



Comité France - Territoires du Pacifique  
pour la coopération économique en Asie-Pacifique

# **“Resilient Islands and Territories in Asia-Pacific”**

**FULL REPORT**

As a concluding seminar to the series of seminars on “Circular Economy and Economic Development” which has consisted of a series of three seminars during the 2017-2018 period 1) the natural resources industries; 2) the tourism industry; and 3) mutual recognition of rules and standards to facilitate trade and foreign direct investment, the French Pacific Territories committee for PECC (FPTPEC) has organized in Papeete, French Polynesia a symposium entitled “**Resilient Islands and Territories in Asia-Pacific**”, that took place on January 20 and 21, 2020.

## WELCOME AND OPENING REMARKS

### Opening Address

Michel PAOLETTI, Chair of PECC French Polynesia

The PECC French Polynesia is very pleased to, once again, host a seminar. But, first, I would like to say that such a seminar could not take place without the help of the President of French Polynesia, who is here with us. Most of the means that have been provided, have been provided by the Government. So, once again, Honourable President, thank you because this symposium could not take place without you.

I welcome the presence of:

The High Commissioner of the Republic in French Polynesia, Mr. Dominique Sorain,

The National Chairman of our organisation, Mr. Pascal Lamy,

The newly appointed Ambassador and Permanent Secretary to France in the Pacific,

Madam Marine De Carné de Trécesson.

I would also like to welcome Mr. Kelly Asin-Moux, the President of the CESC,

Nabila Gaertner-Mazouni, the Vice-Chair at the University of French Polynesia,

And Maina Sage, our Member of Parliament.

This year's session will be very special. Thanks to the President of French Polynesia and to the translation services provided, all the presentations will benefit from instantaneous translation. Thanks to Yan Perseigaele to be here during these two long days.

I would like to introduce our international guests:

Juan Esteban Buttazzoni

Chen-Sheng Ho

Jean-Luc Le Bideau

Brian Lynch

Pascal Lamy

Charles E. Morrison

Douglas Pearce (invited by the University of French Polynesia)

Marc Reverdin

The PECC is an organization that was founded 40 years ago, and which has gradually developed. We joined the PECC thanks to the Parisian pioneers. It serves as a forum of discussions, which has evolved over time, with a substantial activity. More political units, which strengthen every year, have established over time in the whole Pacific region. It includes the world's most powerful economies, such as China and the United States, but also the Islands and the entire Pacific Rim. It is the world's "theatre", where many things happen, where the most important events (political, economic, social) take place. According to us (PECC French Polynesia), it is important that French Polynesia remains connected to the Pacific region and to what happens there. This is the third seminar in four years. And, if other seminars should be conducted in the future, we have now developed a stronger relationship with the University of French Polynesia. To my mind, these links will keep on strengthening and the University's commitment will become increasingly important, so as to take the lead in this matter.

The general theme of this seminar is thus resilience, which can be developed in different parts, including tourism, which is fundamental to the economy of French Polynesia. To this aim, I call on the Honourable President of French Polynesia to address his speech.

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## Opening Address

Edouard FRITCH, President of French Polynesia

*Honourable High Commissioner of the Republic in French Polynesia,*

*Honourable President of the French Committee of the Council of Economic Cooperation Pacific*

*Honourable Speaker of the Assembly of French Polynesia,*

*Honourable Member of Parliament of French Polynesia,*

*Distinguished Ministers,*

*Distinguished participants,*

*Dear friends,*

la ora na e Manava,

On behalf of the Government of French Polynesia and on my own behalf, I would first like to wish you a very good year 2020 and a very warm welcome to Tahiti. I hope that despite the tight agenda of the seminar, you will have some time to visit our beautiful islands, at least Moorea.

This PECC seminar, on the resilience of the Asia-Pacific islands and territories, is the third I have the honour to host since I was elected President of French Polynesia in 2014. It is always a pleasure and an honour to host personalities and experts from the region to discuss about issues that are common to our economies. This is a sign of openness to which I am deeply attached.

As I have had occasion to tell UN members in New York in October 2017: “I want a Polynesia that is modern, attached to its culture and open to the world.”

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Your exchanges indeed enrich our own thoughts on the direction we want to give our policy guidelines, and your views can reassure us or question our choices. That is what makes informed and respectful exchanges so interesting.

The topic of the first PECC seminar I had the honour to host in November 2015, was devoted to the development of maritime transport and the issues related to the future of port activities. We then learned that supertankers would become a priority for the maritime

transport of goods and we made the necessary decisions to not end up outside the trade routes.

In November 2017, we hosted the seminar dedicated to sustainable and responsible tourism, in which we were alerted to the difficulties met by certain saturated destinations, victims of policies that promote mass tourism. So, this confirmed the wisdom of our decision to opt for a policy more respectful of social and environmental balance.

This is why, it is with great interest that I welcome this third seminar on the resilience of the islands and territories in the Asia-Pacific region, which are, for most of them, beautiful and wonderful, but also fragile and vulnerable places.

Natural disasters and climate risks affect indeed all continents and all nations, large and small.

The news reminds us of this every day, and I have a thought of solidarity for our friends from Australia who have been suffering since September from terrible forest fires. This is a disaster that deeply impacts an economy, although it was well prepared against disasters.

I cannot imagine the consequences of a similar crisis in any island economy of our region and wonder if we will ever be sufficiently prepared to deal with such risks.

Experts tell us that the impact on island economies of natural disasters and climate risk is multiplied by five, given our geographical specificities and our fragile environment. We are **five times more vulnerable!**

To better get prepared, French Polynesia actively participates in regional work on the climate agenda of the Pacific Islands Forum, particularly regarding the fight against global warming and adaptation of our islands and our societies to its adverse effects.

The Forum Leaders consider that climate change is the primary threat which our economies are facing.

Therefore, we wrote it down in the Boe Declaration at the 49<sup>th</sup> Forum Summit in Nauru, which sets the regional framework of our actions in the field of security.

Common thematic regional issues are numerous. All Pacific economies are concerned by the rising sea level and global warming, loss of territoriality, weather disturbances, droughts, cyclones, floods, climate migrations or the risk of loss of exclusive economic zones if atolls were to disappear.

Dear friends, you will understand that it is vital for our island economies to get better prepared for the effects of climate change and build a resilient development, to make our societies and economic development tools more robust, and also our infrastructure networks and our tourism sector.

Your seminar is important to us, because the fruit of your exchanges will deepen our reflection on the protection of our islands and our people, and to better consider adapting

our productive sectors - the first of them being the tourism industry - to natural disasters and environmental and climate issues.

Dear friends, as a Pacific islander, I have a request: help us find the best ideas to become more resilient and better prepared for climate challenges that could affect our islands in the decade that has just begun.

I also have a special thought for the vulnerable: the elderly, people with reduced mobility or the disabled. Think about them in your discussions. They deserve, like all of us that we take care of them in a crisis situation.

I also want to stress the importance of your seminar which opens a series of preliminary meetings to the official visit in Tahiti of the President of the French Republic, Mr. Emmanuel Macron, in April. During this visit, the President of the Republic will indeed hold a France-Oceania Summit and a "One Planet Summit".

The climate issue, the resilient development and the "Blue Pacific Continent" will be at the forefront of concerns. And it is in terms of means and resilience solutions that will be brought to our island nations that these international meetings will be judged.

Finally, to conclude, I would like to thank the organizing committee of French Polynesia PECC for its commitment and dedication to our economy. I know how involved you are, and I know that you work with very limited resources to bring all the experts around issues that concern us directly. *Mauruuru roa.*

I look forward to the lines of thought that the high quality of participants in this conference will highlight.

Thank you for your attention, I wish you fruitful exchanges and a good seminar.

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## GENERAL INTRODUCTION

### The Islands are making a comeback

Pascal LAMY, Chair of FPTPECC

I would like to take this opportunity to present you some considerations that guide the long-term approach of PECC France and its work programme, of which our seminar is an illustration.

One of the characteristics of our participation in PECC, this intellectual matrix of Asia-Pacific Economic Cooperation (APEC), is due to the specificity of the French presence in the Asia-Pacific region: it is insular.

Probably, this participation is now part of an Indo-Pacific vision developed by the President of the Republic, which he will undoubtedly have the opportunity to reiterate during the next France-Pacific Summit. But it is also my conviction, and I am speaking here also as President of the Paris Peace Forum, who wants to renew a multilateralism that is in poor shape, that the islands are, somehow, back on the international stage of the 21<sup>st</sup> Century.

Back, I said, because they have played a major international role until the Industrial Revolution: in the birth of Mediterranean civilization, at the time of the great European or Chinese discoveries, in the Austronesian migrations. Why? Because of their importance as ports of call and therefore as links in the age of sailing, their role as checkpoints on key trade routes, including as haunts of freebooter.

The advent of the modern era and the Industrial Revolution has mitigated the importance of this geo-economic, geopolitical and geostrategic position.

Giving way to mainland territories, the intensive exploitation of the earth's resources, large enough spaces to provide tremendous energy resources, crowds of workers, masses of soldiers. Rooms for the famous economies of scale that increase the efficiency of market capitalism with size and concentration.

In the era of globalisation, island territories have thus become marginal, vulnerable, handicapped, remote from the centre of the great machine of globalisation and the international division of labour.

#### **Why, therefore, should we give them importance again today?**

The answer lies in one word: **ecology**.

The Anthropocene, as scientists call it, that modern era of humanity, which separates island systems from the great demographic, economic and political streams, is also, as we have



learned over the past fifty years or so, the era of environmental degradation. And this degradation affects first and foremost aquatic, marine and oceanic spaces and island territories, which are more exposed than continental groups to the damage caused by global warming or damage to biodiversity.

Islands are recovering an important place in the international arena because they are in the front line in the face of these pressures, because they are the mirror that gives us the image of our threatened planet, because they are the laboratory for mitigation or adaptation policies that are now unavoidable, in short, because they embody most of the challenges of the 21<sup>st</sup> century, the new hierarchy of which we are now familiar with. Just have a look at the 2020 edition of the WEF <sup>1</sup> report on global risks that has just been published to be convinced of this: in twenty years the main risks have shifted from economic crises to technology, then to social inequalities and now to environmental risks.

Hence, the programming of these two days of work, mainly focused on the question of the resilience of island economies to climate change and the climate phenomena it generates.

Hence, a renewed interest from the European Union in ocean issues, which will be prominent in the next Community Framework Programme for Research.

Hence, the emphasis placed in the preparation of the next Euro-Pacific Partnership, as a follow up to the Cotonou Agreements on renewable energies and the circular economy.

Hence, the effort to make people understand that our future is not only being played out in the atmosphere, which public opinion finally perceives, but also in the aquasphere, which is even more important for our planet, so as to mobilise public opinion on these issues.

So, the islands are back into the global issues. It is up to all of us, whether we live in the Pacific or elsewhere, to safeguard their future, to invent a sustainable Blue Economy and to give them the place they deserve in international cooperation. In short, to respond to the appeal we have heard both from President Edouard Fritch and from the High Commissioner.

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<sup>1</sup> World Economic Forum

## Overseas Trajectory 5.0

Dominique SORAIN, High Commissioner of the Republic in French Polynesia



*Honourable President of French Polynesia,*

*Honourable Member of Parliament,*

*Honourable President of the Economic, Social, Environmental and Cultural Council,*

*Honourable Chair of the French Committee of the Pacific Economic Cooperation Council  
(Pascal LAMY),*

*Honourable Chair of the Polynesian PECC Committee (Michel PAOLETTI),*

*Ladies and gentlemen members of the PECC,*

*Ladies and gentlemen,*

Before presenting the dynamics of the Overseas Trajectory 5.0 in which the overseas communities have committed with the French State, I would like to say a few words about the importance that France attaches to the Pacific Economic Cooperation Council (PECC).

France joined the PECC in 1997 as an associate member through its three overseas communities in the Pacific: Wallis and Futuna, New Caledonia and French Polynesia. Since then, there has been an ongoing commitment in this field.

Michel ROCARD was the one who contributed to securing France's presence in this international body from 2001 to 2016. Particularly involved in Pacific affairs, convinced of the need for regional integration of French local authorities in order to meet the challenge of their sustainable development, Michel ROCARD engaged himself for fifteen years in the PECC's work.

I still remember Michel ROCARD's words on climate emergency that impressed people, and which are now more relevant than ever because the situation is nowadays particularly critical.

Since its creation 40 years ago, the PECC's role has become more important with the creation of the APEC (Asia-Pacific Economic Cooperation), an intergovernmental economic forum, for which the PECC serves as a resource and assessment centre.

I know that Pascal LAMY, Chair of the French Committee since 2016, is working alongside existing bodies to strengthen economic relations in the Pacific zone.

The President of the Republic recently had the opportunity to recall the great importance he attaches to this area, as he indicated during his official visit to Australia in May 2018. He called for the foundation of an Indo-Pacific area based on shared values, interests and objectives.

Besides, I had the opportunity to reiterate this during a recent symposium at the university, which allowed us to get to the heart of this issue, an issue that the President of the Republic will develop during his visit in April, especially during the meeting of the Pacific Islands Forum (PIF) and the One Planet Summit (OPS) that will take place on that occasion.

Today, the political will is to develop a closer partnership between States of the region, to address issues that are of common concern, particularly security and economic development, with the aim of ensuring the well-being of populations and resilience to climate change, the effects of which are imposing to all of us. The measures to be implemented to achieve sustainable development are at the forefront of our concerns.

The theme of 'Resilience', which will be discussed during this seminar, is already an important topic that fostered sustained dialogue among nations, and we thank you for choosing it. And indeed, we know that resilience, that means the ability of societies to adapt to shocks of different kinds and to their consequences, is a necessary condition for sustainable development, I do not need to convince anyone in this room of that fact.

However, resilience is not self-evident. All societies have developed their own resilience skills, but we must be able to identify, strengthen and leverage them if we want to implement successful public policies.

In order to create this new dynamic, the executive presidents of eight Overseas territories, including French Polynesia, signed the Overseas Trajectory 5.0 charter of commitment with the French State last July.

But this strategy is also the result of discussions and consultations, which were initiated during the Overseas Conference ("*Assises des Outre-mer*") and the great national debate afterwards. The Overseas Trajectory 5.0 is a pragmatic strategy; it is based on initiatives that are already underway, in order to create a profitable synergy in the economic, social and environmental fields, the three pillars of sustainable development.

The Overseas territories and the State are working closely together, by inviting all components of the society - businesses, non-governmental organizations, citizens, etc. - to contribute to the achievement of **five objectives** by 2030:

- **Zero vulnerability,**
- **Zero carbon,**
- **Zero waste,**

- **Zero agricultural pollutant,**
- **Zero exclusion.**

These five objectives are related to the most prominent challenges our overseas territories are facing. These challenges, which you all know, have been identified for a long time: geographical features that lead to isolation, remoteness, narrow markets.

We can consider that the challenges which must be addressed mainly consist of extreme vulnerability to external shocks, a vulnerability to which the Trajectory 5.0 aims to provide appropriate responses. First and foremost, vulnerability to natural hazards: floods, cyclones, tsunamis, and for some, volcanic eruptions.

In French Polynesia, resilience to risks has developed, on the one-hand, thanks to the knowledge of the populations living in the five archipelagos of their own environment. I am not the only one to admire the relation that Polynesian people have maintained to nature.

On the other hand, resilience to risks has been strengthened by planned procedures in case of emergency, with **four main priorities**:

- **To rescue exposed populations,**
- **To ensure continuity or restoration of basic services,**
- **To ensure public information,**
- **To maintain public order, if necessary.**

These missions fall within the responsibility of the French State, which is in close collaboration with local authorities of French Polynesia and municipalities. The guidelines to follow and the preventive measures cannot be improvised; they are designed in consultation with all the relevant stakeholders, on the basis of the general mechanism of the ORSEC plan ("*Organisation de la Réponse de Sécurité Civile*"). Tomorrow, the Director of the Civil Protection Department will be presenting how to take into account those risks and how public authorities have organized themselves to ensure people, property as well as environmental protection in French Polynesia. Indeed, this is the zero-vulnerability objective of the Trajectory 5.0 which is addressed, that means to strengthen resilience to natural hazards. I am particularly referring to the construction of survival shelters.

Climate change, which affects our planet, is causing weather events that generate natural hazards. We can thus relate the zero-vulnerability objective that I have just mentioned and that of zero carbon of the Trajectory 5.0.

Reducing greenhouse gas emissions, which contribute to climate change, is a necessary condition for maintaining ecosystems, including humans. Our overseas territories have a considerable environmental potential and developing the use of renewable energies entails clear benefits.

First and foremost, these green energies will allow to restrict the use of fossil fuels, which are extremely polluting and which we know will eventually be depleted. This will contribute to reduce a second vulnerability, which is economic, to external shocks resulting from unstable situations in oil producing economies in the Middle East or South America.

And French Polynesia has tremendous assets and sets an example, in many respects, particularly in terms of innovation through the development of SWAC (Sea-Water Air Conditioning) technology. The SWAC projects, already existing or upcoming, are challenging - hotels, hospitals, administrations in Papeete - but in line with French Polynesia's requirement to environmental safeguard.

Public transportation is not to be outdone. RTCT (*"Réseau de Transport en Commun de Tahiti"*), a public service concession company, which is currently renewing its fleet, has received tax aid from the State for the first phase of the acquisition of 63 vehicles out of a total project of 240 modern buses, one third of which will be 100% electric. It took delivery of 12 new buses at the end of last year. In 2019, seven electric buses started operating within the urban area of Papeete. These efforts help foster reliability in the public transport supply. The long-term objective is to be attractive enough to encourage users to leave their private vehicles and shift to buses, and thus reducing road traffic. Once again, public policies are fully in line with the Trajectory 5.0.

Similarly, the initiatives participating to fight against single-use plastics are in line with the Trajectory 5.0. I am thinking, for instance, of the awareness-raising actions which were carried out by associations and citizens' groups, or the introduction of deposits on plastic bottles. In general, all the actions related to circular economy aim to achieve the zero-waste objective of the Trajectory 5.0 and this requirement is already in line with the Climate Energy Plan implemented in French Polynesia.

The zero agricultural pollutant objective of the Trajectory 5.0 is also aligned with the concerns of Polynesians. I am referring to the initiatives undertaken by some elected officials to ban the use of pesticides. And here, I would like to welcome the excellent results published last September by the Department of Agriculture concerning its analyses of pesticide residues on both local and imported fruits and vegetables, which are conducted twice a year. These analyses show that 95% of the local products tested meet health standards, compared with 81% for those imported. 67% of local products is free of all traces of pesticides, compared with 25% of the imported products.

I would also like to mention all the operations conducted by the State, the economy, the municipalities and the civil society actors, to build an inclusive society: aid for access to housing, support and help of the neediest people, measures to fight against school dropout; here are some examples of initiatives that the zero exclusion objective of the Trajectory 5.0 aims to entrench.

Combatting exclusion also consists into establishing some tools to cease isolation. We can only welcome the new digital infrastructures that allow all the archipelagos of French Polynesia to be linked to each other but also to the rest of the world. This is a major challenge that will enable children to benefit from distance learning, the population of the islands to benefit from immediate care services thanks to telemedicine or to have access to public services thanks to the dematerialization of administrative procedures. Digital technology is an indisputable tool for territorial continuity in French Polynesia and could eventually enable the economy to position itself as an interconnected platform in the South Pacific region. Naturally, the State supports all of these efforts, particularly through the national tax exemption system.

Through all these concrete examples, which are not exhaustive, I wanted to highlight two simple ideas: first of all, that the Overseas Trajectory 5.0 is a dynamic that **everyone can join**: public institutions, decision-makers, elected representatives, businesses, associations and citizens.

Second of all, that this **strategy is based on existing systems** and aims to perpetuate them. The creation of an “Overseas Trajectory 5.0” label will allow to provide greater clarity to both public policies implemented and initiatives of civil society, by illustrating the commitment of all actors to meet the challenges of a sustainable development.

## Conclusion

Finally, I will conclude my remarks by telling you that each overseas territory is different: the issues are surely similar, but they are considered and addressed in line with the specificity of each population, according to their cultural legacy, which I believe is of paramount importance. It would thus be a mistake to suggest to all the Overseas Territories a standardised tool to address the same issue, because the solution is inevitably different. Societal structures must be taken into account, such as the relationship to nature or existing economic systems. This is the very reason why all components of the society are invited to commit to the Trajectory 5.0, to seize it and to develop the most appropriate tools to the local context.

The French overseas departments and territories, while rooted in the Republic, are part of a particular regional group. As you know, I had the opportunity to serve this Overseas France, as Prefect of La Reunion, Prefect of Mayotte and also Chief of Staff to the Minister for Overseas France.

The French Archipelago is rich in its overseas territories located in three oceans and two hemispheres. And this is also why France sparks interest. The experiments that succeed arouse great interest. They give the overseas territories an undeniable value added and enable them to position themselves within their region.

For several years now, the overseas territories have requested to become the frontrunners to France and the European Union in their region. There is no doubt that they are, even if I am aware that this request actually covers another one, the success of a regional integration, without which development cannot be fully sustainable.

I can assure you that the State intends to develop alongside French Polynesia its relations with the developing island States. In accordance with the wish of the President of the Republic, a World Islands forum should take place this year.

I shall follow your work carefully and am confident that your discussions will shed light on and enrich many of the initiatives carried out in French Polynesia.



## **THEME 1:**

# **HOW TO PREPARE PACIFIC ISLANDS AND TERRITORIES TO NATURAL RISKS?**



## INTRODUCTION: A CHANGING GLOBAL ENVIRONMENT

### **The Indo-Pacific Strategy for the development of the Asia-Pacific Region**

Marc REVERDIN, Secretary-General of Paris Peace Forum

1. First of all, a word about my legitimacy to speak on this subject. I am thus very interested in Pacific issues however, my official function, as Secretary-General of the Paris Peace Forum, keeps me quite far from the regional stakes of the Pacific, except through certain thematic prisms, such as climate issues, oceans, or dialogue with China. This is not insignificant, but as this Forum is not a geopolitical forum, I am not led to deal with specific regions, even if Southern Pacific is at the forefront of these specific challenges.

However, my interest in Pacific issues was sharpened when I served as diplomatic adviser to Pascal Lamy in the context of France's bid for the World Expo, since Pascal Lamy had the good taste to involve me in his work within the France-Pacific Territories Committee, which I ended up joining as an active member. Since then, I have continued to follow the activities of this dynamic committee, led by the excellent Jean-Luc Le Bideau, who is here with us today, and I have tried to interface with the Quai d'Orsay, but also with other ministries or organisations such as the ministry of Interior, Bercy or MEDEF International.

All this to say that my words do not commit the French authorities, that I am not in an official position but an observer, a fortiori a non-specialist, and therefore my comments are only the modest product of my personal reflection on the subject.

2. Let's get to the point: the **Indo-Pacific strategy for the development of Asia-Pacific**. This title, which I have not chosen, is interesting in that it is more than just a title, it is already a kind of thesis, in that it attributes from the outset a finality to the Indo-Pacific strategy, which would be the development of Asia-Pacific.

I have chosen not to dwell too much on the tension between the geographical concepts of the Indo-Pacific and Asia-Pacific, which obviously do not overlap exactly with the same realities, since the Indo-Pacific can be defined in a way as a subset, a vast and dominant subset of the Asia-Pacific reality, but a subset all the same. But if the concept of Asia-Pacific is understood as the set of territories located on both sides of the Pacific Ocean, which paradoxically is a sort of territorial concept, it is also possible to think of the Indo-Pacific as the maritime translation of this concept. Indeed, we can certainly think that India, the other emerging giant of Asia, is one of the two determinants of this concept, in a symbolic substitution approach to its great Chinese competitor, but it is rather the Indian Ocean, as a counterpoint to the Pacific Ocean, that justifies in my view the use of the term Indo-Pacific. In this latter perspective, which I favour and which is consistent with Pascal Lamy's explanations on the return of the islands in the big geo-economical game, the deployment of

an Indo-Pacific strategy would contribute, by taking full account of the maritime component of the region, to the development of the territories bordering these two vast oceans, that is to say Asia-Pacific as a whole.

Over and above this geographical question, which I shall quickly resolve here through the prism of land and sea, the fact remains that what seems essential to me is rather the purpose that we attribute from the outset to the Indo-Pacific strategy, namely, that of the economic development of Asia Pacific. For is it really this purpose that motivated the emergence first of the Indo-Pacific concept and then of the strategy, or rather strategies of the same name? Was it purely from an economic perspective that Australia, New Zealand, Japan, then India, the United States, France and finally the European Union installed and then translated this geographical concept into a strategy? At a time when China is emerging as the new world superpower, deploying its international development through the prism of the new Silk Roads, one might doubt it, but I want first, before turning my attention to the strategies themselves, to say a word about the Indo-Pacific concept itself, because it is indicative of this tension.

**3.** It is indeed permissible to pose the Indo-Pacific concept without immediately tinting it, as one might be tempted to do, with suspicion of anti-Chinese ideology or innuendo. For this space translates a reality, that of a new spatial unity, which has asserted itself thanks to globalization, between the Pacific Ocean and the Indian Ocean. The cement of this unity is mainly economic, since it is international trade that has contributed most to linking the different parts of this new geopolitical entity, and beyond with the Mediterranean via the Middle East. An Indo-Pacific power par excellence, which is a paradox, China itself is today significantly present in the Indian Ocean, both through its investments in a string of ports that punctuate the coastlines of this vast area, and, thanks to the fight against piracy since 2008 and precisely to protect the trade flows that are essential to its development, in military matters.

While this concept was first used by Australia in 2013 in its defence strategy, it quickly flourished in Japan from 2016, in the United States at the end of 2017, and also in France from 2017 onwards, where the integration of the maritime components of Oceania and India into a single concept naturally echoes the historical location of its overseas territories - seven departments and communities with 1.6m French nationals - on these two oceans. In the latter case, it could be said that the march of the world, by economically unifying the Indo-Pacific space, leading several nations in the area to appropriate the concept, has given France the opportunity to finally rethink the region in the light of its own presence within this vast space.

However, it is obvious that the promoters of this concept were not all driven by totally innocent motives, because behind the watermark of such a concept there is naturally a great unthought idea, or rather a “hyperthought” idea, which is China, by far the leading Asian power and located at the very heart of this Indo-Pacific space, of which it is also the leading

economic and, to some extent, geopolitical driving force. It is a position of strength that several states naturally fear will become dominant, even hegemonic. Hence the need both to redefine this great space by a concept that qualifies or marginalizes Chinese omnipresence - forcing, if I dare say so, the middle empire to remain on the periphery - and at the same time offering an alternative narrative to the concept of the new Silk Roads.

In this sense, the Indo-Pacific concept takes on a distinctly more political or geopolitical, even ideological hue, since it leads to a kind of conceptual humiliation of China, which is not mistaken in showing itself to be particularly reserved with regard to this new definition of the region. Further on, there is naturally, among the promoters of the concept, a form of community of values, which leads the Indo-Pacific to become the other name for an alliance between the American, Australian, Indian, Japanese and French democracies, all more or less explicitly determined to contain China's strategic emergence in the region.

**4.** There are therefore **two ways of thinking about the Indo-Pacific space**, and two ways that are certainly not neutral, as they naturally determine the contours of the strategic options that arise from it. A strategy is a set of complex and coordinated actions that contribute to the achievement of a global objective. This global objective may vary: to use the title of my speech, it may be the development of Asia-Pacific, this is my hypothesis A. But this objective can also take on a more geopolitical colour, if the aim of such a strategy is to contain the geostrategic emergence of China, this is my hypothesis B.

In hypothesis A, namely the first definition of the Indo-Pacific, we think of the Indo-Pacific space for itself, in consideration of its challenges and its own issues. It is a neutral vision in that we define objectives strictly in terms of reality. It is a pragmatic and non-ideological approach. It is the one that several States in the zone, including in the South Pacific, favour in order to make the most of the opportunities offered by the largest economies without having to choose for one or the other economy in what would seem to be a bloc logic. This Indo-Pacific strategy thus quite naturally comprises different components, geopolitical, military, economic, cultural, etc., and focuses in particular on its main challenge, climate change, or the thorny issue of governance of the oceans, the main economic resource of many economies in the region, particularly in insular Pacific.

The other definition of an Indo-Pacific strategy is obviously much more divisive. For it aims at an objective that is not the Indo-Pacific itself, but precisely that other objective that the Indo-Pacific concept intends to eliminate or erase, namely China. To take up Kantian morality, in the first case the Indo-Pacific is taken as an end, in the second case it is used as a means. In the first case the Indo-Pacific strategy is conceptually coherent in that it takes precisely the Indo-Pacific as its object. In the second case the Indo-Pacific becomes purely instrumental and the strategy that bears its name has in reality only China as its real object. However, it is not certain that this strategy will ultimately be economically beneficial for Asia-Pacific.

