waste daily on a side beach of the island. On the other hand, resorts should fulfill several standards and transport all the waste to Thilafushi. The reality and what she named “the secret that everyone knows” is that, as this transportation is very expensive, waste is often dumped into the ocean. Despite describing these unethical practices, she clarified that thanks to tourism many conservation projects are implemented, as the sector knows that natural beauty is its revenue source.

Waste accumulation also produces other consequences like soil, water, marine and land degradation; as well as a decrease in the country’s attractiveness, which directly affects tourism. Many inhabited islands are covered with plastic waste brought by the ocean.

Fuel pollution: Saturn expressed his worry about the enormous amounts of fuel used by boats and planes in order to move along the islands. *“Maldives have more than enough solutions to function with renewable energy. Their big waves could produce wave power. Moreover, the country is exposed to a strong sun that could also be useful”*.

Artificial islands: *“There is no inhabited island left to privatize. All of them have been developed into resorts or for other development purposes. To continue opening resorts, artificial islands are being built. Land is reclaimed from the middle of the ocean and they build it, stealing sand, palm trees, etc. These islands cause many environmental damage”*, Neptune explained.

Others: *Water villages*, hotel rooms built over the ocean, destroy coral reefs; grey water is dumped into the ocean; water scarcity for all the population forces to import big amounts of bottled water.

Mercury identified coral reef preservation as a priority, as the islands depend on it for their existence. It is also a personal interest of the tourism sector to work on preservation, as many tourists visit the Maldives for its marine biodiversity.

3. Socio-cultural impacts

As in the previous section, the interviewees explained several social impacts caused by tourism. These are the following:

Cultural shock between tourists and locals: Maldives is a Muslim country where women dress completely covered, alcohol and pork are banned, and polygamy is legal. Additionally, the isolation of the country from the continent has induced the existence of a traditional life: women work at home and men bring money, families have many children, houses are inherited from generation to generation and trash is thrown to the floor or the ocean because it ends up composted. Saturn highlighted that education is a big barrier, as population does not have environmental knowledge.

This reality collides with the type of tourism it takes in. The country is positioned in the market as a luxurious and paradisiacal destination. Actually, an average tourist in the Maldives spends more money than anywhere else in the world (Gross M, 2018). The traditions of population differ from the visitor practices, were women dress with swimming suits, alcohol is sold, drugs are frequented, elite visitors spend huge

quantities of money on eccentric treats, etc. In this sense, tourism has transformed Maldives into a country with two opposing realities.

Public land loose: Talking about the current situation, Neptune said that people are worried about the number of islands and lagoons that are still going to be taken for tourism. *“Every privatized island means land that locals lose, getting deprived from the beauty of their own country. Population must pay like a regular tourist for visiting these islands, so most of them do not have a chance to visit their own country due to those expensive prices. For instance, an island were locals used to go for holidays was sold without public consultation, and now we cannot afford to go back. The common thought is that the more resorts the better living conditions, but the truth is that one third of the population lives congested, public services are terrible and prices high.”*

Resort ownership: as Neptune stated *“Just a few families and foreign investors are acquiring most tourism revenues. We are around 400.000 people and could be living a richer life than what we do, but wealth is not distributed accordingly.”* Reduced ownership has benefitted an elite population, increasing internal inequalities, or to foreigners, which implies that a great part of the income generated by those resorts leaves the country and only contributes to the enrichment of foreigners who exploit the Maldives. In this sense, in 2015, 113 resorts were managed by a foreign business and 172 by locals, but many of these last are just under locals’ operation but controlled by foreigners (Ministry of Tourism, 2016, p.3). Therefore, tourism is benefiting mainly the government, foreign investors and a local elite.

These impacts have mitigated since the approval in 2009 of a law that lets locals hire tourism flats, called *guesthouses*. Guesthouses are rental houses built in locals’ islands which implies low investment compared with resorts. This kind of accommodation helps visitors to better understand the culture of the country, achieving more respect and empathy between the two realities. Moreover, the externalities generated are considerably reduced as tourists are not obliged to lodge on an *all-inclusive* regime, and it is completely under Maldivians’ ownership, what is contributing to households’ economies and the country’s GDP.

Employment: In this sense, tourism has been a complete revolution. Great part of the population has a tourism-related job. The sector has contributed to better life conditions, better public services and better infrastructures. However, all the interviewees talked

about the wage gap between western workers and Maldivians. For example, in 2014, 46,8% of tourism employees were foreigners. (IBP, 2015, P.66). Saturn mentioned a discriminated group too, Bengali migrants, who move to Maldives to work and send remittances to Bangladesh but usually they end up working on non-desirable jobs (for instance waste transportation to Thilafushi) with very low wages.

Neptune explained that employment options for the local population are limited now to almost only jobs in the tourism and services sectors, as the country does not have manufacturing or other working sectors. *“The average person is struggling with salaries of around 600 dollars per month and a rent of 200 dollars. All the Maldivians know they must live together in big families, as they would not be able to rent their own apartment. Bank loans are also impossible to acquired. Maybe the country sees tourism benefits, but the average person does not.”* she said.