5. The question that then arises is the following: **under what conditions can Indo-Pacific strategies contribute to the development of Asia-Pacific?** It seems to me that the parameters are quite simple. If it is simply a matter of preventing China from investing in the zone to dry up its development levers abroad and thus cause it to stagnate economically, it is highly likely that Asia-Pacific, and in particular the island Pacific, will wait for this approach, for one simple reason: the economies likely to offset the Chinese investment deficit are far from being able to do so. If we take the American example, which makes no secret of its anti-Chinese approach, the total amount of public investment certainly amounts to some €400 million, but 75% of it is devoted to security issues, i.e. serving American weapons companies. The additional **€100 million** announced in 2018 to silence criticism of an Indo-Pacific strategy that is too military-oriented and military-oriented seems very low in view of the size of the zone. Moreover, the Sino-American trade war provoked by the Trump administration after abandoning the Trans-Pacific partnership necessarily nuances the American discourse in favour of the development of the region. As for France, the few millions devoted to the development of the Pacific islands can hardly compete with the amounts commercially committed by the Chinese giant in the region.

However, the volume of investment is certainly not the only guarantee of economic development in the Asia-Pacific region, because the very conditions of these investments must also be questioned if they are to be sustainable and do not suggest that they could be part of purely hegemonic projects, or at least utilitarian or dictated by the search for short-term profit alone, on the part of China. Further, the development of Asia-Pacific implies that Indo-Pacific strategies must include, in order to be relevant, the implementation of a certain number of policies capable of creating the conditions for sustainable development in the area. To mention only the Pacific islands, which is the subject of this seminar, it is essential to take into account in particular the climate issue, the protection of biodiversity and the oceans, but also the migration issues, including environmental issues, the fight against cross-border crime, illegal fishing and trafficking in drugs, counterfeit goods and even human beings. More fundamentally, the Indo-Pacific region faces many challenges for peace and security, human rights, proliferation, freedom of navigation and respect for international law, with, beyond the insular Pacific, several hotbeds of crisis (North Korea, Taiwan Strait, China Seas, India-Pakistan, etc.).

### Conclusion

In this context and to conclude, while it would be inappropriate to reject outright any form of Chinese economic expansion in the Asia-Pacific area, since this represents a real opportunity for economic development for the whole area, it is nevertheless permissible to demand that Indo-Pacific strategies, including China's Indo-Pacific strategy in the framework of the new Silk Roads, should incorporate, in a multilateral framework, the most advanced environmental and legal standards to enable the area's development to be genuinely

sustainable in the long term. Despite the limited financial resources deployed by France as part of its Indo-Pacific strategy, in view of the commitments of other powers in the area, it is this balance that largely includes the issue of values that France is seeking to implement with the support of the European Union. This will obviously be an approach at the heart of the One Planet Summit that the French Presidency plans to organise in Papeete in the spring.

But it will only be a step towards more essential deadlines, and in particular, in terms of climate change, the COP26 in Glasgow in November, to which the next Paris Peace Forum, to be held at the same time, will make a significant contribution, a COP26 where it seems essential that the Pacific Island States make their voice fully heard on the need to promote economic development that integrates sustainability parameters as much as possible into growth strategies.

Thank you very much.

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## The Trump Administration's Free and Open Indo-Pacific Strategy (FOIP)

Charles E. MORRISON, Adjunct Senior Fellow at the East-West Centre

### Topics addressed:

- The U.S. Free and Open Indo-Pacific Strategy (FOIP) in general and continuities with past U.S. policies;
- Drivers (with some emphasis on the China dimension) and Criticisms of FOIP;
- Increased Geopolitical Competition in the Pacific Island region;
- The Indo-Pacific Policy in the Post-Trump Era

### 1. The U.S. Free and Open Indo-Pacific Strategy (FOIP) and its continuities with previous U.S. policies

For U.S. foreign policy in general, and in the Indo-Pacific region, there are two approaches that often appear to move in somewhat different directions: first, declaratory policy rooted in traditional American interests in areas such as rule-of-law, free market, support for multilateralism, peaceful settlement of disputes and respect for human rights; and, second, the America first approach associated with President Donald Trump, and focusing primarily on bilateral “better deals” for the American people with key economies. For example, the trade and technology dispute with China, the opening with North Korea, and the requests more much greater burden sharing from Japan and South Korea are rooted in the second approach. The FOIP is mostly associated with the first approach and is rarely mentioned in the bilateral deal-making context.

Marc has already talked about **the Indo-Pacific terminology**. The US government was a little late to use this term, which originated with Australia and Singapore, and was also adopted officially by Prime Minister Shinzo Abe in Japanese policy in 2016. The U.S. FOIP was announced by President Trump in Vietnam in November 2017. Since it comes from the first foreign policy approach, it has a lot of similarities to Obama administration policy, originally known as the “pivot,” and then later and more officially as “Rebalancing towards Asia” strategy.

I will focus on some of the commonalities of the Indo-Pacific policy with the rebalancing, and then some of the significant drivers and differences. One of the key commonalities is prioritizing Asia as systemically the most important part of the world for the future of the US for several reasons.

- First, more than **50% of the global population** lives on less than 20% of world's Indo-Pacific land area, which includes two giant economies with more than 1 billion

people each. This area is rapidly growing economically with large shares of the world's production, trade, and savings.

- And there are something like **6 of the world's largest militaries**, and 4 nuclear powers in the Indo-Pacific: China, India, Pakistan, and North Korea. With Russia and the United States added, there are 6 nuclear weapons economies.

Other **commonalities with the previous administrations' policies** include:

- **Strong emphasis of working multilaterally with allies and partners** – the FOIP is called “a shared vision”.
- **Engaging international organizations**, particularly **ASEAN**.
- **Being inclusive**, not excluding any economy or asking any to choose sides, but setting out shared goals and norms.
- **Continuing many specific programs from the earlier administrations** while building new ones associated with contemporary Indo-Pacific strategy.

## 2. Drivers and Criticisms of FOIP

As for the new emphases, there are **three major drivers**. None of them are really discontinuities since all are rooted in past policies but they have been given enhanced emphasis by this Administration. These might be summarized as 1/ bringing the Indians in; 2/ as pressing the Chinese on rule of law, freedom of choice, and other issues of importance to a fair and sustainable Indo-Pacific order; and 3/ preserving the U.S. influence in and partnership with the region as a regional balancer, especially vis-à-vis China.

### 2.1. Drivers of FOIP

#### Why did the name shift from the “Asia-Pacific region” to the “Indo-Pacific region?”

The principal reason is to include India, which since the 1970s has usually not been considered in the United States as a part of “Asia-Pacific”. This is reflected in the membership of APEC, which does not include any South Asian economies. Unlike the Japanese concept of Indo-Pacific, which includes two oceans (Indian, Pacific) and two continents (Asia, Africa), the official American definition of Indo-Pacific is from the western edge of India to the western edge of the United States, putting a symbolic line down the middle of the Indian Ocean, congruent with the areas of responsibility of the Indo-Pacific and the Central Commands. But like the Japanese concept, and I believe the Australian and French concepts, it is also intended to increase the weight of those balancing China.

I will not discuss India at length but note that there are six main drivers of deepening U.S. relations with India. These are:

- **Common values and aspirations** - the most traditional interest,
- **Geopolitically compatible interests** in Asia,
- Growing **economic interdependence**,
- **People-to-people ties**, including about 150,000 overseas Indian students in the US,
- Interests in **non-traditional security issues**,
- **Indian-American community** of about 4 million people, which is the wealthiest ethnic community in the United States, and increasingly politically active.

Now let me turn to China. In the U.S. Defence Department report on the FOIP, China is seen as having aspirations for regional domination and even global domination, aspirations that could constrain the freedom of smaller economies. An important part of the FOIP, in Administration rhetoric, is to ensure that these smaller economies have adequate protection and to provide additional options for the regional economic development.

Under the previous administrations, the main thrust of U.S. policy was to engage China in the hopes that China would increasingly become a responsible stakeholder in the system. I was recently listening to a Japanese professor saying that this approach is now considered a failure because China did not become a democracy. I do think there has been disillusionment with the previous engagement approach, but this is not so much about democracy as it is about the belief that China is in important ways becoming less rather than more a responsible stakeholder in the international system. In many American eyes, the calls by Xi Jinping for “national rejuvenation” sound nationalistic and expansionist.

In particular, there have several **key areas of U.S. concern**:

- On the **politico-security side**, China’s extensive claims in the South China Sea, its building of artificial islands, its unwillingness to settle disputes through international law, and its militarization of its islands despite assurances that it would not militarize them;
- On the **economic side**, the “Made in China 2025” program on its face appears incompatible with the international rules as it requires technology transfers as a price for doing business in China, fails to provide adequate private intellectual property, is seen as not provided reciprocal benefits for foreign businesses.
- Also on the economic side, the Belt, Road Initiative (BRI) is viewed skeptically as a scheme to extend China’s economic reach for geostrategic advantage.
- **Human rights** remain a deep concern, especially with regard to the Muslim minority in Xinjiang.



These views helped set a stage for significantly tougher U.S. China policy under the Trump Administration which have been backed up by trade and tariff sanctions.

The **Belt Road Initiative** (BRI), which three years ago did not attract much American attention, has become a matter of deep concern for the FOIP. Many of the U.S. FOIP programs and funding are intended to provide financing alternatives and strengthen the ability of developing economies to evaluate financial, environmental and other risks that may be associated with BRI, and most of them are not exclusive U.S. programs but collaborative programs with other Indo-Pacific government. For example, FOIP-related programs that appear to directly **counter the BRI include:**

- **BUILD Act** – a global, not just Indo-Pacific program that created a new International Development Finance Corporation (DFC) to leverage private investment in low- and medium-income economies with more flexibility than the old OPIC. Passed in 2018 with bipartisan support.
- **Blue Dot Network Initiative** – multi-stake initiative expected to serve as a globally recognized evaluation and certification system for roads, ports and bridges. (With Japan, Australia).
- **Regional Energy Investment.**
- **Japan-US Mekong Power Partnership.**
- **US-ASEAN Smart Cities Partnership:** smart cities solutions and cybersecurity investments.
- **Infrastructure Transaction and Assistance Network and Transaction Advisory Fund.** Provide analysis of financial and environmental impacts of infrastructural projects.

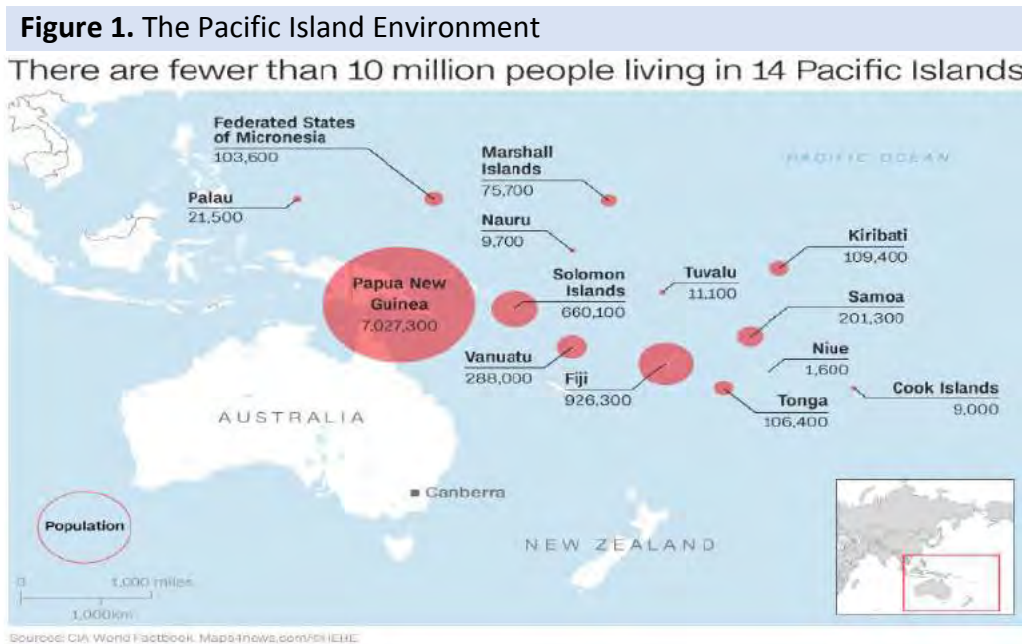
## 2.2. Criticism of the FOIP

Within the foreign policy community in the United States, there are three main lines of criticism of the FOIP. These are more about the manner in which policy is or is not pursued and less about its stated goals and substance.

- There is no clearly defined strategy connecting ends and means.
- The linkage between it and the President's America First bilateral policies in Northeast Asia is unclear and at times inconsistent.
- It is overly defensive, in the sense that its agenda is reactive to China's activities rather than by driven U.S. goals to develop proactively rule-of-law, peaceful dispute settlement, free and reciprocal market access and good governance within Indo-Pacific region.

### 3. Geopolitical and Economic Competition in the Pacific Island Region

In practice, the FOIP appears to focus its efforts on areas of weaker, more vulnerable states where China may be able to expand its influence. One of these areas is the Pacific islands. Less than 10 million people live in the independent and freely associated states of the region, with 80 percent of those in Papua New Guinea.



*\*These are the independent states including those freely associated with the U.S. or N.Z., which is why it does not include French Polynesia or other French overseas territories.*

#### 3.1. China's interest in the Pacific Islands

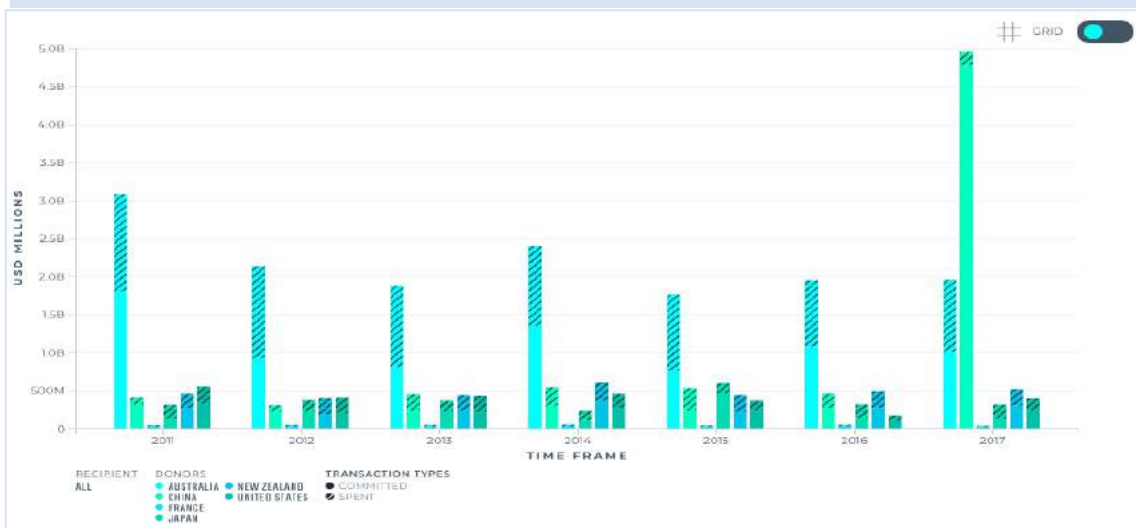
The main fear is that offers of Chinese money and economic support might make the Pacific island nations dependent on China and erode their sovereignty and relations with democratic economies. In recent years, **China has shown much greater interest in the Pacific Islands** and has:

- Increased its **diplomatic presence** in the region;
- Increased its **aid, foreign investment** and has **committed to some very high-profile projects** around the region (particularly a road project in Papua New Guinea);
- Encouraged two Pacific Island (PI) nations – Kiribati and Solomons – to recently **shift recognition from Taiwan to the Mainland** (People's Republic of China);
- Used **stoppage of tourist flows as a political tool** against Palau.

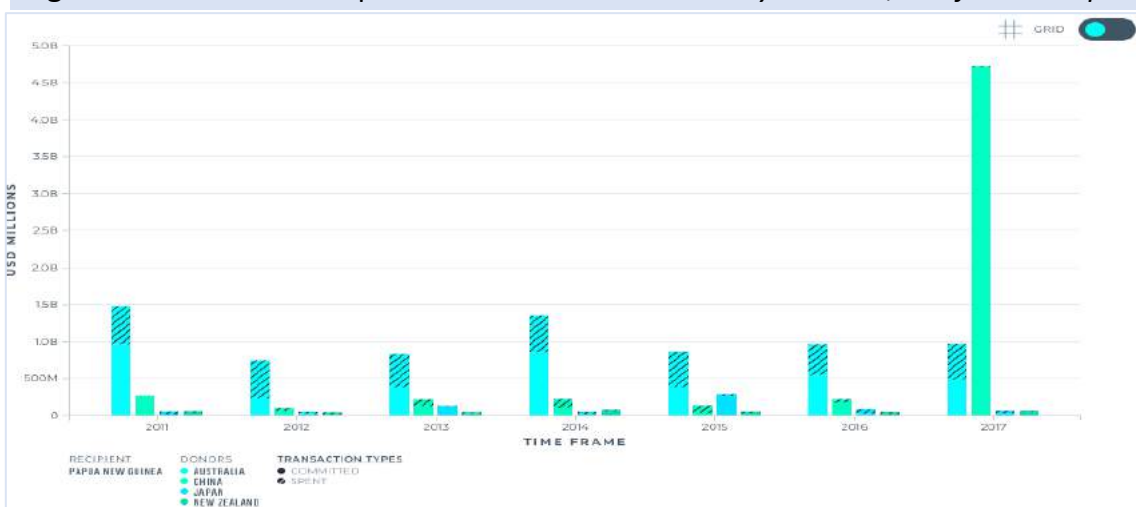
There were also reports in early 2018 that China was in discussions with Vanuatu to build a military base there. These were quickly denied by both governments.

To provide perspective, it is useful to look at aid flows to the region in recent years. These are available from the Lowy Institute’s “Pacific Aid Map.” (Figures 2 and 3) This valuable site tracks donor aid from outside the Pacific Island region to the island economies. The two graphs are screen grabs of aid to all the independent and freely associated island entities with major outside powers through 2017, the latest year for which aid data is available, and to Papua New Guinea. The figures do not include French support for its overseas territories or American compact aid, administered through the Department of Interior for the three freely associated states in the North Pacific. The figures include the cross-hatched real spending and non-cross-hatched commitments. Australia, by far, was the largest aid donor until 2017, when suddenly China made a huge commitment to Papua New Guinea. Actually Chinese spending, however, has been at low levels during this time frame.

**Figure 2. Aid donors in the Pacific - Source: Lowy Institute, Pacific Aid Map**



**Figure 3. Aid donors in Papua New Guinea – Source: Lowy Institute, Pacific Aid Map**



\*Focus on the Papua New Guinea highlighting China’s significant commitment

### 3.2. The U.S. FOIP-related activities in Pacific Islands

The FOIP has been associated with a significant increase in U.S. government interest in the Pacific Island region and support for island governments. **Specific programs** include:

- Electrification of Papua New Guinea (Pacific Economic Partners (PEP) with Australia, NZ, Japan).
- President Trump’s first ever White House meeting with Presidents of the three freely associated states.
- Over **\$100 million** “Pacific Pledge” of development aid (on top of the \$350 million annually already).
- First contribution to ADB Pacific Infrastructure Assistance Facility.
- Increased exchanges and larger personnel numbers in P.I. region.
- Working to address maritime security issues such as illegal fishing, drug trafficking, consequences of climate change.
- First U.S. Army Oceania deployments this year to Papua New Guinea, Vanuatu, Fiji, Palau, Yap. *“If you own or don’t own Oceania, it will determine whether you can project power into the South China Sea.” Lt. Gen Michael Minihan.*

### 3.3. China’s strengths and weaknesses in the Pacific Islands

<u>Strengths</u>	<u>Weaknesses</u>
<ul style="list-style-type: none"> <li>- China has never been a <b>colonial power</b>; the islanders are often looking for alternatives to dependency on former Western “mother-economies.”</li> <li>- Willing to use its <b>considerable financial resources</b> in more flexible ways than Western powers and it is less encumbered by the OECD’s Development Assistance Committee (DAC) standards.</li> </ul>	<ul style="list-style-type: none"> <li>- China <b>lacks long experience</b> with island region;</li> <li>- It has <b>fewer cultural connections</b>, e.g., shared languages, rugby, and religion;</li> <li>- It is <b>not a significant educational or work destination</b> for islanders;</li> <li>- There are virtually <b>no Pacific islander diaspora communities in China</b>, unlike France, Australia, New Zealand, and the U.S.;</li> <li>- Islanders wary of <b>political motives</b>.</li> </ul>

### 3.4. Some Conclusions about China in the Pacific

- China is a regional and global power, and it will be present economically, politically, and otherwise in the region;
- Island economies want to diversify outside finance and support, and will seek to use China for these purposes;
- Most island governments will try to use China for their own purposes and are quite wary of Chinese influence.
- However, the Chinese impact, especially on debt, environment, corruption, and politics does need to be monitored carefully;
- Traditional Pacific donors, including U.S., will need to step up their games.

## 4. The Indo-Pacific Policy in the Post-Trump Era

Let me now turn to my final topic, the future of the Indo-Pacific strategy in a post-Trump era. I am making no guesses about when the post-Trump era may begin or who might succeed him, but I think this is a relevant question since each new U.S. president has wanted some initiative, policy, or activity toward Asia associated with the new administration, and this will almost certainly be the case in the post-Trump period regardless of successor.

First, just as the Indo-Pacific strategy developed out of the rebalancing strategy of the previous administration, there are likely to be many continuities with any new post-Trump declaratory policy.

#### These continuities would include:

- The concept of an “Indo-Pacific region” and perhaps even the terminology. To shift back to “Asia-Pacific” could appear to downgrade South Asia.
- Continued prioritization on Asia in U.S. economic and security policies.
- Strategic concern about and competition with China.
- Technology competition with China in both the private and public sphere.
- The tendency toward a decoupling of the China-US economic relations. Actual complete decoupling is an impossibility.
- There probably will be lower resistance to the use of tariffs as a bargaining tool, as the Smoot-Hawley based predictions of disaster did not happen.

#### Likely changes are:

- As mentioned, a new statement of U.S. policy associated with the new administration, especially if replaced by president from the other party;
- Strong reassurances to allies;

- A renewed emphasis on multilateralism and institutions even on those issues where the Trump administration has acted unilaterally. As U.S. relative power has declined, multilateral actions become all the more important;
- A renewed emphasis on rule of law and on human rights issues as key drivers as U.S. policy;
- Conscious efforts to avoid a separation of the Chinese and American orders or the drawing of a line down the middle of the Indo-Pacific region.

**Possible but unlikely changes:**

- The U.S. rejoining TPP (Trans-Pacific Partnership). To set a benchmark with a critically large massive economies; China would need to achieve those benchmarks;
- Trying to find common ground between the economic elements of the FOIP and the Belt and Road Initiative. One could argue that there are complementarities if the BRI is a vehicle for recycling Chinese surpluses and providing infrastructural financing and support in a manner consistent with OECD-DAC standards and international rules.

**Conclusion**

**In the almost impossible category would be some kind of “grand bargain” with China for power sharing or G2**, as suggested by Australian Hugh White or American economist Fred C. Bergsten. This would require a level of trust that will take many years to develop. Moreover, one of the main reasons other economies, such as Australia, the ASEAN group, India, and Japan have adopted the use of the Indo-Pacific term has been to ensure that they are not overlooked by either China or the U.S.

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## Presentation of the China's belt road initiative (BRI)

Vincent DROPSY, Professor of Economics, University of French Polynesia

The purpose of this short presentation is to provide some background information about China's belt and road initiative (BRI). Angus Maddison, a world leading economist, gathered roughly 2,000 years of economic data, and found out that the Chinese economy prospered for 15 centuries, in part as a result of its commercial trade, through the ancient silk roads, coming from China all the way to Europe.

### What are the characteristics and consequences of the BRI, also called the new silk roads?

First, it is important to recognize that China has been progressively integrated into the world economy and accepted in international economic institutions:

- In **1991**, China joined the Asia-Pacific Economic Cooperation (APEC).
- In **2001**, China became a member of the World Trade Organization (WTO).
- In **2016**, the Chinese Renminbi was included in the basket of the Special Drawing Right, managed by the International Monetary Fund (IMF).

However, China was not included in the Trans-Pacific Partnership (TPP), which was initiated by President Obama and later abandoned by President Trump. Whether the BRI is a reaction to this U.S. policy or to the Indo-Pacific Strategy, or vice versa, is not a question addressed in this economic overview of the new silk roads.

### 1. When and how did it start?

In 2013, China proposed the BRI to increase trade and cooperation all the way to Europe, through two corridors:

- The land corridors (i.e. the "belt");
- The maritime corridors (i.e., the "road").

An extension of the BRI to Latin America and the Caribbean is also considered.





## 2. What are its objectives (according to the Peterson Institute for International Economics)?

**A / Reduce the time and cost to transportation of internationally traded goods**, if possible before 2049 (the 100<sup>th</sup> Anniversary of the People's Republic of China).

➔ Expand business opportunities abroad for Chinese firms and trade partners (through loans to economies in exchange for favourable contracts... but this practice is subject to controversy).

**B / Increase the international use of the Chinese currency (Renminbi);**

**C / Secure energy supply** through new pipelines;

**D / Develop infrastructure** to foster growth of those economies along the BRI and increase Chinese exports and growth.

## 3. What are the conclusions of a recent analysis of the BRI by the World Bank?

About 70 economies are geographically located along the BRI transport corridors. Concerned trade should represent about 35% of global foreign direct investment and 40% of global merchandise exports. The future cost of the project is estimated between USD 144 to 304 billion by the World Bank, but, the loans that China could provide to those economies along the corridor, are estimated to be worth many times this cost.

The objective is to reduce travel time, up to 12%, but on average around 4%, which would lower trade costs. The World bank estimated the increase of trade between 2.7% and 9.7% for corridor economies, and between 1.7% and 6.2% for the world. As a result, global income could rise by 0.7% to 2.9%, and 32 million people could escape from moderate poverty (\$3.20 a day).



#### 4. What are the risks?

Risks involved along the trade corridors concern debt crises, corruption, bad public procurement practices, stranded infrastructure, environmental degradation, etc.

#### 5. What are the requirements for success?

**A / Increase transparency**, though policy reforms in China and in corridor economies;

**B / Expand trade**;

**C / Improve debt sustainability**;

**D / Mitigate environmental and corruption risks.**

#### 6. How has Chinese trade evolved?



Source : CEPII

Over the last 20 years, Chinese trade specialization has moved away from primary goods and towards manufactured goods.

Furthermore, China's competitive advantage has become increasingly related to computer and telecommunication equipment (**Figure 1**).

**Figure 1.** China - Trade specialization by category: Top 10 comparative advantages and disadvantages (contribution to the balance, in thousandths of the total trade, 2007 and 2017, and change in thousand points)

	2007	1997-2007
<b>COMPARATIVE ADVANTAGES</b>		
Computer equipment	35.4	24.1
Telecommunications equipment	27.6	33.4
Miscellaneous manufactured articles	23.0	-13.6
Knitwear	21.0	-1.7
Leather	19.7	-20.3
Clothing	18.4	-14.1
Consumer electronics	16.5	5.6
Furniture	11.4	5.7
Miscellaneous hardware	11.3	4.7
Domestic electrical appliances	8.1	1.8
<b>COMPARATIVE DISADVANTAGES</b>		
Electronic components	-40.7	-30.8
Crude oil	-39.6	-31.7
Non ferrous ores	-16.2	-13.2
Iron ores	-15.9	-11.7
Basic organic chemicals	-13.0	-9.6
Transport services	-11.7	10.1
Plastic articles	-10.3	5.9
Optics	-9.1	-10.3
Non-ferrous metals	-8.6	-5.8
Non-edible agricultural products	-8.3	-2.2

	2017	2007-2017
<b>COMPARATIVE ADVANTAGES</b>		
Telecommunications equipment	50.7	23.1
Computer equipment	36.0	0.6
Miscellaneous manufactured articles	17.7	-5.3
Electrical apparatus	16.0	9.0
Leather	16.1	-3.6
Miscellaneous hardware	14.7	3.4
Knitwear	13.4	-7.0
Clothing	12.7	-5.7
Yarns fabrics	11.4	6.4
Furniture	10.3	-1.0
<b>COMPARATIVE DISADVANTAGES</b>		
Travel services	-56.8	-54.2
Crude oil	-39.0	0.7
Electronic components	-33.3	7.4
Iron ores	-16.2	-0.3
Transport services	-15.5	-3.8
Non ferrous ores	-14.6	1.6
Edible agricultural products (excl. cereals)	-9.4	-5.2
Non-monetary gold	-8.8	-8.5
Non-edible agricultural products	-7.1	1.2
Charges for the use of intellectual property n.i.e.	-6.1	-1.8

Source : CEPII

## Conclusions

The Chinese economy and of its trade patterns have dramatically changed:

- Following its economic reforms in the 1980s, China has experienced very rapid growth;
- Its huge trade surplus has peaked and decreased as a result to the 2008 economic crisis;
- Chinese trade specialization has increasingly been oriented towards high value-added manufactured goods.

Our estimates of the marginal effects of China's BRI and other factors on bilateral trade flows, based on a gravity model suggest that it would raise Chinese trade by about 9%.