Sanitary service: Neptune claimed that the country has a lot of wealth, good GDP, but people lack access to sanitary infrastructures. *“We are giving investors our land, which is going to be owned for centuries. They should be making social contributions, but they honestly are not. We are not a poor country, but it is not reflected in people’s lives.”*, she said. People must move to Male for a simple medical revision because there are no infrastructures in their islands. Wealth is not distributed in medical quality and services. She explained that recently a newborn died because the hospital did not have an incubator, which sounds paradigmatic in a country with wealth.

Gender inequality: Another impact is the intensification of gender inequality. Just 2% of tourism employees are Maldivian women. Men move to resort islands leaving their families and women at home to raise their children (Scheyvens, 2011). The traditional idea of woman’s role “protects” them from working, particularly if this work implies moving to other islands where alcohol and other practices are common.

4. Development drivers

With the big picture in mind, the question now is: *which are the principal drivers of Maldivian development?* Four have been identified: government, locals’ perception of several impacts, education received by the population and international cooperation.

a. National government

Maldives is a presidential republic. Until 2005 it had a one-party system, year when political parties were legalized, and the democratic president Mohamed Nasheed started to lead the country after decades of the autocratic government of Maumoon Abdul Gayoom. In 2012 the elected president resigned, and was substituted by Abdulla Yameen, relative of the non-popular former president Gayoom. His presidency was characterized by the reduction of liberties, media censorship and corruption. Currently, the last elections of 2018 have given the victory to Ibrahim Mohamed Solih. Jupiter explained that this election has registered a strong participation due to the dissatisfaction and concern of the population. He also explained that during Yameen's leadership corruption was exorbitant. The president sold islands illegally to private investors without public bidding so his friends and himself could obtain big sums of money. He added that tourism is currently a government's business without limits and regulation, and therefore there is no willingness to tackle social responsibilities. Neptune clarified that good laws and regulations are proposed, but not implemented. *"There is a lot of potential but little action."*

Saturn and Jupiter talked about the *shop window* of the Maldives image for the world. The international image shows a country worried by environmental degradation that participates in international treaties and contributes to its conservation, but proof points in a different direction: a country that has been "beautified" to attract visitors with few regulations, even its vulnerability to natural effects.

b. Maldivians' perception and education

Mercury, Jupiter and Saturn mentioned the poor knowledge held by population about the real impact that regular actions could have on their habitat. Saturn said that the habit for centuries was to dispose of fruit or fish waste by throwing them to the ground, as for years this was not a problem. A general complaint and discomfort about the situation is on the rise; many inhabitants watch their islands fill up with plastic, despite efforts to keep them clean, but root to the cause is a lack of understanding between their and the tourists' actions and the environmental state of the islands. Jupiter added that the population is starting to understand what happens but not the real dimensions of the problem. The public opinion shows disappointment and complaints.

c. The Role of International Cooperation

Jupiter mentioned the multiple environmental and social projects of UNDP and international organizations. “*They work on preservation, equality, HIV, economic diversification and education. However, they make a small impact, mainly influenced by the government’s blocking*”. However, his advice was that international cooperation should add to their tasks working in making international pressure, informing the world about the situation of a country that looks idyllic but is full of problems.

Saturn and Mercury defended the promotion of *ecoresorts* with international financing and the promotion of local entrepreneurship. Saturn added the necessity of combining these measures with education to empower locals.

6.3. Scenario building

This section describes three different scenarios elaborated based on the investigation of three different future possibilities. The described scenarios are set up in 2050. An optimistic scenario will be described first, followed by a neutral and, lastly, a pessimistic scenario.

6.3.1. Optimist scenario

The international community along with local authorities realized the need to immediately address the problems derived from the country’s economic development model. By 2025 the Maldives was declared in a climate emergency status and therefore an action plan focused on tourism regulation was implemented. 25 years later the benefits seen are the following:

- ❖ A significant decrease in waste, thanks to the installation of recycling plants in landfill islands and some local and resort island. Incinerations are segregated. Recycling containers have been installed along the islands. This has improved Maldivians’ air quality, their health and wellbeing. Additionally, it provided a better preservation of coral reef and marine species due to cleaner shores, what benefits the quality and quantity of fish consumed in the islands. This brought forth economic benefits as well, as the attractiveness of the country abroad increased.
- ❖ To attend the root of the problem, import suppliers were requested to gradually shift towards biodegradable packaging material. Since 2035 SUPs are

permanently banned from entering the Maldives. A significant reduction of waste is already visible, simplifying its management. In 2040 Thilafushi got completely clean and stopped being a landfill island as it is no longer needed.

- ❖ Additionally, environmental education was included in the national education curriculum, drastically improving the population's knowledge about their everyday actions' impact. This action was combined with the promotion of local entrepreneurship with subsidies and privileges to get local entrepreneurs and changemakers to lead the tourism industry.