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## SESSION 1: CLIMATE CHANGE AND RESILIENCE OF PACIFIC ISLANDS AND COASTAL TERRITORIES: HOW TO ENSURE A BETTER RESILIENCE OF PACIFIC ISLANDS AND FIGHT POTENTIAL RISKS?

### Impacts of climate change in the Pacific and resilience actions - from local to national

Maina SAGE, MP of the French National Assembly (First Constituency)

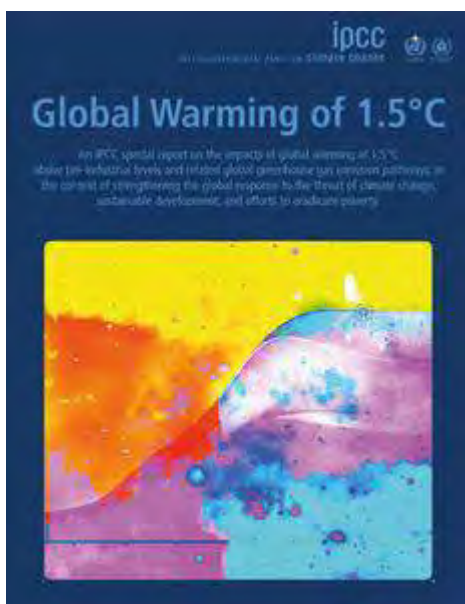
*Honourable Chair of PECC,*

*Dear members,*

I'm glad to be with you this morning at this new PECC seminar dedicated to the resilience of Pacific islands facing climate change. These islands and coastal territories are highly vulnerable to climate change as the World Bank already predicted in 1997, confirmed by 3 IPCCs special reports in 2012 on extreme climate disasters, 2018 on Global Warming by 1.5°C and in 2019 on Ocean and Cryosphere.

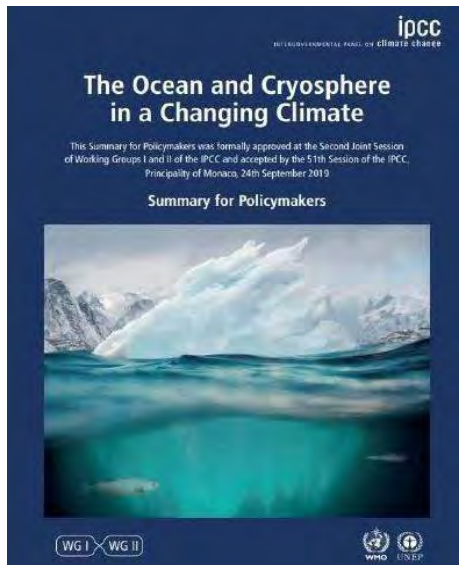
Before launching any debate on strategies at the regional and national level, let us review a few key points of these reports that either highlights the high level of risks for islands and the urgency to decrease pollution while reinforcing adaptation policies.

### 1. Impacts of climate change in the Pacific



#### Summary of outcomes of IPCC 2018 and 2019 special reports.

The first 2018 report recalls that global warming is already a reality affecting ecosystems and human societies. It also demonstrates that each half-degree of additional global warming significantly increases the associated risks, **in particular for vulnerable communities including coastal areas and islands**. Here you have some examples of the major impacts a 0.5°C difference makes. Note that many of them are likely to be irreversible at +2°C.



The second report on the oceans strengthens the previous diagnosis. It, first of all, recalls the essential role of the ocean as the first climate regulator. Both carbon sink, since it captures 30% of human emissions (36,8MM tons CO<sub>2</sub> in 2017), it has absorbed 93% of the heat emitted since the industrial revolution. Most of the changes are related to human activities, both air and water pollution. Thus, 150 million tons of plastic have accumulated in the oceans, 80% coming from the land.

These changes result in a steady warming of the sea water, accelerated coastal erosion, acidification and deoxygenation of the ocean, decreased snow cover in the northern hemisphere, a general withdrawal of mountain glaciers and ice sheets of Greenland and Antarctica and the melting of permafrost which releases into the atmosphere large quantities of methane whose warming effect is 25 times greater than CO<sub>2</sub>.

All these stressors have a global influence as they affect the ocean down to more than 1,000 meters deep and impact all marine ecosystems<sup>2</sup> more prone to mass mortalities, coral bleaching, or change in areas distribution of species such as fish.

In this context, this second report highlights the chain reactions from physicochemical impacts to impacts on ecosystems and on populations. As such, it stipulates that populated coastal areas, islands, deltas and generally the areas where people rely heavily on services provided by the environment (tourism, fishing, ...) will be particularly vulnerable to these effects.

Extreme events will intensify and, combining with rising sea levels, coastal flooding will become more frequent, from centennial events, they will become annual by 2050, and monthly in 2100<sup>3</sup>. Scientists also predict a reduction in the number of fish in the order of 25% in the ocean by 2100<sup>4</sup>.

However, 30% of the world population lives within 100 km of the coast and less than 100 meters above the sea level<sup>5</sup>, nearly 3 billion people depend on the resources of marine

<sup>2</sup> Gail F., « Océan et climat : où on est-on ? » in Ocean-climate.org, « Océan et changement climatique : les nouveaux défis », p. 10.

<sup>3</sup> Picot G., « La mer monte de plus en plus vite » in Ocean-climate.org, « Océan et changement climatique : les nouveaux défis », p. 21.

<sup>4</sup> Workshop "IPCC Report: The Ocean and Cryosphere in a Changing Climate", National Assembly, 26 September 2019.

<sup>5</sup> Gail F., « Océan et climat : où on est-on ? » in Ocean-climate.org, « Océan et changement climatique : les nouveaux défis », p. 10.



protein. In the Pacific, more specifically, 55% of the population lives on less than a kilometre from the sea and the products of the sea represent 90% of the protein intake of these populations <sup>6</sup>.

These are the key issues of climate change that, in addition to the impact on our ecosystems, are hitting Pacific societies and economies of the Pacific. While in the front line, the Pacific is yet only responsible for 0.03% of emissions of greenhouse <sup>6</sup>.

Extract from IPCC report 2019



**2. Pacific Islands are particularly vulnerable**

These diagnoses being posed, one must remember that the Pacific Ocean contains these extremely vulnerable places with thirty economies, island states and associated Territories, consisting of 25,000 islands spread over 300 million square kilometres of ocean. Their EEZ only accounts for 10%, i.e. about 30 million km<sup>2</sup>, for 1% of land area. Thus, for the most part, these small island states (SIDS) are actually the Large Oceanic Territories (LOT).

Their economies are highly dependent on tuna resources in the Western and Central Pacific. The revenues from the sale of fishing licenses are essential in the constitution of the

<sup>6</sup> Pacific Community, “The Pacific Community (SPC) and climate change : Building resilient societies in the Pacific”.

budgetary resources of some of these territories. For six of these, they represent 30% to 98% (Tokelau) of government revenues. Moreover, tuna fishing directly employs 25,000 people. This resource is now seriously threatened by the gradual migration of the two main species of tuna eastward.

But ocean changes also have an impact inland. Thus, raising the sea level causes **soil salinization**, which can greatly affect agricultural production while agriculture and forestry account for 20% to 30% of the GDP of Pacific territories <sup>7</sup>.

Overall, the traditional subsistence agriculture has given way to cash crops of coffee, cocoa, copra, and sugar cane. Mining is also important in Melanesia. The processing industry is however quite small. Combined with the small domestic market that prevents economies of scale, economic diversification is then, mostly, very difficult. Only tourism is an important economic niche in the South Pacific with 1.5 million visitors each year <sup>8</sup>.

Fishing, pearl aquaculture, copra, cocoa, or even tourism, all these activities are closely linked to the health of our ecosystems. In doing so, certain risks weigh on food security, economic, health, and even on culture and traditional lifestyles. And this without even asking the question risk of future conflicts, in particular in terms of safety of water supplies in an environment where droughts and increased risk of severe storms and flooding considerably make access to potable water more difficult.

These few data are sufficient to understand just how urgent it is to maintain the functional quality of marine ecosystems and restore those that are degrading to save the future of our islands. It requires, at minimum, to limit warming up to 1.5 °C.

Currently national commitments lead us on a path at +3 degrees in 2100. Is it realistic to foresee global warming limited up to 1.5 °C? Experts confirm that this is not only possible but **necessary** to preserve marine biodiversity, fisheries and marine ecosystems, including coral reefs in warm waters.

Concretely, we must reduce our emissions by 45% in 2035 to reach **neutral CO2 emissions in 2050, while preserving at maximum marine spaces and ecosystems.**

As Valérie MASSON DELMOTTE, co-Chair of IPCC Group I, said: *“We are facing two mountains: the extent of the effort to make and the magnitude of the risk.”*

*“This is a historic effort, combined with profound transitions of energy, urban, industrial systems and land management. The ambition of holding global warming down to +1.5°C would require us to act sooner and faster. It's not impossible. There remains room for manoeuvre. Everything depends on the action today and **before 2030.**”*

<sup>7</sup> ADBInstitute, “Policy Brief”, n° 2016-6, 2016, p.1.

<sup>8</sup> ADBInstitute, “Policy Brief”, n° 2016-6, 2016, p.3.and McElroy J. L., “Small island tourist economies across the life cycle”, 2006.

This is, my dear friends, the global challenge we face, all of us. How can we contribute?

### The major oceanic states of the Pacific in a few figures

- 300 million of square km and 31 territories;
- Approximately 15 million inhabitants (excluding Australia) – including 8.3 million in Papua New Guinea and 4.8 million in New Zealand – 55% less than 1 km from the sea;
- Economy : significant tuna fishing; agriculture = 20% to 30% of GDP; tourism = 1.5 million visitors per year in the South Pacific.



Carte de l'Océan Pacifique, par S.J. Colman, d'après : Bernd Arntsen et Jodi Emmons : « Atlas des îles et des états du Pacifique sud », CEP Revue-Publicat. 1998 ; Robert Chouard, Alexandre Nicolas et Jean-Christophe Vicher (dir.) « Le dessous des cartes, itinéraires géopolitiques », Tallandier 2011 ; et « The World Factbook » 2011, Washington, DC : C.I.A. Les îlots, en jaune, des Z.E.U. sont données à titre indicatif (validation en cours des différentes revendications).

Source: ADB Institute, "Policy Brief", 2016

### 3. Mitigation and adaptation strategies to increase resilience

Faced with these changes, how does Pacific resilience get organized? Like everywhere else mitigation and adaptation measures are being considered in order to both reduce emissions of greenhouse gas and adapt to the impacts already suffered.

Although Island States produce only 0.03% of CO<sub>2</sub> emissions, these States are keen on supporting innovative projects in the sectors of energy, transport and industry, such as:

- Develop **photovoltaic energy**, or SWAC in Polynesia:
- Take action in the **maritime sector**. Thus, simply reducing the speed of ships would reduce these emissions by 40%. Of course, we must support ship owners in this transition



which must also be technological with the development of solar sails for example. One can also think of blue labels to promote more sustainable transport;

- In the **fisheries sector**, we must consider the renewal of fleets, and the management of fisheries.

**However, even if the priority is indeed to mitigate project impacts, the consequences of global warming are already a reality.** Therefore, it is absolutely necessary to be able to adapt to these changes to ensure the security of populations, especially those in atolls, which are in the front line of the said consequences.

So, there must be solutions such as **building survival shelters, developing telecommunications and power generation infrastructure, which secure water supply.**

As part of these actions, **investing in prevention strategies against extreme events is certainly less costly than repairing after a climate disaster**, as unfortunately illustrated by the status of Saint-Martin whose reconstruction has just started, three years after 95% of buildings were damaged, for a reconstruction cost valued at nearly 2 billion euros, St. Barthelemy included. In Australia, the fires raging on the continent could cost the state nearly 3.5 billion euros<sup>9</sup>, plus all the indirect impacts elsewhere in the Pacific.

Finally, **scientific studies further demonstrate the interest of preserving the coastline so that it becomes more resilient.** From it arise so-called nature-based solutions offering many benefits with co-benefits for biodiversity, the quality of water, etc. Thus, coastal ecosystems (swamps, mangroves, seagrass beds, kelp, coral reefs, oyster and mussel beds) offer protection and reduced risk to coastal communities while improving the resilience of these ecosystems. However, protecting coastal areas is one of the most complicated issues due to already high population pressure.

#### 4. Regional cooperation as a tool for promoting resilience

But these measures can only be rooted in courageous, ambitious, pragmatic, and funded public policies. And that is exactly where politicians have a role to play. Indeed, all actors must coordinate at the internal and external levels to succeed in transforming potential solutions into public policies implemented concretely on the field.

In this context, regional and international cooperation in the Pacific makes sense to support SIDS (Small Island Developing States). Thus, a number of regional cooperation groups exist and pool their technical and financial capacities on various themes.

First, the **Pacific Islands Forum**, the main political body of the region, which brings together the 16 independent economies of Oceania as well as New Caledonia and French Polynesia,

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<sup>9</sup> Humanity, January 7, 2020.

has as its first regional priority to build the resilience of the Pacific Islands and the preservation and management of the oceans. As such, in 2016 it adopted a Charter for a resilient development in the Pacific to develop low carbon strategies while reducing people's exposure to risk and improving the effectiveness of disaster management and reconstruction policies. The Forum is the preferred EU partner regarding adaptation programmes to climate change.

**SPC (Pacific Community)** consisting of 26 economies and territories provides technical support to capacity building in member states. Its South Pacific Regional Environment Program –SPREP - assists its members and partners to achieve the objectives in environmental management and sustainable development in the region in four strategic priorities: 1) climate change, 2) biodiversity and ecosystem management, 3) waste management and fight against pollution, 4) and environmental monitoring and governance. SPREP has been responsible for monitoring the preparation of the COPs regionally and is accredited by the Green Climate Fund.



Overall, the Pacific Leaders wish to enhance a reasoned lifestyle that is more respectful of their environment and traditions. In this respect, this intergovernmental synergy **allows better sharing of knowledge and strategies**, sometimes calling upon traditional knowledge such as traditional houses with natural ventilation or the establishment of *rahui*, traditional Polynesian protected marine areas.

Note the creation of the **Polynesian Leaders Group** in 2015 at the initiative of the President of French Polynesia and the **Group of Pacific Parliaments (GPP)** in 2019 that works to share knowledge and best practices on climate issues.

**This latest initiative needs to encourage because it is fundamental to better get the legislature involved in the strategies undertaken by the executive because it is the latter which passes laws, budget and control its implementation.**

## 5. Examples of parliamentary actions



**Finally, as a parliamentarian, I wanted to briefly remind you of the action that can be taken to strengthen and support regional and territorial policies of the Pacific.**

**On a national level**, France has also innovated by creating in its 2017 Finance Act, the **Green Pacific Fund**, which is a green financial product to fight against global warming and its effects. Originally developed in the Pacific through AFD (French Development Agency), this long-term 0% loan, aka Green PSL (Public Sector Loan), proved itself in 2017 in French Polynesia. In all, 12.4 million of loans were made to finance adaptation to climate change, energy transition, marine protected areas, bioclimatic buildings projects, etc.

Similarly, in 2018, the government launched the **Pacific Initiative on climate and biodiversity**, an international coalition to mobilize more financial resources to accelerate and simplify the funding of adaptation and protection of biodiversity. This programme, which involves the EU, has a budget of about **30 million euros**.

With my colleagues from the Pacific, we educate and regularly remind the interest and urgency of defending our region particularly vulnerable to climate change by bringing in the heart of the national legislature the supporting scientific elements.

Among our actions are obviously the votes of the budget, laws but also the monitoring of their implementation and investigations into certain situations. Thus, a parliamentary information mission on the management of major climate events in coastal areas of Continental and overseas France highlighted **three essential components**:

- Risks prevention,
- Climate crisis management,
- And reconstruction.

Note a similar mission from the Senate on these three elements.

Risk prevention is available mainly in the implementation of coherent planning policies and risk forecasting, prevention by implementing drills and awareness campaigns to develop the culture of risk. Finally, through the coastal preservation and development of performance monitoring tools (tide gauges, radars, etc.) that require sustainable funding in terms of investment and maintenance.

At the heart of the **second part** are the coordination and organization of relief. The care of people, safeguarding people, property and the environment require constant preparation to bring the most effective operational response in the event of a crisis. The coordination of the authorities is generally around a relay at the level of the territory that plays the role of operational centre, and communities or city councils who are responsible for emergency interventions and the dissemination of information to the population. The coordination between these two entities is often the keystone of an effective crisis management.

Finally, for the **last part**, reconstructions require flexible access to emergency funds, and insurance refunding that is faster and more efficient. Sharing reconstruction techniques would be useful. Polynesia has an interesting expertise in this area through its OPH houses (*fare*). Besides the financial aspect, development policies must take into account such events by adapting standards and reconstruction technical solutions.

Reports of the National Assembly and from the Senate on the management of major climate events have resulted in a future bill on the management of major climate events.

**Other actions are currently underway.** Initiatives emerging in recent years, particularly through “green budgeting” which is a listing of the State’s revenue and expenditure for environmental matters classified into five categories ranging from negative to very positive.

Cross-party groups are set up such as the Accelerate Group (“*Collectif Accélérons*”) at the National Assembly in which MPs, although still belonging to their respective political groups, join forces to bring together proposals for laws or amendments that promote environmental progress.

Other avenues are being explored as climate inadmissibility as a binding mechanism to reject bills deemed incompatible with national low-carbon strategy.

Some bills (either proposed by the legislature or by the government) also go in the right direction like the text “Fight against waste and circular economy” which will soon be finally adopted by the Parliament and brings many changes in French legislation to speed up change in production and consumption patterns in order to reduce waste and conserve natural resources.

## Conclusions

In summary, recent IPCC studies demonstrate the seriousness and urgency of the global climate situation, which requires drastic efforts to keep global warming down to +1.5°C, to allow the survival of the greatest number of lives, species and spaces. This is particularly the case in the Pacific where economies are mainly based on the primary sector and tourism, sectors that are particularly sensitive to the quality of the environment.

This requires radical mitigation and adaptation actions in a very short time to achieve carbon neutrality by 2050.

Regional political and technical organizations have seized the subject and offer to support our Pacific territories in their resilience strategies through an integrated approach of all stakeholders including getting prepared to climate events and reconstruction

This dynamism of environmental awareness in the Pacific generates a principle of increasing responsibility among policymakers. Overall, all initiatives, whether from civil society, from

politicians, or both, help to reduce human pressure on ecosystems and thus increase their resilience. We must therefore continue to accumulate knowledge, share experiences to further improve the protection of our environment. It is also what this seminar is all about and I would like to warmly thank the organizers. This is how good ideas emerge and are shared.

Thank you.

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## The 11<sup>th</sup> European Regional Development Fund serving the territories climate-resilient economies: presentation of the Pacific territories regional project for sustainable ecosystem management (PROTEGE)

Aurelie THOMASSIN, Territorial Coordinator for the PROTEGE project in French Polynesia



I am responsible for the coordination of the Pacific Territories Regional Project for Sustainable Ecosystem Management (PROTEGE) in French Polynesia.

As a follow-up of INTEGRÉ programme, PROTEGE is funded under the 11<sup>th</sup> EDF (European Development Fund). It is aimed at building sustainable development and climate-resilient economies in overseas economies and territories (OCTs) by focusing on biodiversity and renewable resources, with two sub-objectives:

- **Strengthening key primary sectors' sustainability and autonomy** (agriculture and forestry, fishing and aquaculture);
- **Enhancing ecosystem-service security by protecting water resources and biodiversity** (sustainable water resources management and fight against invasive species).

### 1. Key highlight points of the project implementation

#### 1.1. Key points

##### Important dates

A / On 10 April 2018, the President of New Caledonia (i.e. the Regional Authorising Officer) representing the four OCTs, and the European Union, signed the project's funding agreement.

B / On 26 October 2018, the EU entrusted the Pacific Community (SPC) and the Pacific Regional Environmental Programme (SPREP) with the project's implementation. The SPC (delegatee) and the SPREP (co-delegatee) are co-delegatee to European Funds and support the four OCTs in implementing actions.

**Who is this for?** This European fund is aimed at the 4 OCTs (New Caledonia, French Polynesia, Wallis and Futuna and Pitcairn).

**How is it funded?**

A / The project is funded with an amount of €36 million (XPF 4.3 billion), which is provided by the EU. The previous project (INTEGRE) was funded with an amount of €12 million.

B / Co-funding totalling €128k (XPF 15 million) has been provided by the OCTs taking part in it.

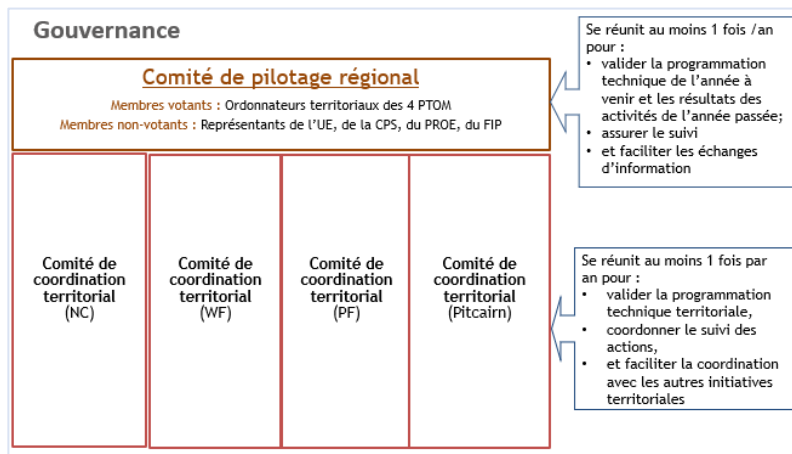
**Dedicated teams:** The project is being carried out by a team of 10 SPC and 1 SPREP. Then, a “leader” is appointed in each territorial authorising officer for a theme. The leader is responsible for coordinating and implementing planned projects. PROTEGE funds 1 facilitator per lead partner in each territory.

**The programme aims at strengthening public policies in the OCTs. It has been designed by the leaders of the territories.**

**1.2. Implementation timetable**

Since the 1<sup>st</sup> steering committee that took place in New Caledonia, PROTEGE has started the operational phase. This programme will last 4 years and ends in September 2022.

**1.3. Governance**



In terms of governance, every year, the Regional Authorising Officer validates the yearly action plan to set up. This results from the decision of the Territorial Authorising Officers, which are in charge of determining the action plans that should be undertaken, and then implementing the decisions made by the Regional Steering Committee.



## 2. Presentation of the project

- 4 themes
- 14 expected outcomes
- 31 activities
- 72 operations
- 192 action plans

### Theme 1: Agriculture and Forestry

The objective in this theme is to initiate an agroecological transition to bring about biodiversity-friendly farming, particularly organic, and ensure that forest resources are managed in a sustainable way.

**There are 9 activities leading this theme and 4 expected outcomes:**

- 1. Viable agroecological systems** are validated technically and then shared, and barriers to the development of Organic Agriculture are removed.
  - a. Agroecology and island climates: *organic alternatives to pineapple herbicides, agroecology water management particularly in the atolls.*
  - b. Crop/livestock farmers networks: *demonstration farms.*
  - c. Organic farming sector: *bring support for AB certification, NOAB reading guides.*
- 2. An integrated forestry, agroforestry and coconut-grove management policy** is developed and implemented.
  - a. Integrated participatory forestry, agroforestry and coconut-grove management plans: *establishment of a regional coconut trees conservatory.*
  - b. Trees at the heart of farming practices: *Coconut Trees chain, from 4 to 8 November in French Polynesia and Forest/Agroforestry chain in March 2020 in New Caledonia.*
- 3. Agroecological, forestry and coconut-grove products** are promoted.
  - a. Farm to table: *Regional training (2020).*
  - b. Developing wood and coconut products: *local woods promotion.*
- 4. Cooperation both between the OCTs and between OCTs and ACP economies** is strengthened through operational, coordination and support mechanisms.
  - a. Territorial coordination and facilitation.
  - b. Regional forestry and agroecology platform.





## Theme 2: Coastal fisheries and Aquaculture

The objective is to ensure that reef and lagoon resources are managed in a more sustainable and integrated manner, suited to both island economies and climate change.

There are 9 activities leading this theme and 4 expected outcomes:

5. **Aquaculture techniques that are sustainably integrated into natural settings and suited to island economies** are trialled and implemented at pilot scales and then transferred to the rest of the Pacific.
  - a. Aquaculture risk management and impact mitigation: *plastic waste management to structure recycling process.*
  - b. Trial and optimise sustainable and resilient aquaculture models and then share them with operators: *to control the production of fry (the 'Marava') in order to develop fish farming, development of macro-algae cultivation.*
6. **Participatory management and integrated planning of exploited fisheries resources** are continued and strengthened.
  - a. Participatory integrated fisheries resource management: *strengthening and development of ZPR management (Regulated fishing areas) and networking.*
  - b. Enhanced knowledge and understanding of coastal fisheries resources and data: *establish a coastal fisheries observatory.*
  - c. Planning for coastal fisheries and aquaculture activities.
7. **Fisheries and aquaculture products are developed** as part of a sustainable development approach.
  - a. Lagoon to table: *development of eaten sea products recycling process.*
  - b. Sustainable use of uneaten sea products and by-products.
8. **Cooperation both between the OCTs and between the OCTs and ACP economies** is strengthened and made sustainable through operational, coordination and support mechanisms.
  - a. Territorial coordination and facilitation.
  - b. Regional fisheries and aquaculture platform to facilitate cooperation and dialogue in the OCTs: *Regional meeting held in Wallis and Futuna in November 2019.*



**Theme 3: Water Management**

The objective is to manage water in a more integrated and climate-change-adapted manner.

There are 7 activities leading this theme and 3 expected outcomes:

**9. Water and aquatic environments are protected, managed and restored.**

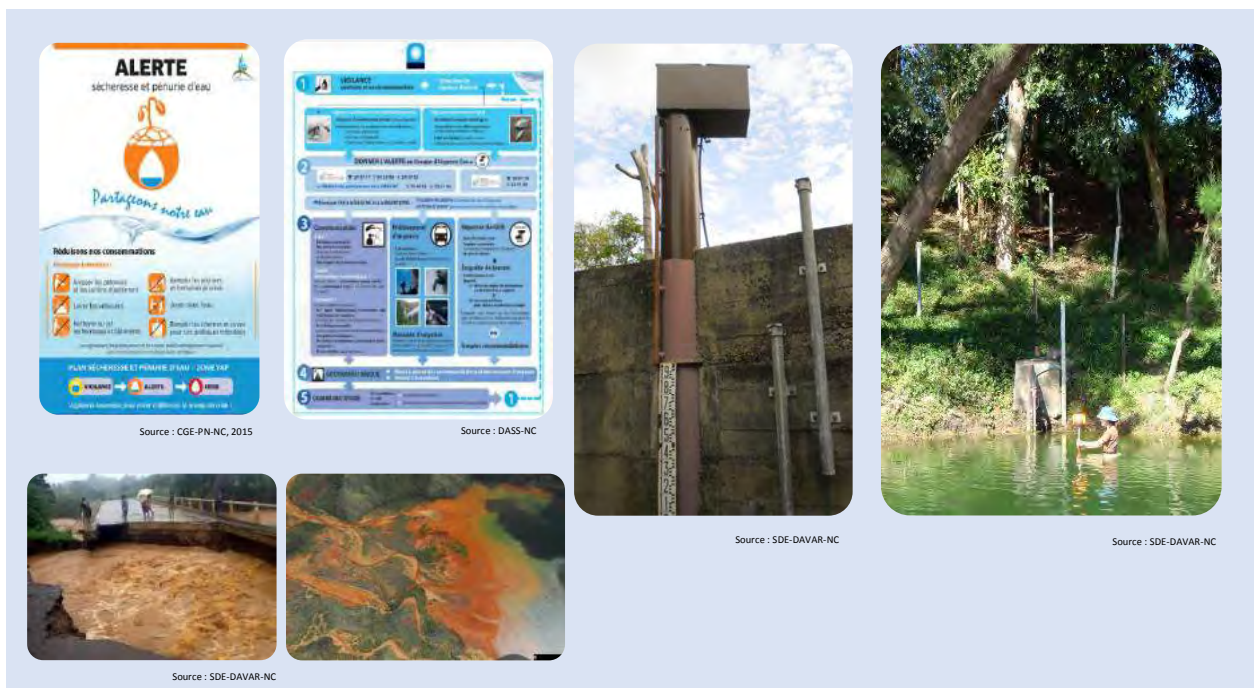
- a. Manage and restore the health of bodies of water: *raise awareness to water and aquatic environments, shorelines revegetation.*
- b. Protect water and reduce pollution: *stock inventory and develop competence in existing drillings and catchments.*

**10. Resilience to water-related natural and man-made risks is strengthened.**

- a. Flooding: *emergency plans implementation, design landing projects to reduce flow velocity.*
- b. Water shortage risks: *trace the location of salt water wedges and identify new resources by airborne geophysics.*
- c. Health risks: *design PSSE (Drinking Water Safety Plans).*

**11. Cooperation both between the OCTs and between the OCTs and ACP economies is strengthened and made sustainable through operational, coordination and support mechanisms.**

- a. Territorial coordination and facilitation.
- b. Regional water platform: *water observatory in the OCTs and inter-OCTs, regional platforms, trainings and buddy programmes.*



Source : CGE-PN-NC, 2015

Source : DASS-NC

Source : SDE-DAVAR-NC

Source : SDE-DAVAR-NC

Source : SDE-DAVAR-NC

#### Theme 4: Invasive species

The objective is to better manage exotic invasive species, so as to strengthen ecosystem-service and land-biodiversity protection, resilience and restoration.

**There are 6 activities leading this theme and 3 expected outcomes:**

- 12. Biosecurity** is enhanced through the development of strategies and action plans to better prevent the introduction of invasives.
  - a. Strengthening of border biosecurity: *X-rays equipment, police dog services.*
  - b. Invasive species Pitcairn.
- 13. Mechanisms to monitor and manage certain exotic invasive animal and plant species** are implemented to protect biodiversity and ecosystem services.
  - a. Monitoring and control.
  - b. Controlling exotic invasive species: *undertake action plans against exotic invasive species and manage biodiversity on UNESCO platform in Taputapuatea, rat eradication.*
- 14. Cooperation both between the OCTs and between the OCTs and ACP economies** is strengthened and made sustainable through operational, coordination and support mechanisms.
  - a. Territorial coordination and facilitation.
  - b. Exotic invasive species platform: *the Pacific Invasive Learning Network (PILN) represents the opportunity for OCTs to share experiences with ACPs economies.*



### 3. Ongoing regional initiatives

**1. Agriculture and forestry.** A network of demonstration farms has been launched in the 3 French OCTs. It aims to support ecological intensification. These farms should, as far as possible, mobilise all agroecological levers in order to strengthen the resilience of agrosystems to climate change. On 18 and 19 December 2019, the members of the juries of the demonstration farms in New Caledonia and French Polynesia met to identify the winners. A total of more than 60 applications were submitted, showing a real enthusiasm among farmers to take part in PROTEGE.

At the same time, New Caledonia and Wallis and Futuna hosted a mission of POETCOM (The Pacific Organic and Ethical Trade Community) to support organic certification in December 2019. This mission is also considered to be held in French Polynesia in 2020.

**2. Coastal fisheries and aquaculture.** A guide to monitoring the quality of marine waters subject to aquaculture activities is being written in French Polynesia. It should be available by the end of 2020. At the regional level, an additional person should be shortly recruited within ADECAL to coordinate the establishment of a regional fisheries observatory, which will thus allow the banking and development of fisheries statistics.

**3. Water management.** Airborne geophysics should serve as a tool to identify new groundwater resources and locate the salted wedge. This technique is in progress in the municipality of Poum in New Caledonia. Feedback will be interesting for French Polynesia, which plans to conduct a similar action on the island of Tahiti. 24 atmospheric fountains will arrive in the 2<sup>nd</sup> quarter of 2020, to provide drinking water to the schoolchildren of Futuna. One gourd per pupil will also be distributed to enhance the use of equipment.

**4. Invasive species.** In New Caledonia, a first steering committee about “Invasive ungulates” was held by the CEN (Natural Species Conservatory). During this meeting, an action plan has been approved and the activities are scheduled from January 2020 onwards. In French Polynesia, equipment to strengthen border biosecurity are being identified. One person has been recruited to suggest to the Management committee of the UNESCO platform in Taputapuataea some actions aim at restoring it.

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## The companies' concerns about climate change in the Pacific Islands

Christophe PLEE, President of CPME French Polynesia, RPPS and FPRG

### Topics addressed:

- The involvement of the private sector of French Polynesia in regional discussions.
- The first sub-regional meeting of the Pacific Islands Forum (PIF) for French Polynesia in the Cook Islands on resilience and the climate change impact on the private sector.
- Businesses in French Polynesia against the predicted consequences of climate change.

### 1. The involvement of the private sector of French Polynesia in regional discussions

In 2009, to begin regional integration, the employers' organisations (CPME Polynesia, CPME New Caledonia and CPME Wallis and Futuna) created a common organisation: the SOUTH PACIFIC EMPLOYERS ORGANISATIONS (*'REPRESENTATION PATRONNALE DU PACIFIC SUD'* - RPPS) to initiate exchanges with neighbouring economies in the South Pacific and to defend the interests of the private sector in the three French-speaking territories. The aim is to privilege the regional network over the national network.

#### Various initiatives

- **2015:** First business forums: New Caledonia, participation of Papua New Guinea.
  - **2016:** French Polynesia and New Caledonia joined the Pacific forum as full-fledged members.
  - **2017:** The South Pacific Employers Organisations (RPPS) becomes member of Pacific Islands Private Sector Organisation (PIPSO). Based in Fiji.
  - **2018:** Organisation of the Pacific Business Days event in French Polynesia, hosted by RPPS. It brought together 12 Ministers of Economy from the region as well as businesses and business leaders delegation from 16 economies in French Polynesia.
  - **2019:** Following the Pacific Business Days event and the successful meeting of various delegations, the private sector of French Polynesia met to emphasize its foothold in regional discussions.
- ⇒ **Make the difference between business and politics is a fantasy.** To defend interests through the private sector, it is necessary to create continuity, with a regional perspective: hence, the FPRG.



### 1.1. Presentation of the French Polynesia Regional Group (FPRG)



Founded in June 2019, the French Polynesia Regional Group (FPRG) is a Polynesian Representative Organisation of the Private Sector in the Pacific region that includes:

- **3 institutions:**
  - The Small and Mid-Sized Enterprises Confederation of French Polynesia (CPME PF);
  - The Chamber of Commerce, Industry, Services and Trade (CCISM);
  - The Movement of The Enterprise of France (MEDEF).
- **18 Member States.**

There is a need for coordination in French Polynesia in order to develop economic relations within the region and for French Polynesian businesses to increase their market share. The FPRG aims to: 1) meet neighbour economies and 2) attract people and make them willing to work with French Polynesia.

### 1.2. Presentation of the four missions of the FPRG

**Mission 1:** To contribute to the attractiveness and promotion of French Polynesia.

- To attract and host investors from the South Pacific in French Polynesia.
- To promote regional economic dialogues in the South Pacific region through partnerships and discussions.

**Mission 2:** To advise the Government of French Polynesia.

- To accompany and advise the Government of French Polynesia in its integration process within the region. As such, the association will suggest and conduct studies and/or discussions on various topics related to the development of business relations and economic partnerships for French Polynesia.

**Mission 3 :** To accompany businesses of French Polynesia.

- Import-export procedures side-to-side with the CCISM.
- Regional integration and business network development of the companies.
- To assist in the external growth and market diversification of the companies.
- To create a book of key contacts (institutions, companies) in the Pacific target economies and create business networks.

**Mission 4 :** To participate in any event or forum abroad, that is related to the international development of French Polynesia.

- To accompany Government of French Polynesia in any event or trips that could result in business opportunities for the companies of French Polynesia.

### 1.3. The governance of the FPRG

**The governance is rotating and pragmatic.** The board is composed of the 3 institution representatives (CPME, CCISM, MEDEF), experts in each sensitive field of French Polynesia.

#### Presentation of the representatives (as of January 2020)

Fonction	Nom	Prénom	Organisation
Président	PLEE	Christophe	CPME
1er VP	BAGUR	Patrick	MEDEF
2ème VP	CHIN LOY	Stéphane	CCISM
Secrétaire	WONG	Clet	CCISM
Secrétaire adjoint	DUBOIS	Cyrile	CPME
Trésorier	FABRE	Vincent	MEDEF

- ⇒ The association is exclusively composed of representatives of the CCISM, the MEDEF, and the CPME.
- ⇒ Are full members of the board: 2 members of each organisation.
- ⇒ The presidency is a 2-year rotating presidency between the 3 organisations.

#### Sector specialists proposed by the FPRG

Secteur	Représentant	Organisme
Finances et banques – ADFIP	Matahi BROTHERS	Banque SOCREDO
Formation et compétences	Marie-Odile TURGOT	FPG
Export	Mike AH CHOY	CCISM
Transport aérien	Mathieu BECHONNET	ATN
Transport maritime et infrastructures portuaires	Bud GILROY	Tahiti Cruise Club
Tourisme et hôtellerie	Stéphane RENARD	Archipelagoes
Industrie	Kamakea BAMBRIDGE	Teipora Noni Tahiti
Agriculture	Franck TAUATITI	Hotu Vanilla
Économie bleue - cluster maritime	Gérard SIU	Cluster Maritime PF
Digital et télécommunications	Vincent FABRE	OPEN
Environnement	Brice MEUNIER	CCISM
Energie	Sylvain QUEMENEUR	Pacific Petroleum
Culture	Tiare TROMPETTE	Hei Tahiti

- ⇒ The role of the sector specialists is to bring their technical expertise and knowledge to the FPRG and in return, to benefit from business relations, to connect with key contacts, to be represented and enhance their exposure alongside the FPRG.

- ⇒ 13 sector specialists are identified at the starting point. The selection is based on their skills and the specialists come from the main sectors contributing to the economy of French Polynesia.
- ⇒ Depending on the identified opportunities, the FPRG Office may appoint new sector specialists who can bring their support to the development of the economy of French Polynesia.
- ⇒ The sector specialists do not take part in the votes of the General Assembly and the Offices’.

#### 1.4. Forthcoming actions of the FPRG

**A / Pacific Forum Ministers of Economy Meeting to be held in February 2020 in Suva.** The FPRG intends to host a Polynesian Business Leaders Delegation to attend this forum and promote the Polynesian economy.

**B / Economic-related event in Vanuatu, hosted by the Pacific Islands Forum in 2020** (the date has not been released). The FPRG aims to be represented at the event by a Business Leader Delegate, who will be the representative of the Polynesian economic sector.

**C / Meeting of the Private Sector (PIPSO) in 2020** (the date and venue have not yet been communicated), but the FPRG is exploring how to be represented at this meeting.

**D / Visit of the President Emmanuel Macron in French Polynesia for the One Planet Summit in April 2020.** If French Polynesia agrees, the FPRG could attend this event on behalf of the private sector.

## 2. The first sub-regional meeting of the Pacific Islands Forum (PIF) for French Polynesia in the Cook Islands on resilience and the climate change impact on the private sector

The sub-regional workshop suggested by Polynesia provided the private sector, the government and other stakeholders with a platform to dialogue and have open discussions, with an emphasis on the improvement of the private sector contribution to the strengthening of the resilience within their respective communities and economies. The workshop addressed the following problematics:

- The overall architecture of climate financing.
- The role of various stakeholders, including the private sector, in facilitating the access and/or the involvement to the investment activities, by emphasizing the Green Climate Fund (GCF – United Nations).



Therefore, there is a better understanding from the stakeholders of the private sector and the Government Officials of the possible financing sources available and the way to get those, including the GCF.

### Implementation arrangements

-> The Secretariat of the Pacific Islands Forum (PIF), in collaboration with the Climate Change Cook Islands Office, with the finance support from the Intra-ACP Global Climate Change Alliance (GCCA) Plus Pacific Adaptation to Climate Change and Resilience Building (PACRES), i.e. European Funds.

It should be noted that French-speaking territories do not have access to the support fund, which is deployed by various economies that are members of the PIF.

### 3. Businesses in French Polynesia against the predicted consequences of climate change

According the Carbon Disclosure Project, around a hundred companies generate 71% of the global greenhouse gas emissions since 1998 and thus, it establishes a direct link between the economic activity and global warming.

As a reminder, at COP21, the General Commission for Strategy and Foresight (*'Commissariat Général de la Stratégie et de la Prospective'* - CGSP), France Strategy, conducted a Small and Mid-sized Enterprises (SMEs) survey about their perception of climate change. The results are striking: 77% of the SMEs are aware of the major risks to which climate change exposes them. The main issues, such as a decrease in primary resources availability, drought, deforestation, or rising temperatures, are elements that some of them prioritize.

According to some studies, we shall expect a drop in river flows by 6% to 19%, more frequent and longer drought periods, an increase in temperature with more heat waves. The overall economy and global production will be significantly impacted if such forecast were to occur. Moreover, the annual population growth, which is approximately 80 million people per year, is alarming.

As an entrepreneur, I am pessimistic. Some of the companies, which are already funded by Chinese companies, are letting them fishing within their areas.

The **French Polynesian companies must think about the forthcoming climate change effects:** warming waters, migration or even the disappearance of the fishing resources, a drop in rainfall directly linked to the production of fresh water and power by hydroelectric dams, an increase in the number of cyclonic episodes, tsunamis, etc. All of this raises the issue about what is falling within the corporate social responsibility.

The **economy of French Polynesia will be particularly impacted by the consequences of global warming** through the import of goods. Indeed, the increasing challenges that Great Nations are facing in the production processes, will irrevocably impact our insular economy.

We have to face the truth: Polynesian companies, although slightly aware of global warming, can hardly identify the causes and consequences of their activities on the environment.

Like most of the Small Pacific Economies, the business sector base is mainly composed by Very Small Enterprises and SMEs. 90% of the Polynesian companies have fewer than 5 employees. It is thus fundamental to keep in mind this figure to understand the concerns of the Managers and their priorities.

Although the consequences of global warming issue is repeatedly mentioned by the media and reports, the business managers and leaders hardly capture the involvement of their structure within the long-term process of resilience.

### **Conclusion**

That is the reason why, I believe that the first urgency lies in the disclosure and awareness of the business managers and in the environmental challenges of their activities. It is the responsibility of the State and the economy to communicate. This work should not be restricted to government circles.

*(Design of a **Business climate Plan**, that aims to communicate and raise awareness among business managers in the French-speaking territories in South Pacific, represented by Wallis and Futuna, New Caledonia and French Polynesia).*

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## Sustaining local resilience in the Pacific Islands; a Circular Economy approach

Jean-Luc LE BIDEAU, Vice-Chair of FPTPECC, on a joint research with Dominique BONET FERNANDEZ, HDR Professor at IPAG Business School Paris

This is the 4<sup>th</sup> meeting that will discuss about circular economy, as a follow-up to the previous ones, during which the following subjects were presented: tourism, oceans and maritime transports, natural resources and resilient infrastructures to tsunamis. Indeed, islands territories are subject to specific constraints, depending on the degree of remoteness.

### Why talking about circular economy?

Namely to survive to strongest environmental pressures they have (compared to continental territories), to be sensitive to change and to be able to initiate response strategies. In this regard, the Trajectory 5.0 initiated by the French Government perfectly takes into account the notion of anticipation and preparedness, which are both new.

*"It is not the strongest of the species that survive nor the most intelligent, but the one most responsive to change". (C. Darwin)*

## 1. Resilience and risk management <sup>10</sup>

**Resilience** can be seen as the ability to accommodate abnormal threats and events, be they modifications derived from climate change, or natural disasters such as earthquakes, sea level rise or even economic shocks. Most definitions, particularly those involving individuals, communities and organizations also refer to identifying, assessing and communicating the risk from such threats and events.

**Understanding the probability and the magnitude** of potential threats enables an organization to make decisions on how best to reduce the probability and/or impact of such threats, to transfer the risk by taking out adequate insurance.

If not, they are to be ready to accept the potential consequences.

### 1.1. A Circular economy approach to risk management

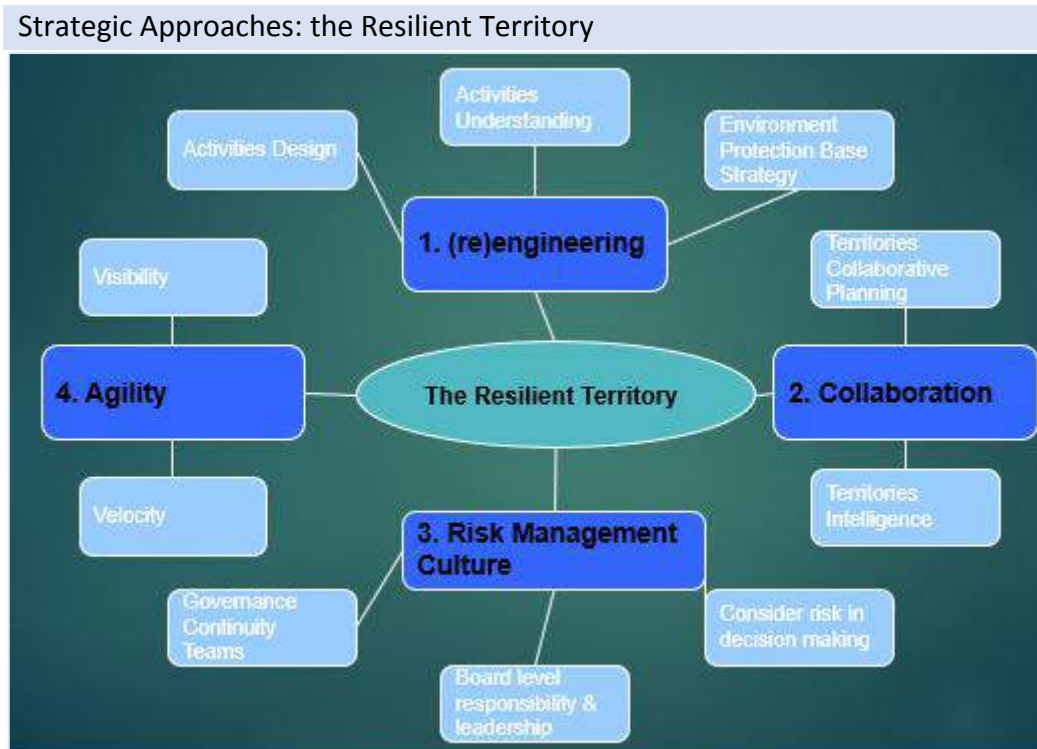
**Circular economy** <sup>11</sup> can be understood, as a "territorial dynamic", as an integrative and proximity process, applicable to all "actors" and to all levels of socio-economic and ecological organization, with the objective of developing technological and political "dynamics", etc. In

<sup>10</sup> <http://torrensresilience.org/resilience-and-risk>

<sup>11</sup> Source: <https://www.eco-sol-bres.net> "Geography of the circular economy beyond developed economies". Intervention J.C Lévy, June 2016, United Cities Colloquium on Decentralized Cooperation

other words, "an ability to control energy production, reduce, recycle and reuse solid, gaseous, organic and inorganic material flows, ...".

## A / Creating a Resilient system: Strategic Approaches <sup>12</sup>



The strategic approaches of a resilient system are the following:

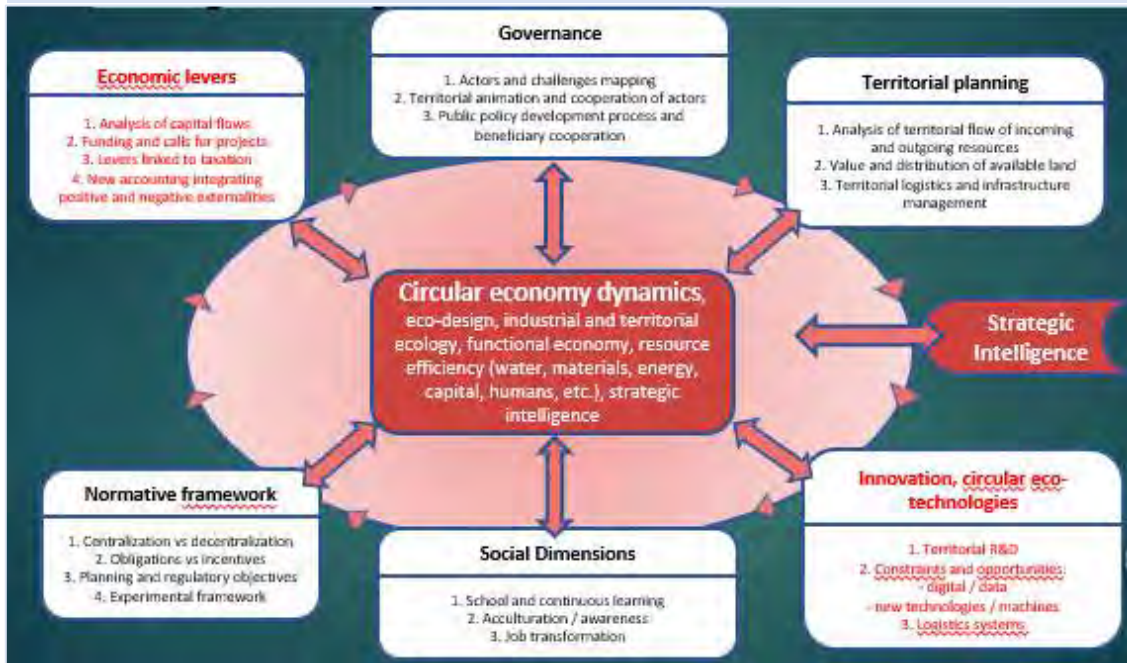
1. **Re-engineering:** activities design and understanding, implementation of environment protection base strategy.
2. **Collaboration:** territories collaborative planning (between close territories) and territories intelligence.
3. **Build a Risk Management Culture** (preparedness to risks): governance continuity teams, Board level responsibility and leadership, and consider risk in decision making.
4. **Agility:** to have a great visibility on the probability of risk occurrence and bring prompt responses to the potential risks (velocity). **Anticipation is thus key to successfully bring a response.**

<sup>12</sup> Source: Adapted from O. Khan, <https://slideplayer.com/slide/6166455/>

## B / Setting a structural Resilient system

This dynamo approach corresponds to an upstream reflection and a response afterwards.

Strategic Intelligence : a 'dynamo' mechanism <sup>13</sup>



It represents the main stakeholder strategies for the dynamics of the circular economy in local communities and other SPLs, covering various dimensions: eco-design, industrial and territorial ecology, functional economy, resource efficiency (water, materials, energy, capital, humans, etc.), strategic intelligence.

### A. Economic levers

1. Analysis of capital flows
2. Funding and calls for projects
3. Levers linked to taxation
4. New accounting integrating positive and negative externalities

### B. Governance

1. Actors (public and private) and challenges mapping
2. Territorial animation and cooperation of actors
3. Public policy development process and beneficiary cooperation

### C. Territorial planning

1. Analysis of territorial flow of incoming and outgoing resources  
-> water management, SWAC, energy, etc.
2. Value and distribution of available land
3. Territorial logistics and infrastructure management

<sup>13</sup> Source: Lévy, M. Weber, A. Deboutière, H. Maurer, V. Aurez, 2019

**D. Innovation, circular eco-technologies**

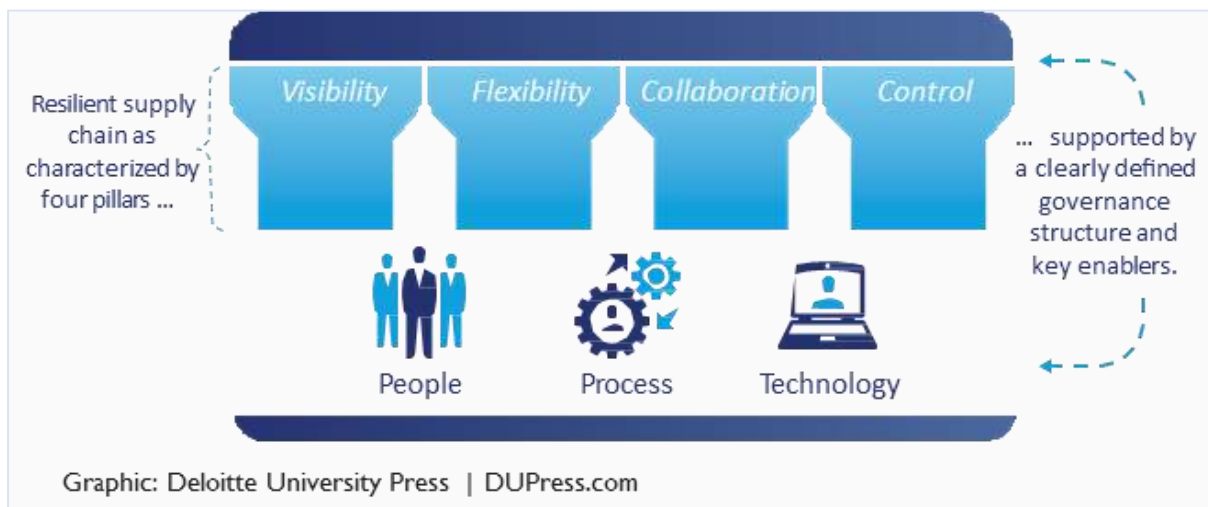
1. Territorial R&D
2. Constraints and opportunities: digital / data, new technologies / machines
3. Logistics systems

**E. Social Dimensions**

1. School and continuous learning
2. Acculturation / awareness
3. Job transformation

**F. Normative framework:** rules enacted and that apply in Paris are not (necessarily) applicable in Pacific territories. Therefore, a **legislative framework for all the region** could be considered as a solution.

1. Centralization vs. decentralization
2. Obligations vs. incentives
3. Planning and regulatory objectives
4. Experimental framework

**1.2. Deloitte model of resilient supply chain: to adapt to islands**

The model is characterised by four pillars: visibility, flexibility, collaboration and control, which are supported by a clearly defined governance structure and key enablers (people, process and technologies).

**2. Main type of risks**

**3 type of risks** can be addressed:

1. **Climate risks:** rise of sea water level , tsunamis, storms;
2. **Tourist risks:** exponential influx of tourists;

3. **Risks related to waste** (plastic, waste, etc.) and **insufficient waste management** (urban sewage).

### 3 problematics

1. **Need to protect ecosystems** (natural areas, polluted shells that can no longer be collected and sold);
2. **Need to regulate tourist flows;**
3. **Need to set up a waste management policy and globally a circular economy** (reduce, repair, reuse, recycle).

#### 2.1. Risks and risk management

**Risks management** is systematically setting the best course of action under uncertainty by identifying, assessing, understanding, acting on and communicating risk issues.

Environmental risks	Tourist risks
<ul style="list-style-type: none"> <li>• Consequences of <b>(over) consumption</b> and <b>no waste management</b>;</li> <li>• <b>Natural disasters</b> (flood, fire, storms, sea level rise, etc.);</li> <li>• <b>Terrorism and war</b>;</li> <li>• <b>Regulatory changes</b>;</li> <li>• <b>Tax, duties and quotas</b>;</li> <li>• <b>Strikes</b>.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>No control of tourists flows</b>: for instance the protected zones in Chile;</li> <li>• <b>Carbon impact of transport</b> (especially aerial transport);</li> <li>• <b>Waste impact</b>;</li> <li>• <b>Destruction of fragile environment</b>;</li> <li>• <b>Exponential trends</b>.</li> </ul>

#### 2.2. Example: The Reunion Island – a territory in the Indian Ocean

##### A / Geographical and economic specificities

- **High dependence on external supplies of raw materials** (particularly fossil fuels) and finished products. According to a study of Reunion Island's territorial metabolism conducted in 2016, imports accounted for 20% of direct material inputs into the territory compared to 17% in France nationally.
- In **economic terms**, the situation is even more striking since Reunion Island's trade deficit in 2017 amounted to €4.8 billion (or about 25% of regional GDP), compared to €62.6 billion nationally (or about 2.7% of national GDP for France).
- The problem is similar for **waste treatment outlets**. In addition to landfilling and incineration, local recycling solutions (excluding construction waste) remain residual and significant quantities of waste is emitted to metropolitan France for recovery.

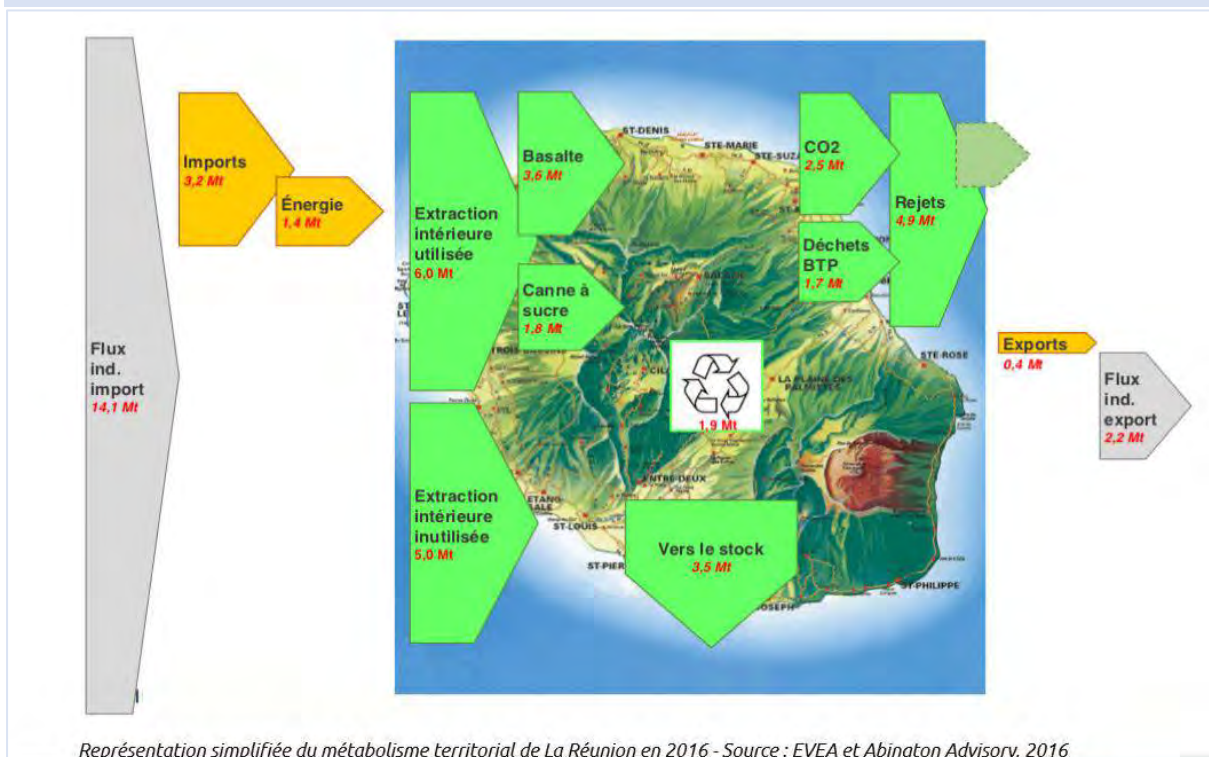


- This **structural dependence** is shared by most island and/or constrained territories. However, it has a cost, both socio-economic and environmental.
- ⇒ Therefore, the question arises of working on the resilience of overseas departments and regions.