The plan is improving marine species and coral reef, diminishing waste accumulation, foreign control of the hotel industry, air pollution and population's wellbeing.

International organizations had a significant influence in setting international pressure regarding the situation of the Maldives and afterwards in the plan implementation. With a global scope, communication campaigns and political incidence projects showed the reality of the country and helped decision makers to implement the previous development plan. Along with the support of the government they acted on improving social impacts too, looking for a fair distribution of tourism benefits. The most relevant achievements until 2050 have been the installation of sanitary infrastructures in every inhabited island, making travelling back and forth to Male no longer necessary, and wage gap reduction, which has started to be monitored and has increasingly been reduced. Best salaries and working conditions are promoted in order to force a fair distribution of wealth and other social benefits.

However, the most worrying problem for the country has not been solved yet. The flooding of the country due to sea level rise is unfortunately out of Maldivians' control, as this phenomenon is provoked by the global contribution to climate change. In this sense, Mercury, Jupiter and Saturn agreed that Maldives' sinking is unavoidable.



Image 4: Maldives cartoon. Retrieved from: Haitzinger H. Original translation: “In memory of the Maldives, which is just below”

6.3.2. Neutral scenario

This scenario describes what the Maldives will look like in 2050 if policies and actions follow similar tendencies to the ones currently being implemented.

Solih’s government and the consequent democratic governments turned to be fair and without corruption, but flat. Illegal land sale disappeared as well as corrupt politicians, but the rest of the problems were not solved. Waste continued accumulating, local education remained unchanged, so their oversights continued. Free market was promoted and therefore, wage gap and foreign hotel regulations were never addressed. Sociocultural and environmental impacts continued increasing as free market ensured more tourists visiting the country.

According to these estimations, just by 2021 60.000 resort beds would be available, almost doubling the beds available in 2016. A significant part of coral reef had disappeared due to temperature increase (Kapmeier & Gonçalves, 2018) and many local and resort islands have been affected by sea level rise. Some surges rise 2,3 meters high, causing regular floods which affects locals but also resorts, as the majority are near the shore. Government is starting to implement emergency plans to move the forthcoming climate refugees (Sovacool, 2011).

What once was Maldivians’ common life is no longer feasible, as people were forced to abandon their living standards. This situation increased violence among the population

in order to move to safe islands or acquire the scarce resources they now have, complicating coexistence. Implementing a sustainable development model is no longer possible due to this loss of control.

6.3.3. Pessimist scenario

This scenario portrays a future where the promotion of a luxurious and wasteful tourism style is intensified. The permanence of the current development model for almost a hundred years has made GDP increase through tourism revenue as the only form of development the country meets. The following took place:

- ❖ Global marketing about Maldives as a vacation destination was reinforced in order to increase the national GDP, causing an unexpected increase in visitors in the country that could not be handled. Artificial island creation and artificial coral and beach creation was often arranged. These actions have gradually transformed the country into an artificial landscape; losing a significant part of coral reef, beaches and desertification has considerably reduced crop production, making resources scarcer.
- ❖ The existing resorts were remodulated in order to adapt to the new competitors to more glamorous and luxurious resorts, encouraging consumerism.

The overall situation has taken the country out of control complicating sustainable management politics.

The exaggerated privatization of the country in benefit of foreign investment and few local families has forced the average population to live in an expensive country with low salaries. People live stressed with many difficulties to reach the end of the month. The few social services and infrastructures available are located exclusively in Male, what has incentivized more people to migrate to the capital, intensifying population concentration in the island, losing quality of life.

Scarcity, low salaries or island flooding are some of the causes that set the country out of control. Violence and pleading is now usual in the Maldives' streets due to the survival situation population is set. Tourism quickly decreased, and much of the population has already fled the country.

Development organizations left their local projects as their effort is now focused on attending Maldivians refugees.

Regarding the country's unavoidable flooding, Jupiter explained that he had access to historical maps and was able to compare former and current maps, seeing beach reduction was already a fact. In this sense, over the last 30 years many beaches have disappeared due to erosion and the lowest and less protected islands have started to sink. Resort islands are implementing protection plans to conserve their beaches for a few more years, but inhabited islands have more difficulties.

6.4. Wildcards

To supplement the previous scenarios, two wildcards have been included in order to contemplate two low-probability situations which could have considerable unforeseen impacts on the case study.

1. Wildcard 1: Global ban on plastic packaging for consumer goods

A global treaty to ban plastic packaging for consumer goods and transition towards more eco-friendly packaging was approved in 20135.

According to the UNEP, 79% of plastic waste ends up in landfills or in the environment, 12% is incinerated and 9% is recycled. Therefore, this initiative entailed a global decrease of SUPs, meaning that packaged imports acquired by the Maldives are now easily managed in recycling plants and the consequences that mismanaged waste caused for the country are progressively decreasing. Global pollution decreased too. Thilafushi is no longer a landfill island as it is not necessary, what has improved air quality and marine biodiversity.