**B / Its territorial metabolism: the example of the cane industry circular economy**

([https://www.youtube.com/watch?time\\_continue=45&v=PPLYxMHGGGc&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=45&v=PPLYxMHGGGc&feature=emb_logo))

Negative import-export





## Application of the circular economy to the cane industry



## C / The risk prevention plan (PPR)

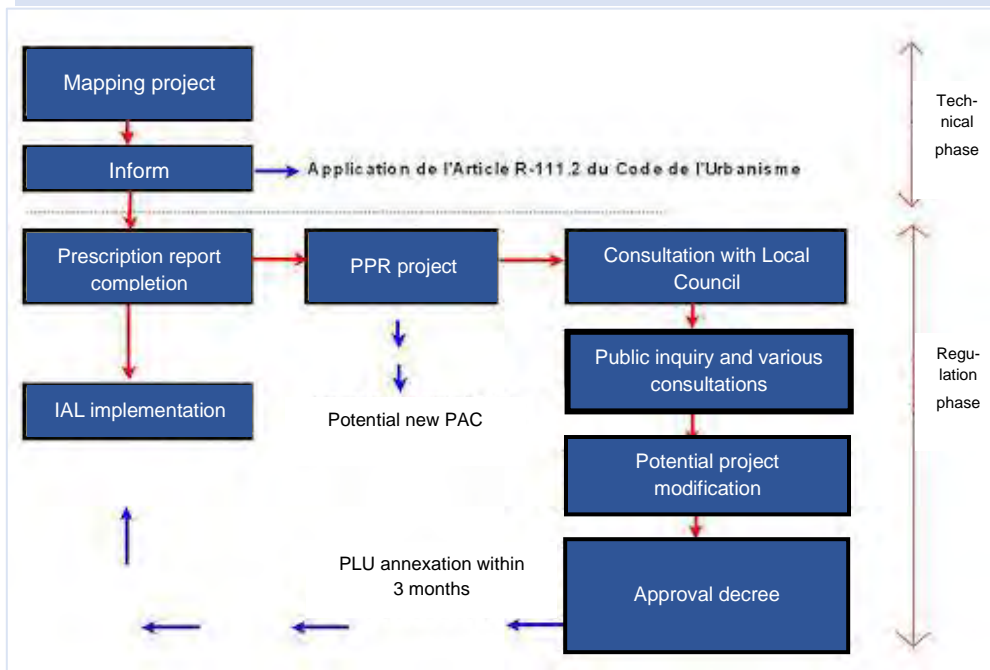
**Risk prevention plans (PPRs) (Figure 1.)** in Reunion Island map areas at natural risk (flooding, ground motion, marine submersion and coastline retreat) and regulate land use and occupation in these areas.

These **regulations** range from a ban on building to the possibility of building under certain conditions. They may also suggest refurbishing of existing buildings and infrastructures. PPRs are designed by the State services in consultation with local authorities; urban planning authorisations (building permits, advance declarations, etc.) must comply with them.

In **2018**, there was a first report on risk prevention management prepared by the Senate Overseas Delegation. In 2019, 40 proposals are being made by the Senate Overseas Delegation and in 2019 the Ministry for Overseas Territories launches the Trajectory 5.0 for the French Overseas Territories. There is a strong convergence of the trois reports.

1. Strengthening the **capacity for anticipation and prevention**;
2. **Preparedness, acculturation and anticipation** of populations to those risks;
3. Making **crisis management capacities more robust** (which nevertheless remain rather tenuous for the moment);
4. **Adopt a directive and inclusive approach**: that everyone should be involved and the communication from the government is oriented towards private sector.

**Figure 1.** The PPR procedure



Most recently, the **2019** report aims to foster resilience to natural hazards with three issues:

1. Assessing the **risk of climate change**: what are the risks and how to identify them;
2. Planning in a **sustainable and resilient manner**;
3. **Financing issues** - primarily from the State, multilateral, or unilateral (State or companies).

Moreover, China's pre-eminence in terms of funding in the zone is a sign of a lack of funding (cf. the Europeans and the French). The question of the capacity of government donors to finance these environmental projects, thus, arises.

## Conclusion

**Rely on legal framework, formal and informal concertation, pluri-disciplinary, to implement integrated and successful circular models in resilient territories.**

## Appendix

Typology of External, End to End Risks	Other risks
<p><b>1. Natural Disasters</b></p> <ul style="list-style-type: none"> <li>- Epidemics, Earthquakes, Tsunamis</li> <li>Volcanoes, Weather disasters (hurricanes, tornados, storms, blizzards, floods, droughts)</li> </ul> <p><b>2. Accidents</b></p> <ul style="list-style-type: none"> <li>- Fires, Explosions, Structural failures, Hazardous spills</li> </ul> <p><b>3. Government Compliance and Political Uncertainty</b></p> <ul style="list-style-type: none"> <li>- Taxes, customs, and other regulations</li> <li>- Compliance issues</li> <li>- Regulatory financial reporting (e.g. Sarbanes-Oxley)</li> <li>- Operations</li> <li>- Logistics / Trade</li> <li>- Regulatory Approvals - Marketing Approvals</li> <li>- Public Health</li> <li>- Environmental requirements</li> <li>- Trade restrictions (e.g. Buy American Act)</li> <li>- Regulatory Audit history</li> <li>- Currency fluctuations</li> <li>- Political unrest</li> <li>- Boycotts</li> </ul> <p><b>4. Labour and Skills</b></p> <ul style="list-style-type: none"> <li>- Availability, Quality, Cost, Unrest, Strikes</li> </ul>	<p><b>5. Industrial risks</b></p> <ul style="list-style-type: none"> <li>- Capacity constraints</li> <li>- Unstable prices</li> <li>- Lack of competition</li> <li>- Entry barriers</li> <li>- Capital requirements</li> <li>- Certification</li> <li>- Cost trends</li> <li>- Recessions/Inflation</li> </ul> <p><b>6. Lawsuits</b></p> <ul style="list-style-type: none"> <li>- Environmental</li> <li>- Health and safety</li> <li>- Intellectual property</li> </ul> <p><b>7. Technological Trends</b></p> <ul style="list-style-type: none"> <li>- Emerging technologies (pace/direction)</li> </ul>

## SESSION 2: HOUSING RESILIENCE TO NATURAL RISKS; ANTICIPATION AND PROTECTION AGAINST SEA LEVEL RISE

### Resilient Housing in Polynesia

Jean-Christophe BOUISSOU, Minister for Housing, Urban and Regional Planning, in charge of Inter-insular Transport, French Polynesia

*Address.*

### 1. The climate and oceanic threat in French Polynesia

With 121 islands spread over a larger area than Europe, an exclusive economic zone of 5.5 million km<sup>2</sup>, including 3,500 km<sup>2</sup> of land area, and only 20 high islands, French Polynesia is unequivocally among the most worrying cases of climate and oceanic evolution.



Rising sea levels, heavy precipitation, floods, cyclones, droughts, and storm surges now paint the picture of climate and ocean threats facing the 280,000 residents of our overseas community.

It is in French Polynesia that the rates of annual change in sea level are the highest over the past 60 years, 2.9 mm/year<sup>14</sup>.

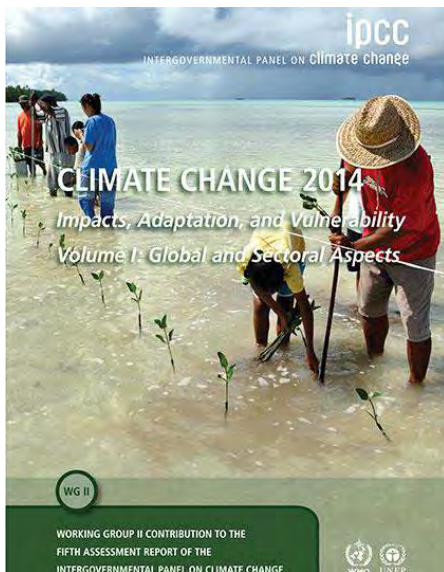
This increase will have consequences on the risks of submersion and erosion of the coastline. Rising sea levels could also cause saline intrusions into the freshwater lenses of the 84 inhabited atolls.

<sup>14</sup> Yates et al., 2013, Meyssignac et al, 2012

In the Austral Islands, the islands of Maria, Rurutu and Tubuai remain the most exposed. Tubuai also has a green belt of *Aïto* (*Casuarina equisetifolia*) on its littoral zone, these planted trees are real breakwaters and testify to the regular presence of strong swells on this island<sup>15</sup>.

In the Society Islands, Maupiti, Bora Bora, Tahaa and Raiatea are the most exposed high islands, while Bellingshausen, Manuae and Mopelia are the atolls of the Leeward Islands regularly swept by cyclones and Tropical storms <sup>16</sup>.

## 2. What are the actions elsewhere and in the Pacific?



In Kiribati, the government plans in the coming decades to develop adaptive measures, and then by the end of the century, the migration of residents. On the adaptive level, the economy does not seek to reinvent its territories in an attempt to maintain them despite the changes: for example, it does not reflect on options for adapting the habitat or moving populations in areas that it would raise <sup>17</sup>.

In the Maldives, following the tsunami of December 26, 2004, the government is trying to find solutions: territorial reorganization, development of "refuge islands" <sup>18</sup>.

In Tuvalu, the inhabitants are planting mangrove trees (Paletuviers) in order to develop mangroves, as the process is considered a gentle option when it comes to the protection against sea-related risks. As a source of biodiversity, they also make possible to clean up the water of lagoons. The mangrove plantation is an image used by the economy to communicate its concerns about climate change and its ability to act in the face of the threat.

## 3. Actions carried out in French Polynesia

Natural disasters are already part of the collective memory of Polynesians.

More than half of the population has already faced a dangerous natural phenomenon such as cyclones, landslides, storm surges, floods, etc.

In the Tuamotu archipelago, cyclones expose the population to a certain danger of death, dramatically illustrated by the episodes of 1878, 1903 and 1906. In the aftermath of the cyclone of January 1903 on a Tuamotu atoll (Hikueru), the words of the Reverend Father

<sup>15</sup> Larrue personal observation.

<sup>16</sup> Sébastien Larrue and Thomas Chiron, « Les îles de Polynésie française face à l'aléa cyclonique », décembre 2010

<sup>17</sup> Esméralda Longépée, « Les atolls, des territoires menacés par le changement climatique global? L'exemple de Kiribati (Pacifique Sud) », *Géococonfluences*, 2015

<sup>18</sup> Magnan, 2006

Clément testify to their violence: "*there is not even any more ground to bury the dead, the sea has dug the ground to the limestone rock.*"

To address this risk, public policies have given priority to securing people by building so-called "anticyclone" shelters. The populations of the Tuamotu atolls, the most exposed to the risks of marine submersion with waves up to 12 m<sup>19</sup> and strong winds in cyclonic period, can now find refuge in these shelters, built in each village to withstand strong winds that can exceed 300 km/h.<sup>20</sup>.

Anti-cyclonic shelters in the Tuamotu



The **Natural Risk Prevention Plan** (PPR) has been implemented for several years across the economy. The first PPR files were applied in the municipalities from 2002. This plan identifies the areas subject to risks concerning tsunamis, floods, ground movements, cyclonic swells and earthquakes. It allows individual or collective constructions to be authorized on a case-by-case basis, subject to arrangements allowing these risks to be limited in order to continue ensuring the safety of people and the assistance organization.

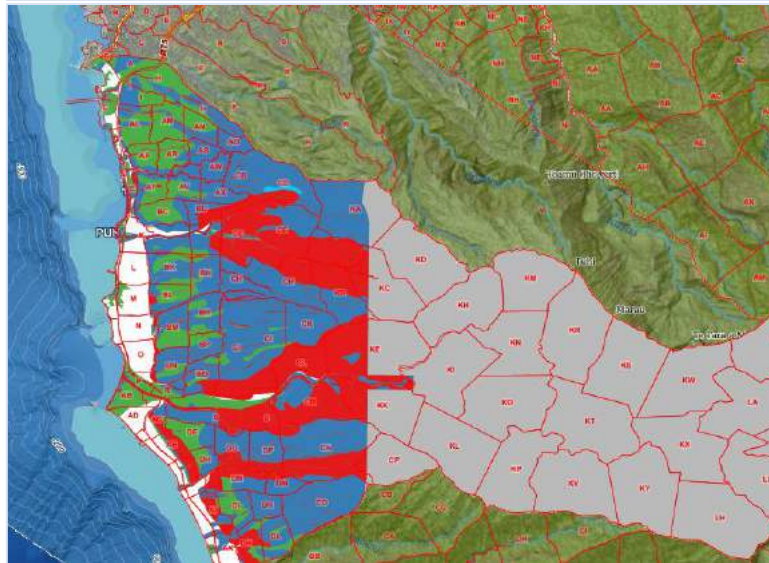
Finally, the **General Development Plan for Polynesia** (SAGE) will be applicable from the 1<sup>st</sup> quarter of 2020: it will trigger the implementation of development and sustainable development projects (PADD) in each archipelago, taking into account the issues related to their vulnerability to different climate and geological phenomena.

<sup>19</sup> Harmelin-Vivien ML, Laboute P 1986. Catastrophic impact of hurricanes on atoll outer reef slopes in the Tuamotu (French Polynesia). *Coral Reefs* 5 : 55-62

<sup>20</sup> Anna Rios Wilk septembre 2013. *Analyse préliminaire du rapport bénéfice-coût des solutions d'adaptation à l'aléa houle cyclonique des l'archipel des Tuamotu, Polynésie française, Secretariat of the Pacific Community.*



## Overview of the PPR plan applied in French Polynesia



#### 4. The traditional *fare*, an example of housing suited to climate hazards and the environment

The ethnologist Moerenhout<sup>21</sup> recounted in his writings, that the Tahitians could not support the idea of being locked up, a *fare* could therefore be open from all sides or have only one side open, while the other, exposed to the winds, was closed by mats.

The **traditional Polynesian *fare*** was constructed from the materials available on the islands: volcanic or coral stones to pave the ground inside and very rarely, for the walls. Soil, sand and long grass were used for the soil and cords of *pūrau* (bourao) or coconut fluff were used as fasteners for the walls, partitions and roof.



Bamboo canes, tied upright in partitions, allowed air and light to pass through, while split canes, hammered in flat braided plaits, were used to create more opaque partitions.

For the frame and the stilts, natural solid wood such as *pūrau*, pandanus, or fruit trees made solid constructions. The frame had to be high and sloping for greater resistance of the roof to wind and rain. Finally, the roof was covered with dried pandanus leaves.

<sup>21</sup> Jacques-Antoine Moerenhout (1797-1879) : ethnologist, Consul General of the United States in the Oceanic Islands from 1835 to 1837, Consul of France in Tahiti from 1839 to 1844

The usual size was 7.2 x 3.6 meters. The roof was placed on 3 rows of pillars in the centre, 2.7 meters high, those on the sides 1.20 meters high.

The floor was covered with a thick carpet of *nōnoha* (long, fragrant grass). There was no interior partition, the couples slept together, the other family members were grouped separately by sex.

The houses were sometimes built on a paved terrace and most often on stilts 1.2 meters above the ground near rivers and the sea to protect themselves from humidity <sup>22</sup>.

These traditional *fare*, constructed of lightweight plant-based materials found on inland agroforestry lands, facilitated response and recovery when threatened with submersion.

If the inhabitants were surprised, these structures could be moved, or rebuilt quickly by going to collect building materials in the interior lands.

These traditional constructions already constituted a form of resilient housing, adapted to their time when materials were readily available.

Adapted to the climate and its environment, the traditional *fare* has today disappeared in favour of structures inspired by modern western architecture, unsuitable for the climate conditions of Polynesia. The so-called "hard" houses, concrete blocks, concrete and plates, signs of social wealth and modernization, transformed the habitat into an overheated greenhouse, requiring electrical air conditioning.

Compared to the precariousness of traditional *fare*, they have the advantage of being resistant in the long run. But these homes, if they are designed in line with standards that do not allow them to withstand high winds or heavy rains that we know during the bad weather season, can be easily destroyed by the elements.

## 5. The OPH *fare*: a sustainable social, economic, cultural and environmental compromise

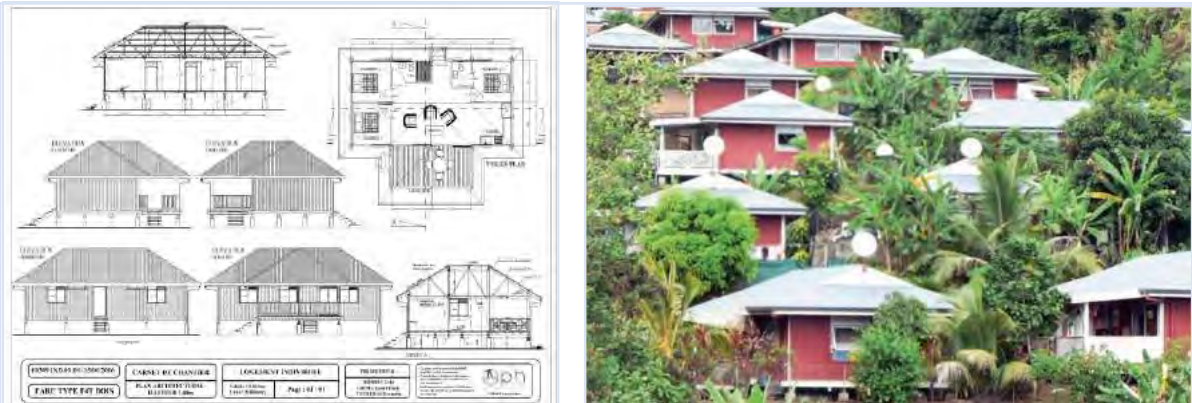
After a particularly dramatic cyclonic episode in 1983, which saw 6 cyclones succeed in 4 months, French Polynesia had to think of an emergency solution to relocate in a sustainable way the populations affected by natural disasters.

Since the first models to meet the need for reconstruction, the current OPH *fare* is the 5<sup>th</sup> of its generation. It has undergone modifications over the years to improve its price-quality ratio, its resistance to winds of more than 200 km/h, and its ability to protect against submersions of less than 1.5 meters in certain cases. With normal maintenance applied to wooden construction, the average duration of this construction is 20 years.

<sup>22</sup> Natea Montillier, « *Fare, la maison polynésienne, d'hier à aujourd'hui* », September 2012



The “OPH fare” - 5<sup>th</sup> generation (*Fare F4* in wood)



The ease of assembly and the relatively low cost of the OPH *fare* makes it the most popular kit house in low-income households.

More than 4,000 *fare* OPH have been granted since 2013 in French Polynesia. According to the elements of the 2017 census, nearly 13% of Polynesian households (10,000 families) or around 35,000 people live in this type of construction <sup>23</sup>.

The economy is committed to a quality approach in the design and implementation of the OPH *fare*.

**6. Ease of reproduction**

The logistical packaging of these “fare” has been studied so that they can be transported and delivered to all the destinations of our 5 archipelagos, regardless of their port infrastructure. Impossible deliveries are extremely rare (only one *fare* won’t be achieved in the 500 units planned in 2020 due to lack of access).



By its modular design, our *fare*, meeting all the standards of the French Polynesian Planning Code, is achievable and adaptable to all general development plans (PGA), which greatly facilitates the administrative procedures of permit to build.

<sup>23</sup> Source OPH, Scoreboard as of 9 October 2019, cumulative figures 2013-2019

The *fare* can be built in 1 month with the presence of electrical energy (network or generator), and in 2 months even without any energy source, the design authorizing the "old-style" frame (shovels, hand drills, hammers, hand saws, screwdrivers).

#### Steps of the construction of the OPH *fare*



## 7. Economic sustainability

An average of five workers is needed to build a *fare*.

By design, only one fitter is needed for construction, whatever the type of fare (F3, F4, F5, etc.), which allows the recruitment in situ of 4 or 5 workers paid at 156,000 gross XPF by "fare" and by month.

The OPH "fare" therefore makes it possible to offer an economic activity other than copra, noni, vanilla, etc in the islands.

Today more than 100 individual companies are contracted by the operator for the assembly. Our production forecasts for 2020 are 50 *fare* per month with these companies. Thus 500 *fare*

over the year, 10 months of construction and 2 months to obtain compliance. This rate allows us to deliver up to 2.5 *fare* per working day.

The ease of spin-off of the teams of these companies and the ease of setting up the *fare* allow us to meet an ever-increasing demand.

## 8. Use of local materials

For the first time the Caribbean pine, present on all archipelagos outside Tuamotu, will be used for the construction of our *fare*. Introduced in 1960 on the high islands of French Polynesia, *Pinus caribaea* has just been standardized as construction timber <sup>24</sup>.

All 1,500 *fare* "deck terraces" (one of the elements of the building most exposed to the weather and solar radiation) will be made from this material. Current production for "deck terraces" only covers 2% of OPH's wood requirements to carry out the 1,500 *fare* program.



This decision allows local operators to enter a market, to have a vision of development, to invest, and to have a full-scale laboratory on the long-term quality of the materials they produce.

Strong growth potential is possible if the trials underway over the next 3 years are convincing in terms of quality and ability to honour their current contractual commitment, particularly in terms of delivery time.

This perspective will allow us to significantly improve the carbon footprint of our *fare*.

The use of local wood for the construction of terrace decks will represent 2% of direct income to local wood producers until 2022.

In the longer term, and subject to the behaviour of this product over time, the integration of Caribbean pine wood may also serve the very structure of the *fare* in order to improve production costs.

A study along these lines was initiated by French Polynesia as part of the National action program for the quality of construction and the energy transition (PACTE), associating several local and regional public and private partners (New Caledonia, Wallis and Futuna, New Zealand) to define a design reference to limit environmental impacts and guarantee the

<sup>24</sup> Order No. 718 CM of 23 April 2018 on Caribbean pine timber standards of French Polynesia.

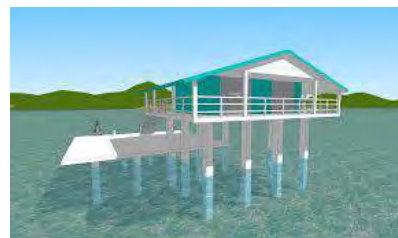


quality of constructions. A 3D model of all-wood *fare* should be built soon, which will measure hygrothermal and thermal comfort, as well as the quality of the interior light.

## 9. Adaptation to flood hazard in the PPR red zone

The OPH *fare* in its current design is able to cope with the vagaries of the weather in building areas.

The implementation of **risk prevention plans** (PPR) in French Polynesia, as well as climate change have somewhat changed the situation. Indeed, without additional studies to deal with these risks, **authorization to build a OPH fare in red flood zone is impossible to obtain.**



We have been working since late 2019 on studies to overcome this hazard and will be able to meet this challenge in 2020, after consulting with various design offices. Once this stage is completed, all of the studies and plans will have to be validated by the local control offices.

The main pitfall regarding the PPR being the resistance to floods as well as the elements carried by it, on the foundations and pilings of our "fare". A resizing is being finalized.

## 10. The OPH *fare*, the fruit of bioclimatic studies

For more than 40 years of existence, the OPH *fare* has become the non-competitive product in French Polynesia. Logistical, erection and price constraints got the better of attempts to introduce prefabricated kit houses imported from the United States, Australia, New Zealand, Indonesia and China, which could not compete with the adaptability of the OPH *fare* across French Polynesia.

An OPH *fare* was the subject of a bioclimatic study in partnership with the University of California Berkeley (UCB)<sup>25</sup>. This study, conducted in 2012, was a first in French Polynesia and the Pacific. A set of connected sensors made it possible to have real-time monitoring of the behaviour of the "bioclimatic fare" 24/24, for one year.

Its purpose was to analyse the bioclimatic behaviour of an OPH *fare* occupied by a family for a year, and to open up avenues for improvement in terms of comfort, sustainability, carbon footprint, from construction to use of the *fare*.

<sup>25</sup> "Sustainable Housing in French Polynesia," Richard B. Gump South Pacific Research Station of the University of California at Berkeley (UCB), 2012

The research resulted in several observations which made it possible to change the OPH *fare* on:

1. Its thermal response and its comfort for the user
2. Its carbon footprint
3. Its functional and cultural coherence

The **recommendations for improvement** in this study have already been implemented for the current OPH *fare*: roof ventilation, introduction of a large volume of air into the main room, use of materials with high thermal inertia, insertion of grids ventilation, use of sliding shutters, optimization of the structural framework to allow the integration of a solar water heater as well as a water recovery and reuse system.

These improvements have reduced the carbon footprint of materials by 40% and present a potential saving of water of 30% and electricity of 40%.

There are still avenues to explore, such as the integration of a natural roof and the separation of spaces by function corresponding to local lifestyles and the organization of traditional *fare*.

Their technical, economic and functional characteristics place the OPH *fare* among sustainable resilient housing solutions in the overall strategy of overseas economies and communities to combat climate change.

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## Prevention of Coastal Disasters and Housing in Chile: Lessons to move forward with a Coastal Act

Juan Esteban BUTTAZZONI, Representative of CHILPECC and Environmental Lawyer

### 1. Introduction

#### 1.1. Presentation of Chile

##### Coastal context

- 4,391 kilometres of coastline (comparable to Europe's **(Figure 1)**);
- Including fjords and coastlines of 83,500 kilometres: **twice the earth circumference!!**

##### Coastal population

- 21% of total population living within 10 km from the coastline;
- More than 75% of the population living within 100 km of the Coastline.

##### Coastal hazards and risks

- A seismic economy: earthquakes and tsunamis (2010);
- Climate change: more frequent extreme storm events and sea level rise;
- Coastal erosion: it has been recently assessed that urban growth and development triggered coastal erosion, additionally to waves or tsunamis.

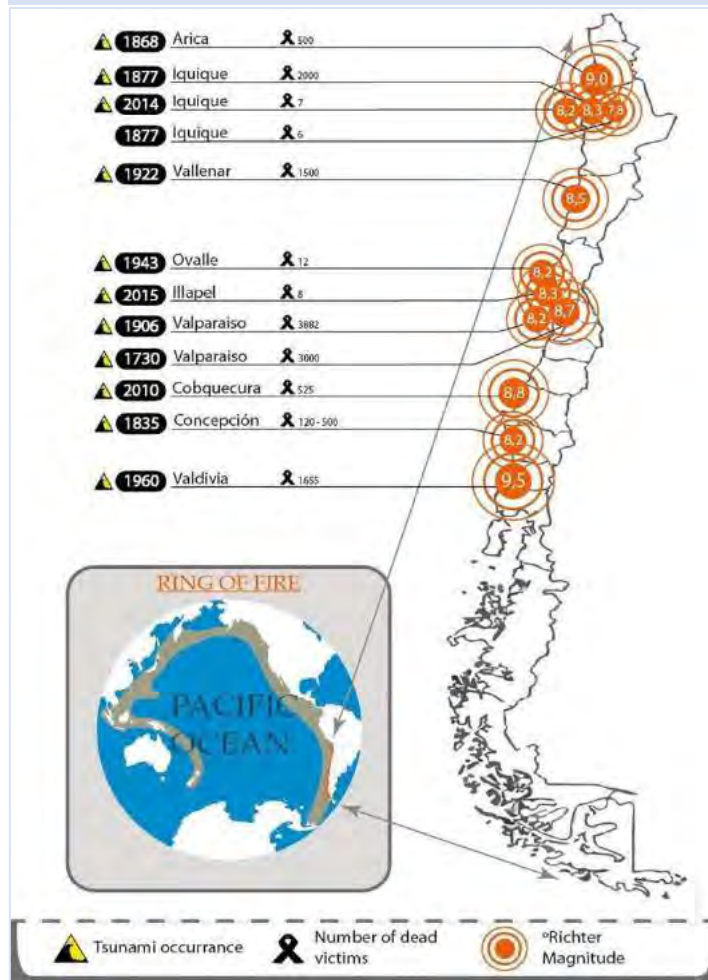
Figure 1. Map of Europe



#### 1.2. A seismic economy

Chile is located on the **Ring of Fire (Figure 2)** of the Pacific Ocean. But Chile has a traditional experience in terms of reconstruction and resilience, not only about environment, but a culture of earthquakes and tsunamis.