Thus, the initiative should be combined with recycling plants that allows Maldives to manage the new packaging material, now easier to reuse. Moreover, it would be a slow process, which still needs short-run sustainable management, and which just addresses one of the identified problems.

2. Wildcard 2: natural disaster in the Maldives

In 2004, Maldives was affected by a tsunami that produced many prejudicial consequences. A new tsunami in 2050 would result in:

- ❖ Human losses and injuries.

- ❖ Destroyed households, hotels and guesthouse. This will impact tourism revenues and family's economies.
- ❖ After the 2004 tsunami, Male turned into one of the most densely populated islands in the world due to the migration of people to the capital where houses and infrastructures suffered less and was quicker reconstructed. A new massive migration to Male will increase the massification of the city and diminish people's welfare.
- ❖ Landfill waste pushed to the ocean affecting marine biodiversity and national beaches.

This situation made actors' effort (government, international organizations, etc.) to focus on recovering the country's normality, leaving aside work on the problems mentioned in the present research.

7. Conclusions and Recommendations

To conclude the research, several reflections have been made regarding the situation considering the overall investigation, followed by a series of recommendations to improve the country's development. Finally, advice regarding the role of each identified development driver will be given.

7.1. Conclusions

The initial hypothesis stated that *“the recent increase in tourism in the Maldives is producing a deficient national waste management model which is causing negative impacts on the social, economic and environmental development of the local population.”* It can be concluded that waste management is a real problem for the Maldives which generates health problems and has created a job performed usually by migrants due to the poor working conditions. However, these impacts are just a part of the whole. Throughout the research, plenty of other social impacts have been discovered, which have led to open the research focus to offer a complete vision of the case study.

On the other hand, despite the negative consequences induced by tourism, tourism itself should not be considered only as a negative factor. Tourism was a revolution that facilitated economic progress for the Maldives and provided its population with services they previously lacked. For instance, thanks to tourism alphabetization rates have risen to a 97% rate (Scheyvens, 2011). Tourism is the economic engine of the country. The key is achieving a balance in order to broaden other development approaches.

From an environmental point of view, an encouraging factor is that tourism can be an agent interested in the Maldives conservation, as visitors are attracted by the natural beauty of the country, and therefore this beauty must be cared for. Therefore, coordinated work along with resorts and guesthouses maximizes benefits instead of working in opposite directions.

Unfortunately, the scenarios and evidences have shown that the future of the country is pessimist. Human action is accelerating climate change, and one of its consequences is sea level rise. The Maldives' height situates the country as one of the most vulnerable to this phenomenon. Beach reductions already demonstrate this effect.

According to the Copenhagen International Climate Congress from 2009 great part of the country would have flooded by 2100. Following this hypothesis, 15% of Male would have flooded by 2025 and half of the island by 2100 (Gagain, 2012). Resorts would also be affected, as 70% of them are less than 30 meters away from the shore (Majeed, 2006).

The government is designing emergency plans, conscious of this danger. Some of these are the negotiations with Sri Lanka in order to acquire land to move the Maldivian population in case of an emergency. Another plan is the *Safer Island Development Program* which identifies the safest and more resistant Maldivian islands to climate change so these islands can function as a shelter. The last plan considers the creation of higher artificial islands designed by experts in order to protect the population. According to the climate scientist Chip Fletcher this solution would be very expensive and environmentally damaging but “*I would rather destroy some reef than see an entire culture go extinct*”.

Maldivian coral reef is the seventh largest in the world. Moreover, the disappearance of a country which will create a whole climate refugee population evidences the scope of human action. It is humanity’s responsibility to take care of the Maldives.

7.2. Recommendations

Considering the general vision of the case study, and with the Maldives’ development model improvement in mind, several recommendations are brought forward.

Firstly, looking at plastic reduction, legislative and non-legislative regulations should be combined as only legislative regulations are not enough. This action plan both incentivizes and facilitates sustainable practices, while isolated regulations lack one of the accelerators. Non-legislative actions include individual participation and NGOs action. Regarding legislative regulations some of the SMILO’s recommendations for waste management improvement have been considered:

- Establish infrastructures that facilitates collection, storage and classification with the aim of segregating and managing waste.
- Compost to create energy or reuse heavy and non-toxic waste and transport to the continent toxic waste like used oil or batteries.
- Subsidize and incentivize bulk purchase to reduce packaging waste.

- Export packaging waste and other light waste which can be repurposed in the continent. Track exported waste to assure that it is processed in the continent.
- Population sensibilization and education to incentivize non-legislative actions.
- Establish a water management plan, like water sources or promotion of reusable bottles.

In the same manner, social impacts must be regulated and managed to reduce them. Some recommended actions are controlling wage and working conditions gaps to eliminate working discrimination, establish a fair minimum salary proportional to Maldivian prices, resort building limitations within illegalization of artificial island construction and laws on social responsibility for resorts.

Secondly, having the country join international SIDS organizations like SMILO and GLIPSA would be advisable, which could provide efficient counseling as well as collaborating with other SIDSs to solve common problems.

Finally, appealing to the collaborative work with resorts, promotion of ecotourism would be an efficient measure to merge economy, people and environment. The country cannot lack tourism; but sustainable development is necessary due to the dependence of the country's development on its environment.

Therefore, Mercury advised that apart from a tourism style that promotes sustainable development, part of the revenues could be intended to environmental conservation and social services. Saturn advised resorts to use renewable energy, as the country owns many clean energy sources like solar or wave energy.

7.3. Role of the identified development drivers

Returning to the development drivers explained in Section 6.2, this last part suggests several advices for each driver to foster a sustainable development in the Maldives.

Government

The main concern is maintaining democratic governments and control, and punish corruption to look for the population's wellbeing. Thus, government should promote resorts' social responsibility, pay locals back for the islands transferred to resort owners

for business. Sanitary service improvement should be a priority. Additionally, the government should manage natural islands and not create artificial islands. Another suggestion is the necessity to create monitoring tools to track tourism activity because, as Neptune explained during her work in the Ministry of Tourism, there was little track and therefore tourism costs are unknown.

Maldivian's role

Saturn remarked the importance of Maldivians' participation in tourism management. He explained that during his experience as a tourist he went to a resort managed by locals which apparently looked "lame" but, in the end, he enjoyed plenty of activities and ended to be better managed than foreign resorts which were managed from abroad and do not know the local culture. His lesson was that locals should have an opportunity to manage their national tourism. Nevertheless, he added that education should be combined with locals' entrepreneurial promotion. *"When you show, with humility, that people's biological diversity can be a big revenue source if it is sustainably managed, they would be the best managers."* Some initiatives are sustainable hostelry and hotel subsidies and biodiversity conservation education programs. This path would promote both environmental preservations along with social improvements.

Every agent should look for locals' necessities satisfaction and national culture respect, but on their side, locals should understand the role of tourism on their lives and participate in the benefits.

International Cooperation

Social and environmental development in the Maldives have played a secondary role. It is important that international cooperation, along with other entities, work on minimizing economic development's harmful consequences on the local population and its surroundings. Social and environmental progress needs to be balanced with economic progress. In this sense, International Cooperation should work from a multidisciplinary perspective looking for the implementation of sustainable development in the Maldives.

Promoting SIDS's know-how exchange and expert's knowledge contributions to solve island states problems would have great impacts. Other working areas which should be

considered are education, entrepreneurship, and inequality reduction and conservation programs looking for social, environmental and economic development.

Additionally, it is essential to monitor that economic progress does not increase unequal wealth distribution, favoring a few but maintaining under poverty to the majority.

Finally, international pressure through political incidence and communication campaign could have great results. The current society knows the glamorous face of the Maldives but is oblivious to the impacts that tourism is generating. An informed society could promote decision makers to improve tourism policies to more sustainable practices which look for a more efficient development model.

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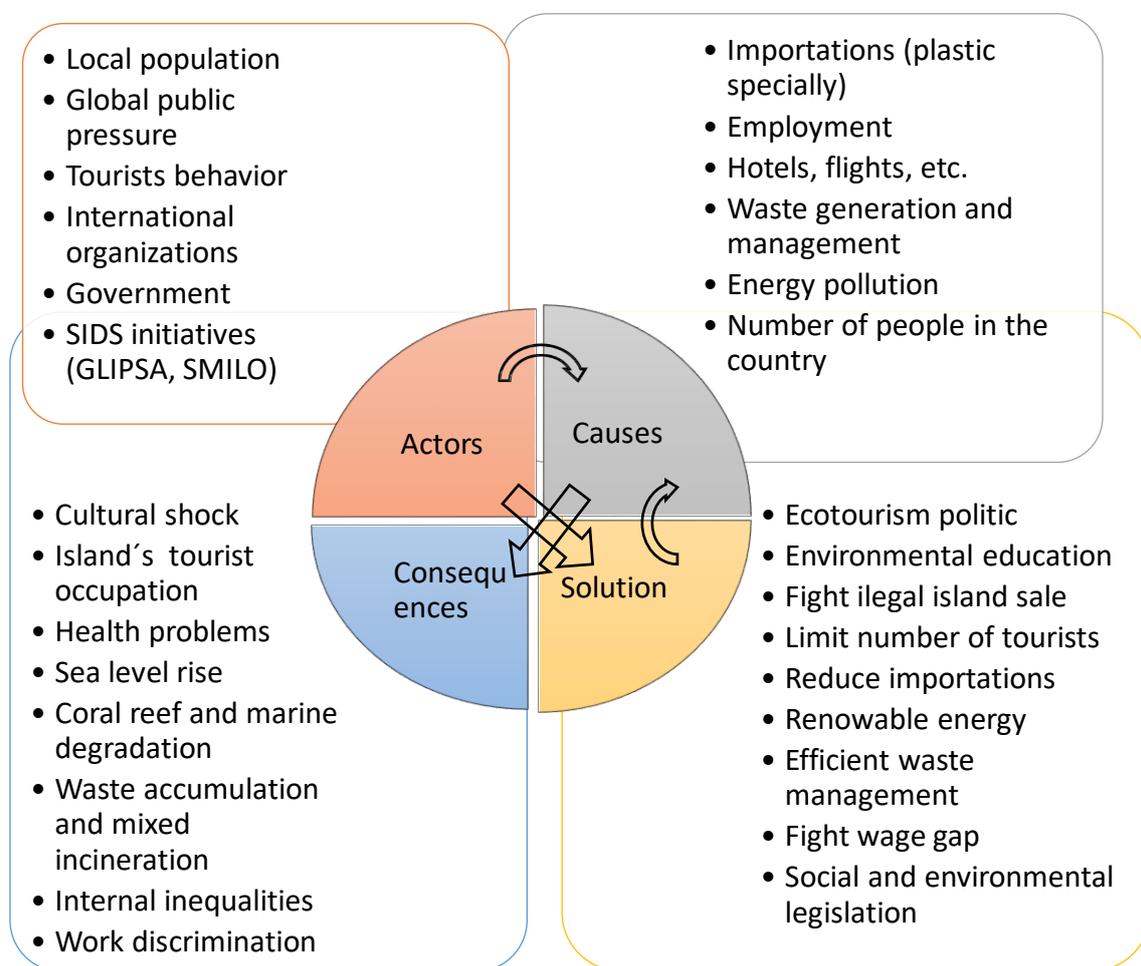
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9. Appendices