Figure 2. The Ring of Fire <sup>26</sup>



Over the last decade, tsunamis and earthquakes produced significant economic and social losses within the Coastal Areas, resulting in losses of:

- (2013) Maule coast: USD 30 million;
- (2014) Iquique: USD 1 million;
- (2015) Coquimbo: USD 1 million.



**Maule**



**Iquique**



**Coquimbo**

<sup>26</sup> References: Arias JP, Bronfman NC, Cisternas PC, Repetto PB. Hazard proximity and risk perception of tsunamis in coastal cities: Are people able to identify their risk?. PLoS One. 2017;12(10):e0186455. Published 2017 Oct 31. doi:10.1371/journal.pone.0186455



### 1.3. Coastal Urbanization and Development post Tsunami 2010 – Lessons learned

#### A / A few examples

##### Puertecillo



In 2009, there were areas with no development and no constructions at all. In 2010, a tsunami occurred, and 3 people died. And now, in 2018, all the area is developed (red zone).

##### Pelluhue



The municipality of Pelluhue is a flooding zone (yellow line) and was completely erased in 2010. In 2019, we can see a few reconstructions (red zones).

##### Papudo



In the red zones, there are new constructions because they are granting permits, despite they are in the flooding area (yellow line).

Therefore, I am trying to understand: **how we are granting some constructions permits in those areas?** They have insurance against tsunamis, fire, but more research needs to be conducted about climate change or sea level rise within insurance market.

#### B / Post-tsunami 2010 issues

- Where are the local councils?
- How come we are granting constructions permits while knowing what happened in the past?
- Why are we building in zones we know high exposed to risks?

C/ Viña del Mar – Key figures

Number of institutions located in the flooding zones or flood zones:



**39 schools** in flooding areas (19% of the total);  
**2 hospitals** in flooding zone (50% of the total);  
**1 police station** in the flood zone (11% of the total);  
**5 firefighter stations** in flood zone (55% of the total);  
**More than 10% of the residents** of the local council are in the exposure area! (30,000 inhabitants).

2. Natural disasters

2.1. Climate change



In January 2020, was released the first and most complete study of Coastal Risks due to Climate Change impacts within Chile’s coastline, led by Dr. Patricio Winckler from the University of Valparaiso. The objective of this study was to analyse the number of people and housing currently living below 10 masl (meters above sea level).

**Observations**

**Main threats**

A / Frequency of sea storms and determination of sea level rises.

B / Historical flooding level.

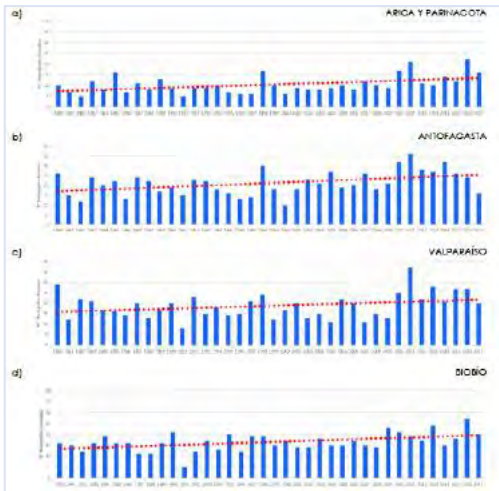
**Exposure risks**

A / A total of 15,766 km<sup>2</sup> were analysed (approximately 4.05% of the national territory).

B / The data was categorized in population, infrastructure, equipment, economy, natural systems.

**Vulnerability** for coastal housing and human systems located below the 10 masl.

### 2.2. Storm events

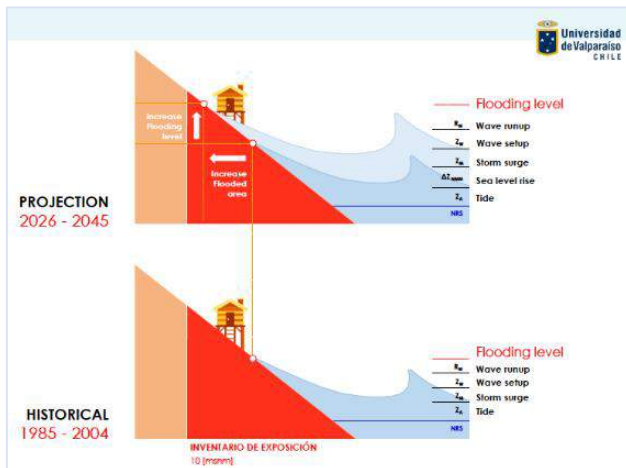


Since **1980 to 2017** an increasing pattern of sea storms events in different economic regions.

Study revealed a lack of data in terms of **economic costs** due to extreme weather events.

The last biggest sea storm (2015) costs were estimated to USD 9,000,000. Approximately **12%** of the annual budget of the Port Defence Authority.

### 2.3. Sea level rise



From 2026-2045: sea level rise is expected to increase from **0.20 to 0.24 meters**.

The study revealed that today, under the current conditions, a total amount of 972,623 people is living below 10 masl. That number represents 5% of the total population and 482,222 houses. Therefore, there is a real need to move forward with this Coastal Act.

**On the 33 beaches analysed, 80% of beaches presented erosion from 0.2 to 1.5 m per year.**

The **Coastal erosion** results from:

- Oceanographic: Storm Events, Waves Intensity and Sea level rise;
- Geophysical: Seismic Events;
- Hydrological: Drought events and sediments from rivers;
- Anthropic causes: Infrastructure and constructions.

### 3. The role of regulation preventing from damages

In Chile, a **Coastal Edge (Figure 3)** is traditionally defined by a “land under the jurisdiction of the Ministry of Defence, that includes: beach, fjords, territorial sea, bays and gulfs.”. The Coastal Zone is much further than the Coastal Edge.

**Figure 3. Coastal Zone vs. Coastal Edge**

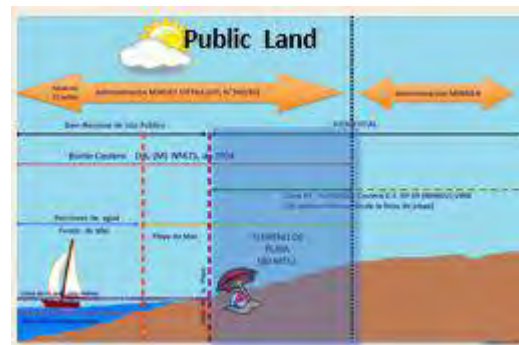
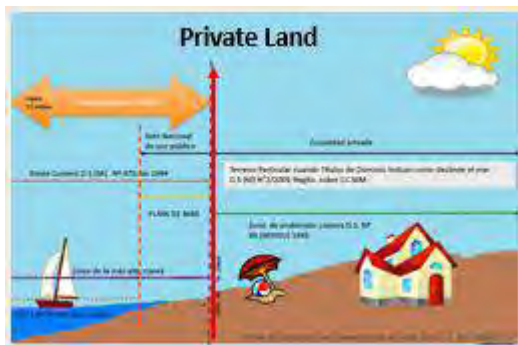


**Figure 4. Proximity of Local Councils**



There is a difference in Chile on who is the **owner** (public land or private land – DS. 340) and the **construction zone**.

- For Private Land: until coastal shoreline;
- For Public land: 80 meters from shoreline.



As an example, in this coastal zone, there are two Local Councils (**Figure 4**) with different planning approach to the coastal zone management.

Therefore, Chile must include resilience in their legislation : the *Coastal act*.

## Conclusion

### There is a need to move forward with a Coastal Act to:

- Replace the concept of “coastal edge” with that of “coastal zone”, in order to recognize the uniqueness of the coast, its systemic functioning and develop a management according to the current needs of adaptation to climate change and increase resilience to disasters.
  - Establish a zoning methodology based on an integrated management of the coastal areas, with an ecosystem base.
  - Effectively articulate the zoning of the coastal zone with the Territorial Planning Instruments, especially at the local level.
  - Climate change factors need to be taken into account.
-



## APEC Resilience Work and the Chinese Taipei's Participation

Chen-Sheng HO, Vice-Chair of CTPECC

Taiwan is an insular economy, slightly smaller than Belgium, but with more population (23.8 million inhabitants). It has the highest mountains in Northeast Asia, and so all the people are squeezed on the Westside.



Source : Wikipedia

### 1. Overview of EPWG (Emergency Preparedness Working Group)

Established as the APEC Task Force for Emergency Preparedness (TFEP) - (by APEC Senior Officials in 2005: it deals with natural disasters issues. In 2010, the TFEP was elevated to the Emergency Preparedness Working Group (in recognition of its importance). The EPWG seeks to advance APEC's capacity building, so that APEC economies can mitigate and recover from emergencies and natural disasters.

#### 1.1. Important point of this product

Document: **"APEC Disaster Risk Reduction Framework"**

- ⇒ It was developed in 2015 by EPWG;
- ⇒ The purpose was contribute to disaster resilient Asia Pacific economies that can support inclusive and sustainable development in the face of disasters and the "new normal".

There are **4 pillars** of APEC Disaster Risk Reduction:

- **Prevention and Mitigation:** Identify and evaluate existing hazards, vulnerabilities, and exposure of communities and livelihoods.
- **Preparedness:** Enhance the state of readiness of economic systems and communities to minimize damage to infrastructure and property, and strengthen capacity to build back better.
- **Response:** Engage stakeholders of the affected economies in operational interventions immediately after a disaster.
- **Rehabilitation and Build Back Better:** Enable disaster affected communities to rehabilitate and build back better by ensuring minimal disruption in economic activities.

## 1.2. Tools & files

### A. The APEC Climate Centre (APCC)

The APEC Climate Centre was launched on 18 November 2005 on the occasion of the 13<sup>th</sup> APEC Economic Leaders' Meeting in Busan, Korea. The missions consisted in the:

- Collection, production and distribution of climate prediction information as well as diagnosis of climate variability change;
- Technology and their application development;
- Capacity building and improvement for climate prediction;
- Domestic international cooperation.

### B. The APEC Climate Symposium (APCS)

The APEC Climate Symposium (APCS), which is an annual event, held since 2005. The Symposium brings together scientists, representatives of hydrological and meteorological services, academics, policy makers and students.

#### APEC Climate Symposium

Year	Venue	Subject
2019	Chile	Pathway to Sustainable Growth under a Changing Climate: Enhancing Interaction between Climate Science and Society
2018	PNG	Overcoming the Challenges of an Uncertain Future with Enhanced Climate Information and Services
2017	Viet Nam	Building Resilient Agro-Food Systems from Production to Consumption: For Sustainable Food Security using Climate Information
2016	Peru	Smart Climate Information and Accountable Action: Achieving Sustainable Food Security in a Changing World
2015	Philippines	The use of Weather and Climate Information for Efficient Disaster Risk Management

Source: APEC

Examples of recent **APEC EPWG Projects** (source: APEC Project Database)

- **EPWG 01 2017A:** Tsunami Threat Assessment for National Tsunami Warning Centres of APEC Economies
- **EPWG 01 2019A:** Reducing Risks and Coping with Climate Change along Coastal Areas: Workshop on Adaptation Strategies to Climate Change and the Role of Public Private Collaboration
- **EPWG 02 2019A:** Workshop on Enhancing Participation in Flood Disaster Preparedness through Community based Hazard Mapping



- **EPWG 03 2019A:** APEC Disaster Risk Management Strategies to Support MSMEs Business Sustainability

### C. APEC Business Advisory Council (ABAC)

#### 2019 ABAC Report to APEC Economic Leaders

There is a special section on climate change. On the business leaders, they provided certain recommendations.

##### Main points

- The APEC region is experiencing increasingly severe weather patterns and natural disasters including droughts and flooding;
- There has been detrimental loss of human life, and significant damage to businesses (supply chain, transport and logistics) and to infrastructure in the region;
- The failure to develop climate change mitigation and adaptation strategies and inadequate support will lead to serious repercussions for the business sector.

##### Recommendations

- **Doubling the share of renewables** in the APEC energy mix by 2030;
- **Reducing 45% of energy intensity by 2035**, as ascertained by APEC Energy Ministers;
- **Increasing the use of transitional fuels** such as natural gas and LNG, so as to meet the global goal of reducing greenhouse gas emissions, as defined by the Paris Climate Agreement;
- **Encouraging research and development efforts** to provide better low carbon options and implement policies that will spur innovative solutions to climate change;
- **Reducing greenhouse gas emissions** by developing and implementing policies, most notably carbon pricing and voluntary measures;
- **Freeing up trade flows** of energy efficient, low carbon goods and environmental goods and services; and phasing out inefficient fossil fuel subsidies.

## 2. Chinese Taipei's Contribution to APEC

### 2.1. APEC Emergency Preparedness Capacity Building Centre (EPCC)

The EPCC was established in 2015. The goal is to improve regional resilience against natural hazards through scientific research on emergency preparedness issues. The missions consisted into: 1) Raise risk awareness; 2) Empower grass root capacity on disaster risk reduction; and 3) Enhance resilience.

It was also aimed at strengthening APEC cross-fora collaborations with PPSTI, SMEWG, ACTWG, HRDWG, TPTWG, PPWE, CTI, and ABAC.

One of the EPCC's recent APEC project was the "*Plant Back Better*", which:

- Recognizes that in agricultural communities, disaster resilient plantation of vegetables with assistance of innovative technology will help to safeguard food security;
- Enhances capacity building and emergency preparedness countermeasures through smarter and disaster resilient vegetable plantation;
- Builds up a resilient community with local knowledge and efforts against natural disasters;
- Recovers the micro economic activities, vegetable plantation and food supply after a disaster;
- Sets up vegetable plantation in Iloilo City, Philippines – the economy faces problems of typhoons - and conducted workshops in 2019: Iloilo City and Taipei.



Also, the APEC EPWG and EPCC Event: 2019 APEC Resilience Week\_was held in Taipei on September 30 October 2, 2019. Main purposes:

- Explored risks and find solutions through S&T.
- Offered best practices on enhancing resilience.
- Engaged cross for a collaboration.
- Provided in depth looks at extreme weather event.
- Exhibition booths.

**Examples of issues discussed:** Smart agriculture, smart resilience, GVC resilience, resilient city, climate extremes adaptation, and climate information.



## 2.2. APEC Publication: “Guidebook on SME Business Continuity Planning”

It was produced in 2013 through the APEC SMEWG. The Guidebook assists SMEs to develop a business continuity plan (so as to strengthen resilience). The Guidebook was published in English as well as in Chinese, Indonesian, Japanese, Spanish, Thai, and Vietnamese.

### There are many other projects:

- ATC 01 2008S: APEC ATCWG Workshop on Capacity Building for Implementation of Risk Management Systems on Genetic Resources for Food and Agriculture in APEC Member Economies;
- **ATC 02 2011A<sup>25</sup>**: 2011 APEC Food Security Forum APEC Food Emergency Response Mechanism;
- **ATC 01 2011A<sup>27</sup>**: Promotion of Indigenous Vegetables for Coping Climate Change and Food Security in APEC;
- PPSTI 01 2018S: 2018 APEC Typhoon Symposium IST 03 2012A: Low Carbon Intelligent Operations for Textile Industry in APEC Economies;
- PPSTI 07 2018S: Accelerate the Transition to a Circular Economy;
- PPSTI 05 2019S: ACTS 2019 Enhancing APEC Resilience through Science, Technology and Innovation for APEC Sustainable and Inclusive Growth;
- EWG 08 2018S: APEC Energy Smart Communities Initiative (ESCI) Best Practices Awards Program;
- EWG 07 2018S: APEC Workshop on Liquefied Natural Gas (LNG) Trade Facilitation;
- EWG 02 2019A: Filling the Gap to Reach the Goal of Doubling Renewable Energy in the APEC Region - Phase 2;
- TFEP 05 2008A: Workshop on Large Scale Disaster Recovery in APEC;
- TFEP 04 2009A: Workshop on the Framework of Long-Term Capacity Building for Disaster Risk Reduction in APEC;
- EPWG 01 2014A: Application of Big Data and Open Data to Emergency Preparedness - Phase 1;

<sup>27</sup> Highlight on this point

- EPWG 01 2017S: Implementation of Emergency Preparedness Capacity Building 2017 Work Plan.

### 2.3. National Science and Technology Centre for Disaster Reduction (NCDR)

The use of big data is largely promoted and they do an international trainee.

#### Some of the missions:

- Promote activities related to applied research and development on disaster management.
- Facilitate scientific knowledge and technological advantages for implementation.
- Build up international partnerships to exchange experiences and conduct joint projects.

#### Example of Centre's event:

- The 2019 International Training Workshop for Natural Disaster Reduction: Hosted one workshop on big data and one on social media applications.
  - The first workshop focused on how to use big data to create in-depth views for better policy on disaster management.
  - The second workshop focused on innovative applications of social media in helping disaster risk management and emergency preparedness.

#### Soil and Water Conservation Bureau, Council of Agriculture

Some Strategies for Prevention of Large-Scale Landslides:

- Enhancing the Capability of Emergency Response
- Establishing Intelligent Disaster Prevention System
- Improving Watershed Management Results

#### Debris-flow Disaster Prevention Centre

Implement debris-flow disaster prevention network:

- Scholars and experts march into mountain regions to map evacuation routes.
- Form debris-flow disaster emergency action teams.
- Promote self-sufficient disaster prevention within communities.

## 3. Chinese Taipei's NGOs

### 3.1. Buddhist Tzu Chi Foundation

It is one of the main NGOs worldwide.

- 600 offices in 59 economies;
- Charity relief in 100 economies;
- One million volunteers globally;
- Ten million supporters and donors globally.

**Four missions:** 1) Charity; 2) Medicine; 3) Education; and 4) Humanistic culture.

⇒ **Tzu Chi Relief Model:** 1) Physiological needs; 2) livelihood assistance; 3) Education recovery; 4) Housing resettlement; 5) Ecological restoration; and 6) Psycho-trauma support.

**Tsu Chi Relief Model**



Source: APEC Resilience Week

**Tsu Chi and Care France Cooperation in India**



**3.2. The Mustard Seed Mission**

Enhance disaster reduction programs for indigenous communities.

- Overview of indigenous people:
  - 16 tribes and population of 560,000 (2019).
  - 2.75% are Christians and Catholics.

Example:

2009 Typhoon Morakot Rehabilitation Challenges:

- Leave ancestral land and communities.
- Find land for rebuilding.
- Advance self-development of communities.

**Example of The Mustard Seed Mission**



**Post-Morakot Housing**





### 3.3. Taiwan Circular Economy Network

The Network is the first non-profit organization dedicated to promoting the circular economy and was established in 2015.

*Network’s Major Aims:*

- Ensure circular economic thinking is integrated into economic development policies.
- Promote policy and legislation that facilitates the transformation of waste into resources.
- Raise awareness of circular economy through courses and media publicity.

The Network promotes the government’s **“Five Plus Two Innovative Industries Plan”**:

Intelligent Machinery  
 Asia Silicon Valley  
 National Defence and Aerospace  
 Green Energy  
 Biomedicine



Circular Economy  
 New Agriculture

*Source: Taiwan Circular Economy Network*

*Network’s Publication: “Towards a Circular Taiwan”*



- It is a publication about circular economy cases.
- Relate cases on “Agro-food and Biomass,” “Textile and Plastics,” “Housing and Mobility,” and “Technology and Chemistry.”
- The WHY, WHAT, and HOW for a transition to a circular economy are elaborated.



## Resilience Observatories in Overseas Territories: Research Perspectives

Damien SERRE, Professor of Geography, University of French Polynesia

This presentation is aimed at improving the knowledge of the risks in Overseas economies and other areas of the Pacific. There are observatories, which are under development in French Polynesia, but the purpose is also to put in place some measures to assist all the stakeholders to better anticipate and get prepared to such risks. To establish some strategies, we would like to collect data and see how they can be correlated and aggregated, to improve decision-making processes in territories.

### Some of the challenges

- **Irma cyclone** in the Antilles illustrates how much dangers are strong in these overseas territories. And very briefly, we have powerful hazards and fragile territories, and mechanisms are not really prepared compared to continental France.
- Besides, **French Polynesia is characterized by a scattered area in part of the Pacific (121 islands)**, which has many hazards: coastal, sea level rise or cyclone risks (the latest are likely to increase due to climate change), tsunamis, etc. Researchers are seeking to create a new category of hurricane (above the level 5 category).

So, the idea is to try to better understand the Polynesian territories and what types of risks they are subject to and to try to, step by step, create this observatory to help and improve the decision making process in terms of risk management and make land planning easier. Four research prospects will be presented.

#### Research prospects:

- Increasing overseas risk knowledge
- Collecting data and mapping
- Engaging stakeholders
- Assessing and monitoring resilience

## 1. Increasing overseas risk knowledge

### 1.1. Use methods to model complex systems

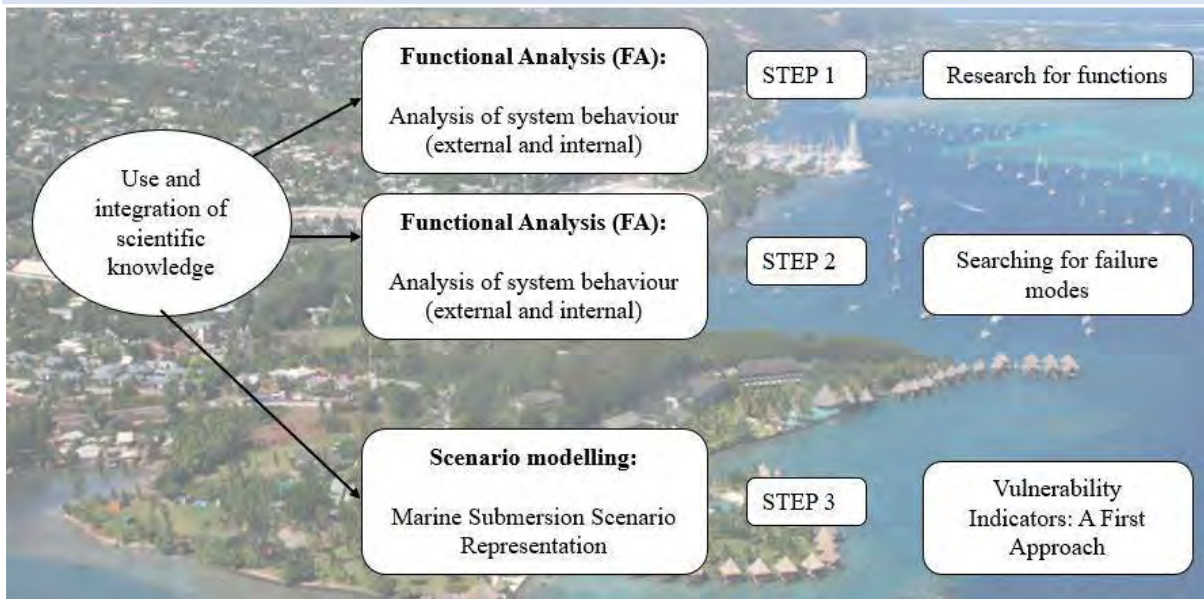
- The territories are considered as systems. The purpose is to determine how can these systems be impacted by external events?
- Do they produce risks, resilience or vulnerability? And through what part of the system some critical components appear?



The **methodology (Figure 1)** is the following one:

1. *Step 1 and 2*: Functional Analysis of system behaviour (external and internal)
  - a. *Step 1*: Research for functions
  - b. *Step 2*: Searching for failure modes
2. *Step 3*: Scenario modelling: Marine submersion Scenario Representation
  - a. Vulnerability Indicators: A first Approach

**Figure 1.** Safety Science Methods

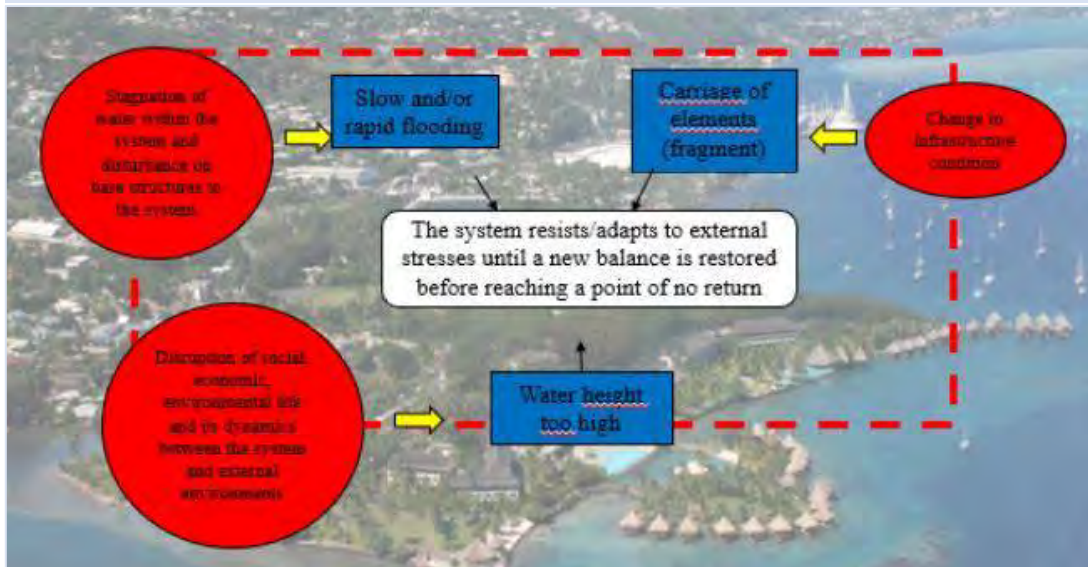


Those are systemic methods and are proved to be successful in other areas, such as Industrial Engineering (safety of nuclear power plants or sensitive infrastructures). These methods can be applied to largest complex systems.

## 1.2. Better understanding risk processes within systems

We identify some points of vulnerability (**Figure 2**) and the relationships between the components, and thus we should establish some strategies, which will secure the components and the connexion among those.

**Figure 2.** Indicators of vulnerability



**1.3. Different systems at different scales: the Urban Resilience**

The critical or vital infrastructures, which are all the infrastructures that allow the community to function (including transports, telephone networks, hospitals, other institutions, etc.), are interconnected. For example, if there is a flood and the electrical network is down, all the others fall, including the telecommunication and energy networks, and so on.

**2. Collecting data and mapping**

The second step consists into determining how we can complement our database. There is a whole research aspect in this area.

**A / New technologies for accurate data collection** - one of the guideline is the **use of drones (UAVs)** about the coastal risks for instance, which are not accessible from everywhere in French Polynesia, in order to get accurate mapping data. This can be useful for decision support processes, for many applications and also for public authorities.

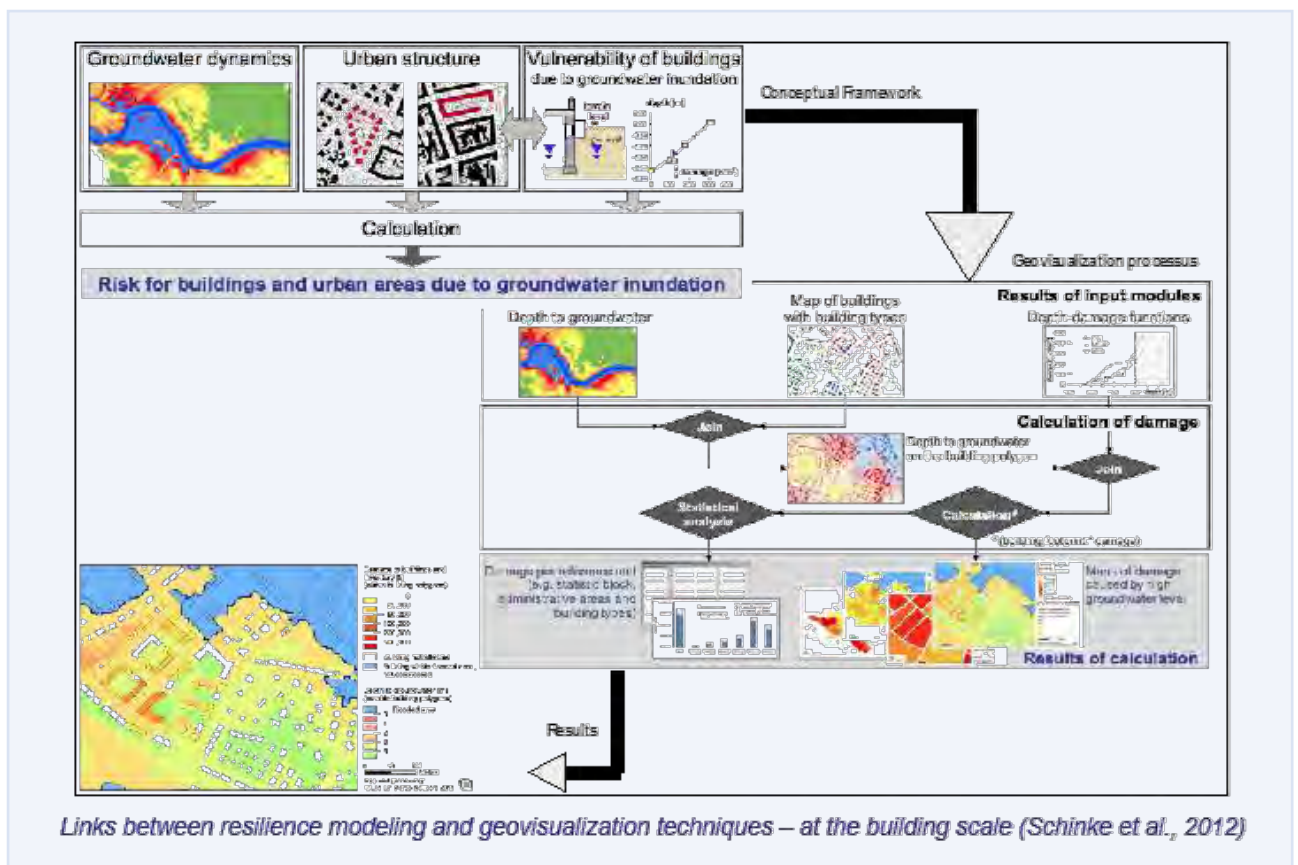


**B / Turning data to spatial decision systems** - the instance of the tunnel of Dublin (**Figure 3**): we have some overbuilt territories and the level of pressure is sometimes so high that it is sometimes difficult to act about the flooding risk. In the 1990s, Dublin had to extend because of the economic boom in these areas, which are likely to be flooded.