Appendix A: Summary of influence variables identified

As multiple variables of influence on the future of the country exist, the following graphic summarizes the main variables identified, representing the interdependence between them: any actor can promote negatively or positively to any cause, causes can influence on a consequence and, in the same manner, any actor can motivate solutions, which can impact on a cause. This means, for instance, that a positive action of the government can be directly an initiative of the government or due to the mobilization and pressure of population or the global opinion.



Graphic 3: Summary of variables in the case study. Source: own elaboration

Appendix B: Semi-structured interviews

The interviews always started with an introduction of the interviewer, her motivations to conduct the topic of study as well as a brief explanation of the research and the willingness to record the interview for internal transcription reasons. Once the interview was finished, the interviewer asked the interviewee to give her feedback about how the interview was developed in order to improve the methodology.

Three interviews were conducted via Skype for geographic limitations while the fourth interview was face to face. The queries exposed are the template used for each interviewee, but these questions oscillated during the interview. After each interview, the information was transcribed and classified in the different codes identified through the thematic analysis in order to organize and compare the information collected.

Mercury:

1. Could you explain me what do you work on? For how long have you been working on this sector?
2. Which peculiarities would you identify that SIDS have in their development model compared with other countries? How do you manage those peculiarities?
3. How does it affect to countries like Maillot and the Maldives the entrance of a tourism boom? In social terms? And economic? Political? Employment? Environmental?
4. How do you think it would affect to the economic system of SIDSs sea level rise? Or losing great part of coral reef?
5. Do you think it exists a debate, or a real wondering about the problem inside the local population? And in the elite population?
6. How can international cooperation and the economic sector maximize their personal interests? Is there any intention to change?
7. Is there anything you would like me to know?

Jupiter:

1. Could you explain me your professional career and what did your job consisted in the Maldives?
2. What is your opinion about the tourism politic developed in the Maldives? Do you think tourism is necessary for the Maldives?

3. How has tourism affected the Maldives' population? And their traditional economy? In terms of employment?
4. How are environmental consequences affecting locals? In terms of health? In terms of familiar economy? In terms of traditional customs? In terms of life making?
5. How does waste management work in the country? How does it affect to locals?
6. How could the country be managed in a more sustainable way? How could waste be less prejudicial for the country?
7. Which should be international cooperation's role in the Maldives? How could the sector operate to promote sustainable development? How is it operating currently?
8. Is there anything you would like me to know?

Saturn:

1. Could you explain me your professional career?
2. Why choosing Maldives as vacation destiny? When do you travel for the first time? Have you seen changes from the first time to the second?
3. What is your opinion about the tourism politic developed in the Maldives? Do you think tourism is necessary for the Maldives?
4. How has tourism affected the Maldives' population? And their traditional economy? In terms of employment? Environmentally?
5. How does waste management work in the country? Is waste accumulation visual for visitors?
6. How could the country be managed in a more sustainable way? How could waste be less prejudicial for the country?
7. Which should be international cooperation's role in the Maldives? How could the sector operate to promote sustainable development?
8. Any anecdote you want to share?
9. Is there anything you would like me to know?

Neptune:

1. What do you work on? What have you studied?

2. What is your opinion about the tourism politic developed in the Maldives? Do you think tourism is necessary for the Maldives?
3. How has it changed the way your parents and your family used to live and how they live now? In economic terms? In terms of employment? And environmental? In your life conditions? In common goods prices?
4. Do you know how waste is managed in the country? How does it affect to the society and the environment?
5. How do you think the country could be managed in a more sustainable way?
6. What is the role of international cooperation? How do you think it should operate to promote sustainable development?
7. Is there anything you would like to add?

Appendix C: Thematic analysis coding

The following tables were computed to code the information collected through the four interviews in order to select the topics that would be analyzed and explained in the research analysis.

Mercury:

Data extract	Code for	Possible topic
Tourism is a revenue source that improves people's life.	Potential of tourism as an economic tool	Relevance of tourism in SIDS
50% of the population works for the public sector in many SIDS. This is not economically sustainable for a country. Tourism helps to solve this situation.	Difficulties of SIDS economic development	Relevance of tourism in SIDS
Economic development in SIDS is complicated.	Difficulties of SIDS economic development	Relevance of tourism in SIDS
Coral reef is very valuable for tourism, conservation should be a priority. However, tourism is making a huge impact.	Interdependence of tourism and environment	Environmental impacts of tourism
Is unavoidable that some islands would disappear	Disappearance of the Maldives	Environmental impacts of tourism
Population are not conscious of what is happening.	Lack of knowledge of the situation	Local's perception of the current situation

Table 3: Thematic analysis coding from Mercury's interview. Source: Own elaboration

Jupiter:

Data extract	Code for	Possible topic
It has been created a monster and know they depend on it.	Economic dependence on tourism	Relevance of tourism in SIDS
Thilafushi is the biggest dump island but it exists more. Everything is transported together; it is accumulated and then is burnt.	Dump islands	Environmental impacts of tourism
Depends on the direction of the wind, polluted air reaches inhabited islands, which is very dangerous to breath.	Health problems related to pollution	Environmental impacts of tourism

Tourism is degrading the ecosystem, watervillages affects coral reefs, gray waters are dumped in the ocean, there are artificial beaches filled up by sand from other islands...	List of environmental consequences	Environmental impacts of tourism
There is a lot of bottled water. Counting all the visitors the amount of people in the country is more that the water available.	Lack of water due to tourism	Environmental impacts of tourism
I have seen historical maps of the islands and how beaches are disappearing.	Disappearance of beaches	Environmental impacts of tourism
People are not conscious of what is happening. They are accustomed to throw a fish they just ate to the sea and it disappears. They do not know how much time it takes to other types of waste to disappear. However, they complaint about the amount of trash in the islands.	Local's opinion	Local's perception of the current situation
Maldivian culture is very close. They don't used to speak good English and communication is complicated. There is a lot of cultural shock. They don't drink alcohol or eat pork and there are many stories of men that hides to observe tourism women on their swimming suits, as there are not costumed.	Cultural shock due to the massive entrance of visitors	Sociocultural impacts of tourism
Guesthouses have given locals more revenues, before they just work as employees for resorts owners.	Employment impacts	Sociocultural impacts of tourism
Fishing sector has a lot of pressure. They use craft working style but work on big pressure to reach both locals and tourists.	Impacts on traditional working sector	Sociocultural impacts of tourism
I do not believe it exists a weirdest country in the world. You see locals' conservatism against tourists' exhibitionism. There is a lot of people that do not know on what to spend their money.	Cultural shock due to the massive entrance of visitors	Sociocultural impacts of tourism
In the last elections it was registered high participation due to the dissatisfaction with the previous government. They have worked on enrich themselves more than working for the benefit of the population.	Former government's corruption	The Maldives' government
Tourism is a business especially for the government. Money is distributed between 4 people.	Former government's corruption	The Maldives' government
The government sales illegally islands for resorts building plus the leasing they get for the land. They know they have to deal with the waste problem, but they do not care anymore if you pay them.	Unethical acts of the government	The Maldives' government

International treaties are a shop window to catch international attention.	Former government role on the current situation	The Maldives' government
UNDP has many social and environmental projects: on equality, HIV, economic diversification, education...	UNDP projects on the Maldives	International cooperation role
International organizations impacts is very low, however the government is blocking part of their action whenever these actions reach their own interests.	International cooperation current role on the country	International cooperation role
International cooperation role should be to make international pressure to establish a moratorium on resorts' building.	International cooperation role advice.	International cooperation role

Table 4: Thematic analysis coding from Jupiter's interview. Source: Own elaboration

Saturn:

Data extract	Code for	Potential topic
Tourism has created many jobs: surfer guides, fish providers, diver guides...	Tourism creates jobs	Relevance of tourism in SIDS
There is no segregation of waste. Everything is accumulated and incinerated. Somethings, like polyethylene is used as an alternative fuel to move boats, which is a very bad idea.	Waste management	Environmental impacts of tourism
As they are starting to need more land, they are generating new ground made of coral crushed.	Artificial land creation	Environmental impacts of tourism
In Southeast Asia there is few environmental education. It is inherited as they used to eat a fruit and throw the leftovers. However, there is a general complaint from the population that watch their beaches filled up with plastic and once they clean it they watch it dirty again.	General population's perception	Local's perception of the current situation
Current education is a barrier. Population do not know that dumping plastic to the ocean is bad as well like we did not know 30 years ago.	Education as a driver	Local's perception of the current situation
It exists work differentiations depending on your nationality. A Maldivian captain but people that cleans and cooks are from Bangladesh. Bengalis work on the most precarious jobs, trying to send remittances to their families	Work discrimination	Sociocultural impacts of tourism