Figure 3. Dublin Flood Overview



From collected data (work on mapping or 3D), we try to answer to the following problematic: **how turning data to spatial decision systems?** We mainly try to map, identify and determine more or less vulnerable lands and territories in Polynesia.





### 3. Engaging stakeholders

The confrontations between different actors is quite strong. We intend to determine **how we can work all together as actors?**

As a geographer, I have many tools which rely on spatial information and cartography.

In the framework of a research project, the GIS (Geographic information system) was tested within the INEGALITTO (Environmental inequalities in the management of coastal amenities and coastal risks) project as a decision support tool, and brought together researchers who came up with different proposals on the same area.

**How, by gathering many different stakeholders and actors and by relying on mapping, can we simulate planning projects? And how can we reach an agreement on projects that could reduce the vulnerability of our territory?**

#### Steps

##### A/ Implementation of data in the GEO generator

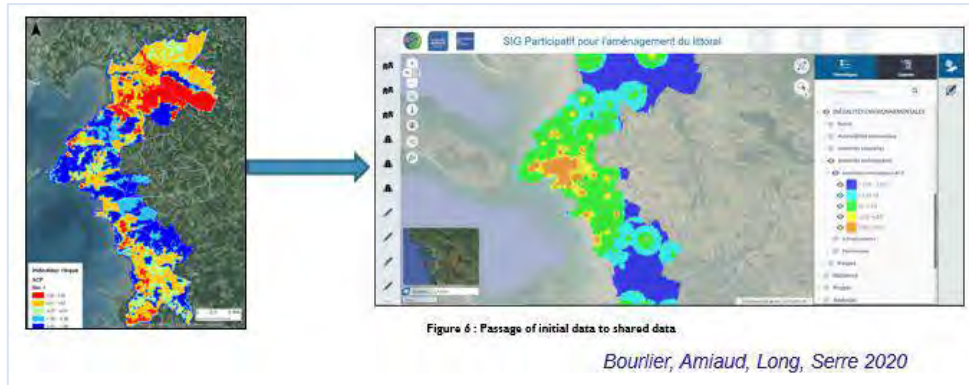


Figure 5 : Integration of data on the SIGP

*Bourlier, Amiaud Long, Serre 2020*

A first version of the tool could make: spatial analysis, entity creation and annotation. It is a tool for non-specialists.

**B/ Exploitation of environmental inequality data** (from multi-criteria interpretation and PCA [Principal Components Analysis] synthesis).



C/ Using the tool through **participative meeting**:

- Involve the actors around a serious game around a fictional development project;
- Make the actors think about the relevance of the project;
- Collect users' perceptions of future improvements to the tool and its potential relevance to decision-making processes;
- The establishment of a campground.

**Conditions**

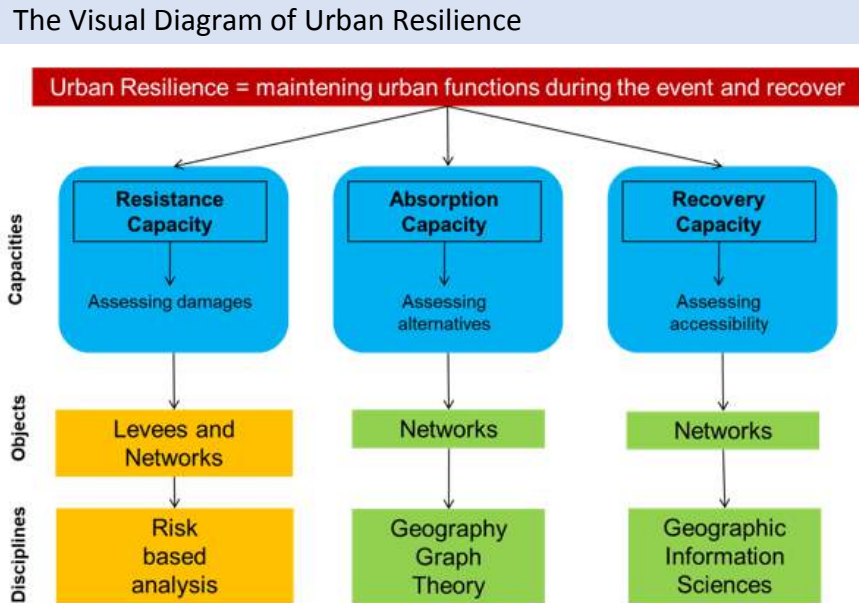
- Taking into account: environmental inequalities, risks areas;
- Included resilience concept in the reflection.

**Results** → A real draft for a development project.



#### 4. Assessing and monitoring resilience

##### Modelling and assessing resilience to climate change and risks



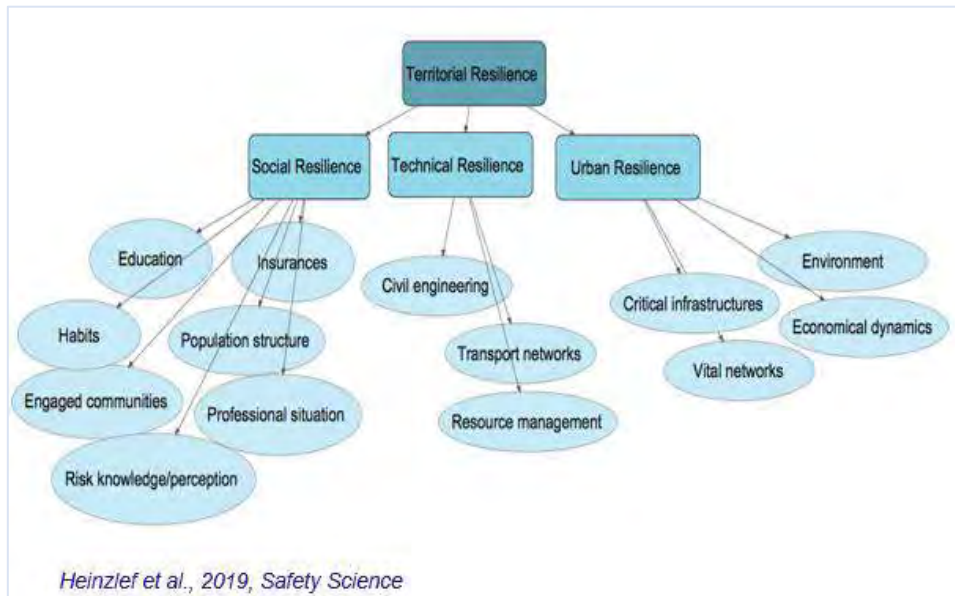
Finally, this visual diagram gives an overview of the concept of Urban Resilience, which is characterized by:

- Resistance capacity,
- Absorption capacity,
- Recovery capacity.

These researches were conducted in Europe. We worked on several projects to try and give the level of resilience of territories.

What infrastructures are affected? What parts of the territory ? And what disciplines need to be mobilized to recover?

The following model was undertaken in **California**:



This is a complementary work, which was undertaken after Katrina in the US. Its purpose is to monitor and allows us to go beyond technical and urban resilience and looks at **social resilience** (education, insurance, professional situation, etc.) to give the main indicators observed in the territories.

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## Climate risks: how to anticipate and protect?

Pierre MASSON (Colonel) and Pierre MICHEL (Captain), Representatives of the High Commission of the Republic – Civil Security Department

### Pierre MASSON (Colonel)

Among the topics of a particular interest, it was important for us to explain how, within the French Republic, the foundations of the operational response are settled and how the civil secure operations are managed in the event of a significant disaster. The previous speaker was talking about urban, ethnical, social resilience, which are appealing topics that I will acknowledge.

My colleague, the Captain Michel, will talk about resilience, which can be analysed under three point of views, but all complementary:

- Anticipation,
- Preparedness,
- Protection.

### Pierre MICHEL (Captain)

Good morning everyone, Captain at the Civil Protection to the High Commissioner, I am in charge of the major risks and crisis management. The objective is to present synthetically the risk and crisis management plan in French Polynesia, which is a bit specific because French Polynesia has an autonomous status.

Specificities of French Polynesia result also from the exceptional location, in the middle of the South Pacific. It is an island territory, which represents 2.5 million square kilometres (of ocean), and composed of several islands. It is the largest French territory, with 118 islands and 15,000 kilometres away from France. This is a triple insularity, which is significant regarding risks and crisis management.

Overview of the geographical location of French Polynesia



This specific location in the middle of Pacific Ocean makes French Polynesia particularly vulnerable to climate risks.

There are **three types of major climate risks** in Polynesia, namely: bushfires, torrential floods and cyclones. Climate change is exacerbating these risks.

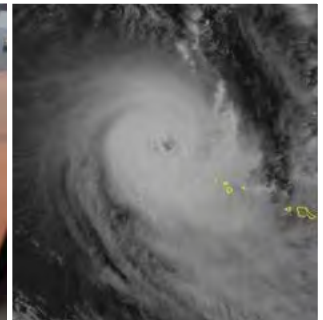
Examples of hazards that occurred in Polynesia



Bushfire (2019)



Torrential flood (2017)



Cyclone Oli\* (2010)

*\*Note : Oli moved towards the Austral archipelago*

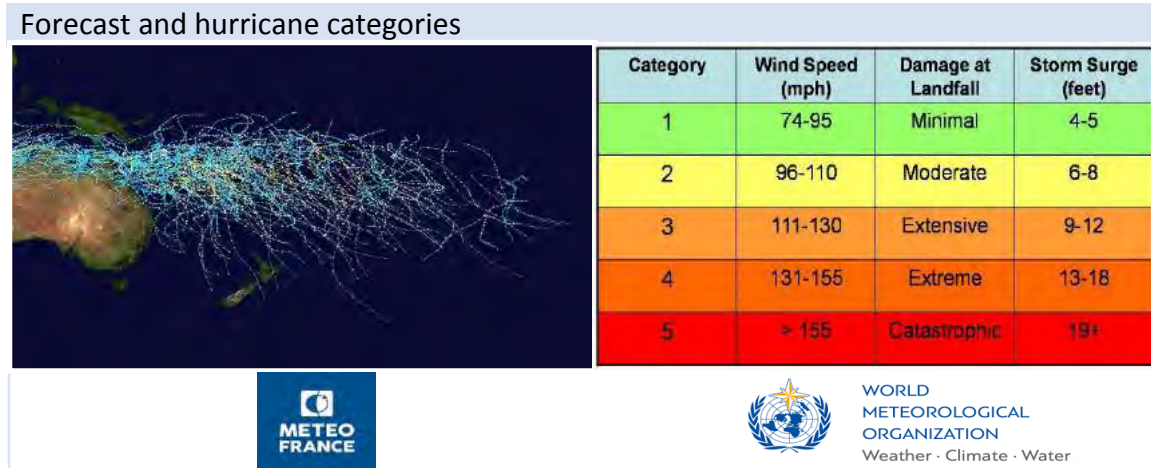
There is a legislative framework in France, which is applicable to French Polynesia, and aims to bring the most relevant and efficient response to crisis management. It is the emergency plan entitled "ORSEC" (Organization of the Civil Security Response), which is enacted and allows to respond to any type of risk according to the following tryptic:

- Anticipation,
- Preparedness,
- Protection.

These three pillars are applied to all **civil security institutions**, but also to every **institutional, private** and **citizen** actors.

## 1. Anticipation

- 1.1. Identify risks and define hazards.** The Polynesian territory is mainly subject to climate risks (cyclones or torrential floods). We thus rely on weather forecasting services - Meteo France but also the World Meteorological Organization, that work together to bring some original global forecast in the South Pacific region. They give us the seasonal trends. For instance in October 2019, we had forecast made by Meteo France that announced the predictions for the upcoming cyclonic period until April 2020, with the presentation of probability of occurrence of cyclones. These forecast represent a potential cyclonic risk.



The Polynesian territory is impacted by cyclones, but less than other overseas territories such as the Antilles. Nonetheless, this risk cannot be neglected.

- 1.2. Identify and locate the issues.** The phase of identification involves an identification of the risks through a map of the risks on the territories thanks to the municipal rescue plans (PCS - "*Plans Communaux de Sauvegarde*"). Each municipality has this type of plan, which is updated on a regular basis and provides detailed information about all the sensitive sites and operators that require particular preventive measures and preparedness in case of crisis management.

Example of Fakarava: the mapping of all the public institutions (town halls, schools, etc.) has been carried out, so as to enable the authorities to bring assistance more precisely and effectively.

- 1.3. Maintain alert system.** Through VIAPPEL in French Polynesia, which is a system that enables through secured messaging system to send SMS, telephone messages or emails, to pre-formatted lists (only the authorities). The first thing to do is to alert the authorities before alerting the population.

There is a **system of alert** spread out over the territory, which represents about 180 sirens all over French Polynesia, that alert the populations, in addition to the traditional means such as media for instance. This is a chain of alert to both the authorities and to the populations.

## 2. Preparedness

**2.1. Preparedness of the population individually and collectively.** For instance, flyers are distributed in all the institutions of French Polynesia, especially in schools. There, we can find all the emergency phone numbers or actions to be taken in a household when a cyclone is announced. This type of brochures also exists for tsunamis, rains, floods or forest fires.



**2.2. Train the civil protection forces.** Firefighters, civil protection certified associations and military forces train together and collectively throughout the year to be prepared to any type of risks. Particularly, when there is a flood or in case of forest fires, helicopter pilots shall be prepared to evacuate some people in the zone.

### Crisis centre of the High Commission: emergency trainings (2019)



**2.3. Keep equipment operational.** In French Polynesia, each municipality is equipped to face an event and respond on its own when the magnitude is not too great. But there are also some stocks of operational civil security for French Polynesia, and also for regional use (in the framework of the FRANZ Agreement<sup>28</sup>, 1992). There is an

<sup>28</sup> The FRANZ Arrangement between France, Australia and New Zealand was signed on 22 December 1992. Under the arrangement the three partners agree to coordinate disaster reconnaissance and relief assistance in the Pacific when requested by partner economies. – source: National Assembly



operational lot that can be mobilized to possibly bring assistance to other South Pacific economies upon request (shelter covers, drinking water, etc.).



#### 2.4. Build up stocks and shelters:

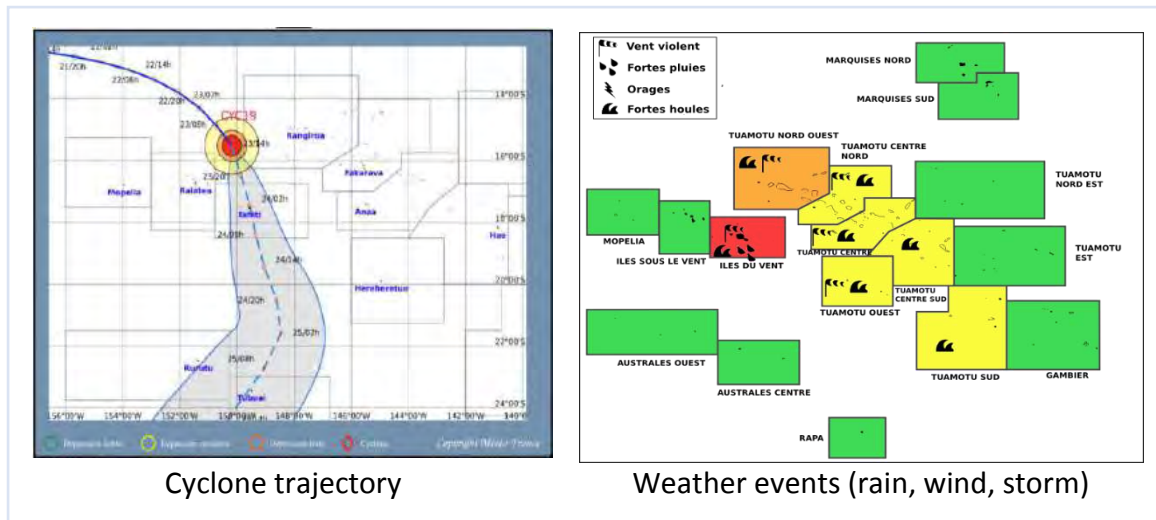
- a. The cyclonic brochure shows that in each household, there must be stocks of foods for the next 72/96 hours following a cyclone;
- b. There are also national stocks, which are constituted by the French Ministry of Foreign Affairs in Metropole and the French Ministry of Interior;
- c. The construction of cyclone resistant shelters is required (especially in the archipelago of Tuamotu, which is composed of atolls). However, there are no official legislation about those, as there are for the seismic resistant buildings. As a consequence, there are only guidelines which are commonly accepted for the cyclone resistant building. These buildings are maintained in good conditions throughout the year as they serve as shelters, town halls, schools or hospitals, and have been built in order to host the population in the event of a disaster. These shelters, which have dual purpose, are therefore maintained and can be made available at any time.



### 3. Protection

- 3.1. Detect and alert the phenomena.** The alert comes mainly from Meteorological services. They will alert us in case of worry event (major rainstorm or drought for instance).

Examples of maps – source: Meteo France



The alert transmission must be made first to the authorities, who will then communicate to the population, through VIAPPEL system and the sirens in addition to the medias.

- 3.2. Start off emergency plans.** National instructions apply to French Polynesia: The High Commissioner of the Republic leads these operations and the firefighters ensure the command of those. These provisions are applied under the framework of the **ORSEC plan**, which organizes the civil security response, for different type of risks that can be encountered: tsunamis, cyclones, torrential floods, etc.

#### Specific plans in French Polynesia:

A / There is an emergency action plan in every municipality (**municipal rescue plan - PCS**), specific to French Polynesia, which allows the Mayor to be directly in contact with the population. It is a system really adapted to the Polynesian territory.

B / Finally, the economy is key and unparalleled actor, thanks to the support of the **local government** of French Polynesia. Through its presidency, it has specific provisions in management risks: the **public works** and **maritime fleet**. So, it is a concert of three players and each one has its own means and competences.





### 3.3. Keep people informed and communicate

The information comes from municipalities operational teams, but also from what is set in the media and on social medias. The aim is to ensure a crisis communication that is coherent, effective and that also reflects what is going on.

#### Example



This is a picture of the crisis room of the High Commission, where the communication unit gathers. The aim is to produce regular press releases throughout the crisis, on social medias and website of the High Commission, in order to avoid fake news or movement of crowds and misinformation. Sometimes, the media are invited to attend the meeting.

**3.4. Evacuate and go to safety.** Identify the shelters. The municipal secure plan (PSC) lists all the infrastructures needed in such crisis and where the population is going to be hosted in a safe manner, i.e. the various buildings which are resistant built according to the rules of the trade. Those are namely: townhalls, canteens, hospitals, emergency centres and churches.

Listed infrastructures of an island in the Tuamotu



The **mark** corresponds to the UNESCO mark enforced, that has been put in place in French Polynesia. It has been established for 2 years for the tsunami part and the one for cyclonic risk is being deployed. The cyclone shelters might not be the same as for the tsunami's.



In order to evacuate the population, the remoteness of our islands has to be taken into account. So, a number of means will be mobilized. There is a **jointly work** between the High Commission, the French Polynesian departments of the local government and the French Navy, who have substantial means on which we can rely on.



Finally, during the whole time of this period, there is permanent and close contact with the national authorities in Paris. The High Commissioner reports to the Ministry of Domestic affairs, as he represents the national authority, through the operational centre for interdepartmental crisis management. The national authority will possibly send additional resources at the forefront, either from Metropolitan France or regional territories, within the framework of regional cooperation (FRANZ agreement). This is very important to us, as we have scarce resources.

**Operational teams of civil security and crisis management**



**European Union Humanitarian Aid and Civil Protection**



## Disaster Management: Preparedness and Response

Brian LYNCH, Chair of NZPECC

**Presentation: 8 main ideas acknowledged.**

### 1. The Pacific Islands Forum (PIF) Leaders signed the Boe Declaration on Regional Security on 31 May 2019.

- **Climate Change:** "... the single greatest threat to the livelihoods, security and wellbeing of the peoples of the Pacific ..." is the result of Human effects.
- The BOE declaration reflects both a geopolitical and human positioning.

A few examples:

- Several earthquakes that hit in Christchurch. The latest (2011) killed nearly 200 hundred people and caused NZD 10 to 15 billion of damages;
- Volcanic eruptions in New Zealand (White Island);
- Ongoing bushfires in Australia.

### 2. New Zealand is no stranger to the damage natural disasters can inflict: earthquakes, extreme weather, rising sea levels, tsunamis, volcanic activity.

⇒ New Zealand has developed the ability to advise and assist to others, borne out of painful practical experience.

The New Zealand government has implemented an **ambitious domestic climate change program:**

- A legislative framework for the implementation of a "**Zero carbon**" objective to reduce greenhouse gas emissions;
- The project 'One billion trees', which purpose consists into planting one billion trees by 2028;
- Actions to combat coastal erosion;
- Regulations to encourage weather resistant infrastructures;
- Business community (private sector) climate coalition;
- The production of renewable electricity generation (hydraulic, wind);
- Stronger Emissions Trading Scheme.

### 3. For New Zealand the Southwest Pacific is a focus of attention no other region of the world can match. In this region, what we do does matter, it affects, positively or

**negatively, people in the region. We have to be conscious of that it is different than international affairs in the rest of the world.**

This region is characterized by:

- **Ties:** cultural, constitutional (some economies apply New Zealand rule-of-law: Cook Islands), economic, historic, institutional, personal, political;
- **Particular interest:**
  - Long coastline (longer than China's or Japan's) with an extensive economic zone (EEZ), the world's fourth largest;
  - The economy is located 1,000 km below the United States.
- **Particular responsibility:**
  - Search and Rescue domain: from Antarctic to Equator, about 17% global blue ocean;
  - Security and surveillance implications: the government aims to invest in defence equipment.

#### **4. Practical support:**

- Pacific absorbs 2/3 New Zealand development assistance program, i.e. USD 450 million, half on climate change-related projects;
- 30 government agencies and 15 NGOs (non-governmental organisations) are involved.

#### **5. Partnership activity:**

- FRANZ agreement since 1992;
- Cyclone and tsunami recovery;
- Regional agencies.

#### **6. Focus of Disaster Preparedness (build a culture of being 'prepared'):**

- Support small island economies to better prepare for extreme weather events;
- Upgrade evacuation centres;
- Improve volcano monitoring;
- Strengthen renewable energy infrastructure.

#### **7. Focus of Disaster Management Response:**

- Enhance access to risks and hazards information;
- Improve weather monitoring and forecasting capability;
- Strengthen emergency response protocols;
- Improve coordination and collaboration at community and national levels.

#### **8. Not case of 'Big Brother Knows Best'. Underpinning philosophy to enable Island governments to identify their needs and lead their response:**

- Improve framework for decision-making;
- Create a platform of climate data, hazard and risk analysis;
- Enhance access to funding sources and climate friendly technology, e.g. solar generation, water purification, control of invasive species;
- Strengthen Islands profile and amplify voice in international climate forums, thanks to COP25 in Madrid.

### **Conclusion**

- **No precedent in the region** for size of challenge and consequences if not enough resolute action is taken.
  - **Threat of forced migration is real.** There is a need to provide means and motive for Islands people to stay in ancestral homelands.
-



## **What assistance to help people living in remote areas in the event of a disaster: the experience of French Polynesia**

Gaston TONG SANG, President of the Parliament of French Polynesia (elected terms: 1989- 2020) and Mayor of Bora Bora

*Honourable President of French Polynesia,*

*Honourable Chairman of the French Pacific Territory Committee for economic cooperation in Asia-Pacific,*

*Honourable Chairman of the French Polynesian section of the French Pacific Territory Committee for economic cooperation in Asia-Pacific,*

*Distinguished members of governments,*

*Distinguished parliamentarians,*

*Distinguished guests,*

*Dear colleagues, dear friends,*

Our islands are facing a major global challenge; it is now an obvious fact recognised by all. This major challenge, the totality and intensity of which are sometimes difficult to assess, has a much more obvious reality for our islands: the increasing occurrence of natural disasters and of their intensity.

Faced with this inevitable development, it is fundamental for our island society, both in institutions and in terms of population, to define the best way to provide support and assistance to our fellow citizens, especially those residing in the islands remote.

More generally, the question arises: at a time of major changes in our environment, calling for a change in our lifestyles, how can we ensure optimal living conditions to our people of all Polynesian archipelagos? How can we prevent, in case of a major disaster, that they end up isolated, without support, without resources and thus impact our economy, already sensitive to geopolitical jolts?

From my experience as mayor of Bora Bora and through the various functions I have occupied as an elected official, it seems to me that public action is obviously a key element of that support provided to exposed communities.

But beyond that, I am convinced that the daily commitment of each community is necessary to ensure adaptation to current threats that are becoming more frequent.

This community involvement is fortunately natural in Polynesia. Our population is inherently and historically resilient. Our ancestors have passed down to us this resilience after generations sailing across the vast Pacific. After reaching the shores and discovering, over the centuries, new lands to settle, they developed a natural resilience due to the need to adapt in an environment with limited space and resources. Despite these constraints, they developed a flourishing civilization which has maintained itself until today.

I am therefore convinced that the combination of a population that appeals to its roots and its culture to face the future challenges and effective public action based on consistent processes, reasoned and concerted, is the recipe of success in the current environment.

Three levels of action are needed to ensure the necessary assistance and resilience: the prevention in terms of disasters, intervention and actions during the disaster and, lastly, repairs after such a disaster.

Before going further, let me clarify what I mean by disaster or catastrophe. It is indeed the damage caused by an extreme natural event; the event itself is not necessarily a disaster if one has the means to deal with it. Indeed, if a population is properly prepared and organized, it can tackle any type of event.

This is what communities in Vanuatu did in 2015 after the passage of Hurricane Pam. They got reorganized quickly and had less damage than expected because traditional construction methods for building housing and villages, and strong social ties specific to island societies and calling for immediate and effective solidarity.

Prevention through concerted development is a fundamental element of assistance to isolated populations. This development must be done in collaboration between the government and the municipalities of the islands. It must indeed avoid imposing solutions that do not correspond exactly to the needs and context of each island. The copy-and-paste replication is the best way to invest public money with no real return for the population. This means acting for the sake of acting without clearly analysing the needs and reality of the situation.

The implementation of *MTR Fare* (houses) in Polynesia is a positive example of this joint development: the use of new technologies (materials, design, ...) organized taking into account the local context has created a type of housing perfectly suited to our islands.

In this context, innovation is key! When confronted to climate change, being able to develop customized solutions is fundamental. And our economy is perfectly placed to encourage and welcome this innovation: sea level rise, extreme weather events, geographic isolation. These factors are too often presented as handicaps. But in my opinion they are today opportunities.

Opportunity, for example, to host research centres on climate and innovative technologies in order to test, deploy, create these solutions that will later be offered worldwide.

We have adequate spaces to accommodate in the best conditions these innovation centres and our technical infrastructure facilities (internet connection, air service) offer easy connectivity with the rest of the world.

Our location and our island constraints are also an opportunity to become the bridgehead of this research at the regional level, but also to encourage our companies to be sources of proposals. Knowing perfectly the island context, their products and services are relevant to our Pacific neighbours who are eager for further cooperation.

Prevention, for public institutions also means taking responsibility.

Responsibilities both in terms of vision and strategy and in terms of planning and implementation.

In terms of vision and strategy, this means engaging and guiding the work of institutions on concrete actions and measures. This is what the Assembly of French Polynesia did by adopting the *Tarahoi Declaration*, on 11 September 2019. The Declaration, adopted by all Pacific Island parliaments as part of the first summit of the Pacific Islands Parliaments Group, formalizes the commitment of parliamentarians to prioritize the protection of the environment, the preservation of the ocean and the implementation of a sustainable development in all legislative instruments. It also aims to maintain and strengthen international commitments because these issues are global.