Maldivians have a traditional mentality: I get married young and have a lot of children.	Maldivian culture	Sociocultural impacts of tourism
Sanitary infrastructures are scarce and not improve due to tourism	Social services	Sociocultural impacts of tourism
They have just changed their government to an apparently less corrupt government. However, they have not still done anything, but hope they do not work like the previous. In the elections participation was high	Change of government	The Maldives' government
Reinforce environmental education to empower Maldivians. Whenever they know about the vulnerability of their natural beauty, they would be the best ambassadors.	Educational projects	International cooperation role
Fostering local entrepreneurship could be very beneficial	Entrepreneurial projects	International cooperation role

Table 5: Thematic analysis coding from Saturn's interview. Source: Own elaboration

Neptune:

Data extract	Code for	Potential topic
Tourism has entailed many benefits for the country. We used to be one of 29 least developed countries until 1979, but in few years the economy has been completely transformed and now it is classified as an upper-middle income country. Without doubt it has improved people's quality of life.	Economic progress through a tourism politic	Relevance of tourism in SIDS
Is impressive how a small country surrounded by sea has that used to be self-sufficient and with minimal exposure to the outside world has been able to progress economically. However now the country depends entirely on tourism and that is scary as now is impossible to imagine a life without tourism.	Transformation of the country and economic dependence on tourism	Relevance of tourism in SIDS
We used to lack services like transport that thanks to tourism now we enjoy.	Benefits from tourism	Relevance of tourism in SIDS
Resorts should have high standards for waste management; however, they do not burn waste because it would be seen by the clients and avoids transporting it to Thilafushi because it is expensive. They dump it to the ocean, this is the "secret that everyone knows".	Waste management	Environmental impacts of tourism

Waste management is one of the most relevant problems. We have zero infrastructure and the government do not recognize that open burn is done but is it.	Waste management	Environmental impacts of tourism
We are drowning in plastic. Our beaches, streets...	Waste accumulation	Environmental impacts of tourism
If you host in a guesthouse the beach area is nice but on the other side of the island, they burn trash every day. Imagine health impacts of this on a 5km island.	Waste management	Environmental impacts of tourism
There are no more natural islands left. They are creating artificial islands in the middle of the ocean. They steal palm trees and sand to build them. These causes many environmental impacts.	Artificial islands creation	Environmental impacts of tourism
People question when is this going to stop? How many lagoons and islands are you going to develop for tourism? Is the promise of employment still there?	Locals' complaint	Locals' perception of tourism
One third of the population is highly congested, living conditions are terrible and people complain about these a lot.	Locals' complaint	Locals' perception of tourism
Before guesthouses just few families and foreign investors own tourism revenues. This has generated a big unequal distribution of wealth.	Unequal distribution of wealth	Social impacts on tourism
There are no inhabited islands, all have been taken for other development purpose. Locals have lost their land, deprived from the beauty of their country. We must pay like a regular tourism for visiting what before was free and therefore many Maldivians do not have a chance to visit their own country.	Privatization of islands	Social impacts on tourism
We do not have many options to work on. We do not have industries. Either you fish or you work on tourism, and many young people do not want to fish. However, tourism jobs are not very sustainable, most do not need high technical skills and do not pay you more than 600 dollars. Most of the high qualified jobs are owned by foreigners.	Employment conditions	Social impacts on tourism
Many are paid 600 dollars a month and this amount is not enough for Maldives, as goods are very expensive.	Life conditions	Social impacts on tourism

We do have many resorts but lack of sanitary infrastructures. For instance, recently a newborn died because they didn't have incubator in the hospital. Is difficult to believe that this is happening in the 21 centuries, but even more in a country that we get so much wealth.	Sanitary service	Social impacts on tourism
The average person is struggling. They make a salary of 600 dollars and a house rent is minimum 200 dollars. I am 30 years and have a good job, but I know I would never rent an apartment on my own. Families must live together. Maybe the country is seeing the benefits because we are not.	Bad life conditions	Social impacts on tourism
There was an island where locals used to go for holidays and suddenly it was sold without consulting us, so we cannot go there anymore.	Privatization of islands	Social impacts on tourism
Government make a lot of good laws and regulations, but they are not implemented. We need more action to improve people's quality of life.	Government's action	The Maldives' government
Organizations should work to stop the creation of artificial islands and manage the natural ones.	International organization role	International organization role

Table 6: Thematic analysis coding from Neptune's interview. Source: Own elaboration