In terms of planning and implementation, not engaging effectively and sustainably for the development of basic infrastructure such as sanitation or drinking water is risking, in the event of a disaster, making the population even more helpless and vulnerable. Infrastructure for producing drinking water and sanitation, adapted to the specificity of our islands, are needed in all islands. It is not only about ensuring a comfortable life comfort, but also ensuring the resilience of public infrastructure and maintaining standards of living necessary for the fundamental well-being of our citizens.

This is what has been done for the island of Bora Bora. By implementing such solid infrastructure for all, we prepare the island to cope with future disasters. In case of a cyclone or flooding, distribution channels and water drainage are ready and make it possible to avoid, for example, uncontrolled overflows of waste waters bringing bacteria, infections and adding damage and health threats to structural damage and materials.

This strategy also aims to ensure development meets the capabilities of the island and the needs of its inhabitants. The strategy of tourism development in Bora Bora is based on available resources and space and is managed accordingly to avoid too much pressure on the environment that could, in the event of a disaster, generate even greater damage. The ecosystem of each island has an obvious natural saturation point. A tourism situation like the Hawaiian Islands, which only have 3 days of available resources and are entirely dependent

on imports including basic foodstuffs, is clearly an additional risk in the event of a natural disaster.

Maintaining a tourism industry in accordance with the ecosystem capacity of each island means guaranteeing certain autonomy to the island in case of disruption of transport or fuelling capacities.

Prevention is also about informing and educating the population. In our islands, including remote islands, giving autonomy to municipalities to prepare and act means avoiding heavy dependence which, in case of communication or maritime and air service breakdown, would leave the islands.

In this respect, mayors have an important responsibility and, at the last conference of mayors of Polynesia, which was held in Rikitea, these issues were raised forcefully by my fellow mayors of outer islands, thus showing the commitment of everyone.

The question for mayors always is: what is the most appropriate balance between community empowerment and partnership with the government's institutions and the State? As mayors, should we still wait for the state or the government of French Polynesia to undertake the necessary actions? What falls under our responsibility and how can we find ways to implement them effectively in the light of resources that are available in each municipality?

By raising people awareness, by training them, by explaining the important role they have to play in such situations, by implementing prevention tools and the required infrastructure, we help the outer islands accept the reality of their remoteness and, while guaranteeing the necessary assistance, it significantly reduces the fear about possible climate disasters for local communities.

Thus, the day of the disaster, everyone will be prepared, organized and reassured, and therefore able to react effectively.

Fortunately, in these difficult times, the solidarity of our citizens is often exemplary. But it is our collective responsibility, all of us, to maintain this link, to encourage these behaviours and to pass on to younger generations. We must pass down the legacy of such knowledge and the social ties that make our strength to those who will still be there after us.

Finally, helping isolated people cope with disasters means providing effective tools after the extreme event, in order to recover quickly and restore the situation to normal.

This requires the development of better insurance products. Indeed, many of our fellow citizens in remote archipelagos still do not have the necessary insurance for their homes, businesses, etc. This is mainly because the products available are not adapted to the context of remote islands.

Again, innovation is necessary and fundamental. Innovation by both our local businesses or international companies seeking to develop new products on our market, could be a way to access new overseas market.

Relief also requires feedback. It is essential to make the diagnosis of past mistakes or failures to effectively amend the regulatory framework. In this, the parliamentary work of the Assembly of French Polynesia is moving more and more towards the evaluation of public policies through information field missions. This is done in order to give Members of the Assembly an accurate picture of the situation in the field and assess the necessary adjustments to provide support to the Government in structuring and organizing our society, for the welfare and protection of our populations.

Thus, for example, regulations on land planning evolve gradually. The floods experienced by Tahiti revealed that the General Development Schemes needed some adjustment. It also helped identify poorly known issues related to the impact of invasive species. Such feedback after natural disasters is valuable and helps develop a flexible and adaptive regulatory framework that best meets the new challenges imposed by the effects of climate change.

This is obviously part of a circular process: repairing today means preventing tomorrow.

### **Conclusion**

In conclusion, let me summarize my remarks. In the area of disaster management, essentially natural disasters in French Polynesia, it is crucial for public institutions, private organizations and the population as a whole to act at three levels: prevent, act, and repair. Such work at different stages of disaster management should be carried out in cooperation between all stakeholders of society and is engaged in a permanent continuous improvement cycle.

The institutions of the economy are committed to offering the best regulatory framework. Mayors have pledged to support their people every day and ensure, on the ground, the good preparation of everyone and the solidarity of all. The private sector is also there to assist in the search for innovative solutions and products and services tailored to local needs and contexts.

This responsible cooperative approach is the key to provide the necessary resilience for our whole population against forthcoming climate and environmental challenges.

If I may paraphrase Captain Sullenberger, after at the sole and only successful water-landing of a commercial airliner in January 2009: *“Every day of our lives, every decision we make prepares us to face the worst. It is therefore necessary, every day, to act according to our values and in accordance with the interest and the protection of our citizens.”*

Thank you.

## **THEME 2:**

# **HOW TO DEVELOP RESILIENT TOURISM IN THE PACIFIC ISLANDS AND TERRITORIES**



## SESSION 3: THE MANAGEMENT OF TOURIST AREAS IN THE PACIFIC REGION – TOWARDS RESILIENT TOURIST ACTIVITIES

### Opening Address

Brian LYNCH (Session Chair), Chair of NZPECC

Thank you Chair.

May I quote John Wayne to begin this session as a Chair: “speak low, speak slow and do not say too much”.

In Te Reo Maori, I would say these few words: “*Nau mai, haere mai*”, I wish you a warm welcome. Today we will focus on the tourism sector and its role in the circular economy. For PSIDS it is a serious dilemma. Tourism is a major user of goods and services and is therefore an important source of revenue and employment for the islands. No PSIDS would want to be without the benefits of tourism but there is growing awareness of the negative impacts that tourism can have and the stress that can be put on the natural environment, on areas that are already under pressure: beaches, coral reefs, cleared land for development.

There is overcrowding in popular resorts, congestion on the roads, competition of airplane seats. There is the garbage footprint, the legacy of litter. There is pressure on the availability and prices of housing but also resentment on local communities, on the range of pressure that tourism brings. No PSIDS has the infrastructures in place to cope with the growing demand. New Zealand is in that category too. Rudyard Kipling visited New Zealand at the beginning of the 20th century and described New Zealand as the last “loneliest and loveliest”. Visitors are interested in visiting New Zealand: its yearly population equals its number of visitors that is to say 5 million people. A forecast made by the Parliament for 2050 states that at present growth rates, the number of tourists could reach 10 million per year. Is such a growth rate sustainable? The question is the same in other PSIDS.

So, this morning, we have a distinguished panel of five speakers who will each address aspects of this huge and important subject.

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## The economic development in the Pacific islands, opportunities and challenges

Vincent DROPSY, Professor of Economics, University of French Polynesia

The International Monetary Fund (2016) reckons that the risk of harm by external economic shocks is increased by vulnerability (exposure due to trade openness, export concentration, dependence on strategic imports) and lowered by resilience (coping ability due to sound macroeconomic policy, market flexibility, social development, good governance). Pacific Small Islands Developing States (PSIDS) often exhibit high vulnerability and low resilience. Strengthening resilience is key in risk management.

Economic analysis of PSIDS has evolved from talking about a “Pacific Challenge” (World Bank, 2009) to a “Pacific Possible” (World Bank, 2017). This presentation reflects this evolution, starting with a description of the “3-D Challenge” and the “small island paradox”, and ending with a review of opportunities for sustainable growth, notably in tourism.

### 1. The “3D” challenge and the small island paradox

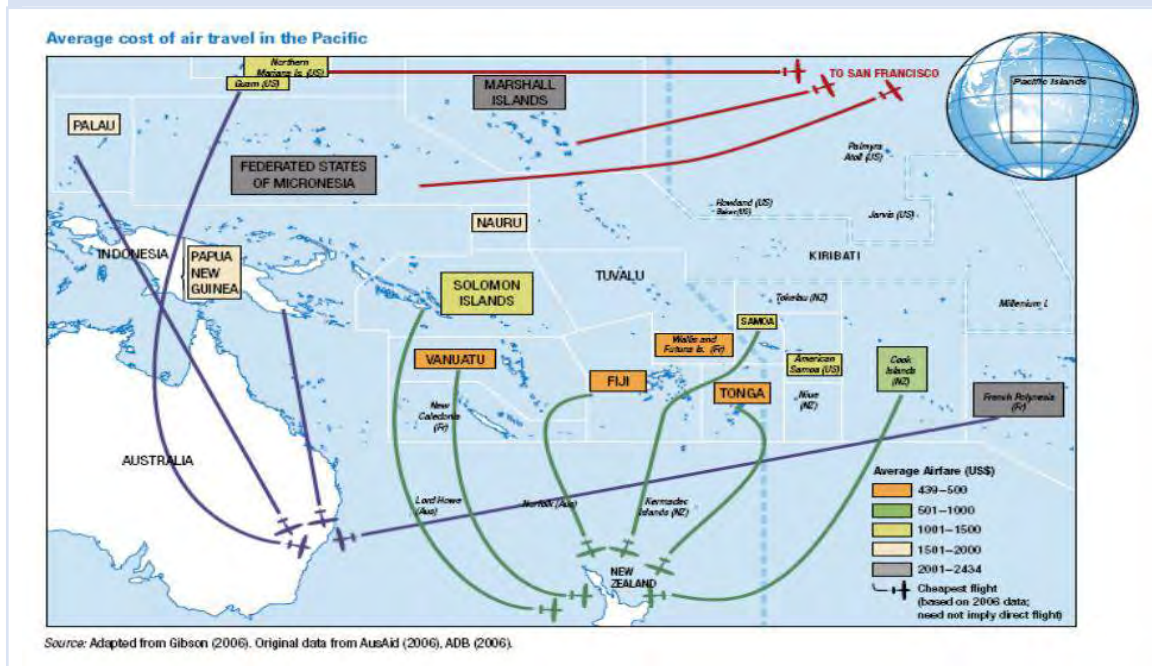
Pacific islands face a “3-D challenge”: Distance – Density – Division.

- Great distances<sup>29</sup> (remoteness and dispersion) imply high transportation costs.
- Low economic density provides few opportunities for economies of scale.
- Acute geographical division (isolation) and economic division (protectionism) also generates high shipping and living costs (Dutch syndrome).

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<sup>29</sup> “Average cost of air travel in the Pacific” on next page

Average cost of air travel in the Pacific



Bertram and Poirine (2018) point to the “small island paradox”: the economic development of small islands often depends on trade openness and tourism growth, but their remoteness and smallness are daunting challenges to overcome. As a result, PSIDS have narrow export and production bases, low standards of living and slow economic growth.

**What are the other vulnerabilities of Pacific Islands?**

- PSIDS are usually characterized by huge imbalances between exports and imports, which require large external grants or remittances (e.g. Tonga) from migrants (e.g. in New Zealand). Do they rely too much on foreign aid and remittances? The IMF (2016) observes that aid flows have been resilient to the 2008 economic crisis, and that debt levels have in general been reasonably low.
- French Polynesia has also very large trade deficits, but unlike other PSIDS, it benefits from important public transfers from the French State, to the order of a **quarter of the GDP**. These inflows play a similar role than foreign investment in the balance of payments of other islands, which finance trade deficits.

**What are the characteristics of Pacific Islands in terms of natural disasters and resilience?**

- The vulnerability of Pacific islands is higher than for Caribbean islands, according to the world risk index, despite the latter’s hurricane season. In particular, Papua New Guinea, Vanuatu and Fiji have the highest probability of occurrence of natural disasters, based on the 1970-2014 period. In terms of damages, natural disasters caused huge losses of 25% of GDP in 2009 and 30% in 2012 in Samoa, 33% in 2015 in Tuvalu, 20% in GDP in 2016 in Fiji.

**What are the economic solutions to overcome the 3D challenge?**

- Improved trade and economic integration, through agreements such as PACER, SPARTECA, MSG-TA, PICTA, can help increase the resilience of PSIDS.
- Greater labour mobility and remittances from migrants can also help, but there is not yet a consensus on the overall economic effect, since the negative impact of the brain drain that has occurred in some islands can cancel out the positive impact of remittances for insular economic growth.
- Tourism appears to be a crucial source of potential economic growth for PSIDS.

Yet, there are **different growth models** for different islands.

- **MIRAB model:** migration (M), remittance (R), foreign aid (A) and public bureaucracy (B). Examples: Cook Islands (before), Samoa, Tonga, etc.
- **SITE model:** Small Island Tourist Economies. Examples: Hawaii, Cook Islands (now), Vanuatu, etc.

The first model appears increasingly less adequate to generate growth in the long run. The second model appears to increase economic returns in the long run, but also volatility in the short run.

**2. Tourism and economic growth in PSIDS**

Tourism is one of the key drivers of economic growth for small island developing states (SIDS), especially in the Pacific (see **Table 1**).

For example, tourism in **Hawaii** has grown fast until the late 1980s, and then stabilized in terms of visitors and revenues. Its ratio of tourists per inhabitants appears to have reached a plateau around 6 to 7, and the local population is increasingly dissatisfied with the crowding out effect of tourism, despite a very low unemployment rate. Has tourism in Hawaii reached its limits of sustainability?

Similarly, **Palau** earns 50% of its GDP from tourism receipts, but has recently taken measures to limit the number of tourists (close to a ratio of 8 per inhabitants) in order to protect its environment.

On the other hand, tourism in **French Polynesia** has not fared as well as other PSIDS, since it welcomes about ten times less tourists per inhabitant than Hawaii or Palau. There is clearly room for improvement, especially since *“tourism offers Pacific Islands significant opportunities for economic growth”*, according to a recent report (World Bank, 2017).

**Table 1.** International tourism to Pacific islands (2015)

Economy or territory	Number of tourists	Number of tourists per capita	Tourism Receipts (% exports)	Tourism Receipts (% GDP)	Per capita tourism receipts (US\$)
Hawaii	8,679,564	6.09	88.8%	18.3%	\$10,500
Guam	1,409,000	8.71	60.7%	28.4%	\$9,994
Palau	162,000	7.61	87.1%	52.4%	\$7,328
New Zealand	3,039,000	0.66	18.7%	5.2%	\$1,989
French Polynesia	184,000	0.66	41.6%	8.3%	\$1,678
Fiji	755,000	0.85	48.4%	23.6%	\$1,162
Vanuatu	90,000	0.34	78.9%	34.2%	\$960
Samoa	128,000	0.66	57.6%	15.7%	\$652
New Caledonia	114,000	0.42	8.9%	1.6%	\$581
Tonga	53,800	0.51	67.5%	11.5%	\$470
Micronesia. Fed. States.	31,200	0.30	n.d.	7.9%	\$239
Tuvalu	2,400	0.22	12.0%	7.3%	\$218
Marshall Islands	6,300	0.12	9.0%	3.3%	\$113
Solomon Islands	21,600	0.04	11.4%	5.3%	\$102
Kiribati	3,900	0.03	10.8%	1.1%	\$16
Papua New Guinea	184,000	0.02	0.02%	0.01%	\$0.2
<b>Pacific island small states</b>	<b>1,259,768</b>	<b>0.53</b>	<b>48.0%</b>	<b>20.1%</b>	<b>\$733</b>

Sources: World Bank, UNWTO, Hawaii Tourism Authority, and ISPF for French Polynesia.

### 3. Latest research

How sensitive are bilateral tourism flows to these handicaps (large distances to customers, high prices due to lack of economies of scale, ...) and to other economic, political and cultural proximity variables? Are small islands more or less sensitive to each of these variables than other destinations? What are the optimal strategies to boost tourism in Pacific islands?

My **latest research**, based on a **gravity model** of bilateral tourism flows, suggests that marginal effects of changing some parameters can be very significant for small islands. For example, doubling the distance between the origin and (insular) destination economies tend to reduce the number of tourists by 72%. Doubling GDP of the origin economy or the destination economy increases tourism by about 70%. Doubling the relative cost of living in the destination economy reduces touristic flows by 60%. Sharing a common language triples tourism. Most of these parameters cannot be modified, but further research might point to other factors that can be changed in order to promote sustainable tourism.

## Conclusions

Remoteness and small size of Pacific islands are challenges to tourism development, which is important for economic development ('small island paradox').

Yet, tourism development in Pacific islands benefit from high-growth economies of China and Asia, and from rich, but low-growth economies (high-end and retired tourists)

The **gravity model** quantifies the potential tourist flows but does not take into account non-quantifiable or unquantified latent factors. The relative success of tourism in Pacific islands also depends on developed infrastructure and selected growth strategies.

The good news is that the benefits from welcoming Chinese tourists begin to be felt. For example, the number of Chinese tourists rose about ten-fold:

- to Fiji (from 2009 to 2015)
- to French Polynesia (from 2007 to 2015)
- to the Mariana Islands (from 2003 to 2015)
- to Palau (from 2013 to 2015)

... But also, to non-Pacific Islands:

- to the Maldives (from 2007 to 2015)
- to the Seychelles (from 2010 to 2015)

But some small island economies are still uncompetitive due to protectionist policies (=> 'Dutch disease'), which could be removed and replaced by growth- and environmentally friendly policies, in order to promote sustainable tourism.

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## Destination Management Best Practice

Douglas PEARCE, Emeritus Professor, University of Wellington

Good businesses are well managed, the same goes for destinations.

### What is destination management?

#### Principles of destination management

1. Clear concept, definition and why it is needed.
2. Characteristics and needs of the destination as a whole to figure what is appropriate for each destination.
3. Destination Management is proactive not reactive, ongoing and takes a long-term perspective.
4. Destination Management is based on a strategy which provides a clear vision of a sustainable destination, sets out a realistic set of goals and specifies the actions needed to achieve them.
5. Identifies a clear division of responsibilities between all the actors involved
6. Ensures adequate instruments and resources are available.
7. Monitors the growth of tourism, the destination management actions to be taken and the success of these.

### 1. Concept

**Destination Management** is a relatively new concept that emerged in 2007. According to the UNWTO, destination management is “...the coordinated management of all the elements that make up a destination (attractions, amenities, access, marketing and pricing). Destination management takes a strategic approach to link these sometimes very separate entities for the better management of the destination. Joined up management can help avoid duplication of effort with regards to promotion, visitor services, training, business support and identify any management gaps that are not being addressed.” UNWTO (2007).

Visit England’s definition (English Tourism Board) of Destination Management is “a process of leading, influencing and coordinating the management of all the aspects of a destination that contribute to a visitor’s experience, taking account of the needs of visitors, local residents, businesses and the environment”.

The Department of Conservation - *Te Papa Atawhai* (Organization responsible of New Zealand’s national parks) defines Destination management as the coordinated management of all the elements that make up a site or destination — its values, attractions, the people,

infrastructure, access and how the place is marketed. This approach encourages the connection of site management activities that are often traditionally undertaken in isolation.

Destination Management Framework is a new approach to managing destinations.

The need for Destination Management exists partly because **visitor experiences result from multiple product and service offerings**. Not all businesses adopt sustainable practices and market failure occurs. Impacts are cumulative and inter-related.

Visitor management between as well as within individual sites or businesses is needed. Efficiencies and economies of scale are achieved by collective action:

- Destination marketing
- Infrastructure
- Capacity building

Different organizations and agencies have different but interconnected responsibilities and resources. A DESTINATION wide approach to management is needed.

## 2. Characteristics of PSIDS destinations

- Attractive reasons for going to PSIDS: climate, beaches, culture.
- Narrow range of markets. Except for French Polynesia, all the others PSIDS depend on NZ and AUS.



## 3. Proactive Destination Management rather than reactive



New Zealand Destination Management “Destination AKL 2025” was reactive. Tourism 2025 framework enduring for the long-term. 3 years later the work of the DMO (Destination Management Organisation) have been recognized.

Important values are expressed in *Te Reo Maori* terms.

- *Kotahitanga*: collaboration;
- *Kaitiakitanga*: guardianship;
- *Manaakitanga*: a warm welcome.

- ➔ Destination Management is not separate from Destination Marketing.
- ➔ Institutional frameworks: no single “one size fits all” model. Similarities are seen from place to place, but each destination is unique.

#### 4. Division of responsibilities

Which actions need to be undertaken?

Who has responsibility for these?

Who has the resources?

Who will provide the leadership and coordinate the multiple parties involved?


What is the best institutional framework for structuring destination management?

DMOs are important for PSIDS. What is the best scale in multi-island states and territories?  
Be pragmatic and avoid an overly bureaucratic structure.

#### 5. Adequate instruments and resources

- Enforceable plans and regulations & Tourism Infrastructure funds are needed.
- Tourism plans & strategies: many marketing plans within New Zealand but non-enforceable (no power). Much of the real power lies with the local government plans through their infrastructure provisions.

##### Example: Local government plans



**MINISTRY OF BUSINESS,  
INNOVATION & EMPLOYMENT**  
HĪKINA WHAKATUTUKI

### Tourism Infrastructure Fund

The Tourism Infrastructure Fund provides up to \$25 million per year for the development of tourism-related infrastructure such as carparks, freedom camping facilities, sewerage and water works and transport projects.

The Tourism Infrastructure Fund supports local communities facing pressure from tourism growth and in need of assistance – areas with high visitor numbers but small ratepayer bases, for example.

After a period of exceptional growth in the tourism sector, infrastructure is a priority for the industry and central and local government. Tourism is hugely important to the New Zealand economy and infrastructure is essential to harnessing the benefits of growth in the sector.

Quality infrastructure and facilities also help to ensure New Zealanders can continue to enjoy their own spaces – whether they are at home or visiting other parts of the country.

**Apply now**

Applications are now open for round two of the Tourism Infrastructure Fund, closing on Monday 14 May 2018.

[Apply for the Tourism Infrastructure Fund](#)

**Purpose statement**

The purpose of the Tourism Infrastructure Fund is to provide financial support for local tourism-related infrastructure where tourism growth (domestic and international) is placing pressure on, or potential growth is constrained by, existing infrastructure and the local community is unable to respond in a timely way without assistance.

The Tourism Infrastructure Fund is intended to protect and enhance New Zealand's reputation both domestically and internationally by supporting robust infrastructure which in turn contributes to quality experiences for visitors and maintains the social licence for the sector to operate.

- Total co-funding of **\$14.2 million** will be granted to various local councils around the economy through round one of the Tourism Infrastructure Fund.

## 6. Monitoring

**Indicators** are necessary, not only for departure - arrival - expenditures. We also need to measure satisfaction, seat capacity on aircrafts, change in seasonality, attitudes of the location population - mood of the nation. The growing perception of the New Zealand population is that there are too many tourists.

## 7. Points to ponder

- 1) Whose goals and which ones are most appropriate or important for your destination?
  - 2) What functions need to be carried out for effective destination management?
  - 3) Which organization(s) should carry out which functions?
  - 4) How can multiple functions and organizations be coordinated effectively and efficiently to meet particular goals?
  - 5) Are existing institutional structures adequate or is a radical rethink needed of the way destination management in your destination is organized?
-

## How to fight the negative impact of tourism in high density tourist zones?

Pascal LAMY, Chair of FPTPECC

I will be speaking not only in my PECC capacity, but also as Chair of the World Committee on Tourism Ethics, which sits by the UNWTO in Madrid. The purpose of this committee is to advocate, monitor, interpret and apply what used to be the Global code of ethics of tourism, which has been now turned into a proper brand-new international convention which has just been opened to signature.

**What is overtourism?** I believe there are basically **two approaches** to overtourism: a narrow one and a wider one.

**1. The narrow one**, which is the one on which the UNWTO focuses, can be defined as “excess of tourists resulting in conflicts with locals”. One famous example is Barcelona or what happens with AirBnb in some quarters.

**2. There is a wider definition**, which is “excess of pressure of tourism on local systems”. It is a wider definition that takes into account signs that tourism pressure can become excessive. Well-known examples: Angkor and the Antarctic. Clearly, on the Antarctic, it is not the local population which demonstrated against tourists – apart from penguins who really feel this pressure - but we know that there is overtourism in Antarctica.

I am not going to dwell long into these semantic subtleties, but try to remain focused on the big picture: **why overtourism?**

Any first-year college economist student would tell you that the answer is very simple: the demand is larger than the supply. More precisely, the structural reasons for growth in demand are stronger than structural reasons for growth in supply. If you look at long-term volumes in the tourism industry, the medium-long term is +4-5% in volume per year. There is no other business on this planet that has such a long, constant trend growth than tourism. We are now heading the 1.5 billion tourist a year mark - it was 1.4 billion last year -. The growth rate last year was clearly above the average trend - it was 7% -. By the way, Asia-Pacific is the region that has a higher relative volume growth. This is mostly due to the huge penetration of Chinese tourists in this industry.

The **structural reasons** why we have this constant volume growth are well-identified and they are here to stay: an older population has time, while a less poor population has money - this is a constant on this planet -; new transport connections - mostly air connections which are constantly growing -; the cost of the transport is going down - the low cost has been a big factor in this structural growth -; and finally, a lot of elements that have led to the facilitation of tourism, such as digital platforms, which were a huge lever in removing information asymmetries and freeing capacity, and other regulatory improvements, like visa facilitation which is moving fast.



On the supply side, I do not think I need to explain why supply is constrained and notably the supply that has to do with remarkable sites. Inevitably, the number of remarkable spots on this planet is limited - not that it is constant, you can create some more, but not as fast as demand growth.

If there is a cap, it is not on the demand side, but on the supply side. And sometimes there is a cap.

**How to cope with overtourism?** This is obviously the real operational question, including in the Asia-Pacific region – especially in Pacific islands whose ecosystems are more vulnerable.

The UNWTO is working on that. As the Chair of the World Committee on Tourism Ethics, I have taken overtourism as one of the four themes of the present four-year mandate of the work we have embarked on with my colleagues. The UNWTO has started looking seriously into overtourism. It published at the end of 2018 case-studies based on research on big European cities, who have had problems with overtourism and on how to address it. They issued from that 11 recommendations - I am not going to talk about them, not least because the problem here in French Polynesia or in the Pacific in general is not the same as the one Paris, London or Rome have, but my own suggestions are inspired by them.

Let me mention **five directions**, which I believe are the ones to go in order to properly cope with overtourism.

1. One, which is pretty obvious but not always easy to implement, is to promote lesser well-known sites or attractive places, diversifying the local supply – for instance, if you take Paris, trying to have people not all going to the Eiffel Tower or to the Louvre or to Notre-Dame, especially given its poor present shape, but offering other destinations, including in packages.
2. There is also a case for regulation to restrict the number tourists when it is the only solution. We all know the example of Venice and we all have in mind a series of examples here and there, notably in urban contexts, but not only, where for instance AirBnb has had to be regulated by local authorities in order to avoid a number of nuisances, and they have behaved.
3. Number three: destination management, proper and better management of tourist flows, and use of the formidable capacity of data systems and of digital tools. There are zillions of data available about tourists and they can now be put in the position of choosing various way of streamlining supply and demand.

There is even a dream within the WTO that each person on this planet should have a number which would clear all procedures and that would be used for all purposes in the activity of tourism. We are not there yet, but it is absolutely clear that data is the mine that allows a much better control and management of tourism and of tourist flows, including for instance through apps that help somebody who wants to go somewhere to detect the level of

frequentation or to reserve a slot which then will enter into a management sequence process - including for places like museums.

4. Number four: involve all stakeholders of tourism in planning, in design, in tourism development, including local actors and local populations so that they understand the logic and so that the game can be played in a cooperative way by industry, local actors, and tourists.

5. A part of the negative impact of tourism on local systems stems from objective economic parameters which can be controlled. Another part comes from the behaviour of tourists, who may have a strictly consumerist attitude. We also know that this cultural discrepancies can create misunderstandings or lead to real conflicts. Clearly, the responsibility – or at least, this is what the global ethics of tourism says - is not on the local to adjust culturally to the tourists, but the other way round, which of course is easier to be said than done.

Finally, two more **concrete recommendations**, insofar as the PECC is a place that should inspire APEC programs for the future.

1. One that has to do with what has been said yesterday on our main theme, which is the resilience of Asia-Pacific islands, and that is planning. The real recipe to cope with overtourism is to avoid it, and the way to do that is in properly planning and in strategizing tourism development into what we know - or should know - are the trends that shape this industry from the supply side, but also from the demand side. My clear recommendation for places like French Polynesia or more widely in Pacific island territories' ecosystems is to build on a comparative advantage which derives from the shift in demand. What is the big shift in demand by tourists? If you compare the expectations and perceptions - what they are looking for when they start spending money to travel and stay somewhere else -, there are two big trends that I believe are good news for places like this one, which are experience and environment. What tourists are globally looking for now is something different, new, not just rest, relax have a good time with food and drinks. More and more people are now looking for an experience, a moment they will remember and tell their friends about. This experience is now more and more connoted with environment and the notion that sustainability is part of the game is now penetrating into consumer behaviour. Tourism moving green is something that has started happening. Of course, it may not be the big masses nor the big numbers. There are not 1.5 billion people on this planet looking for a touristic experience that sustains and preserves the environment, but this market segment is growing, and this is precisely what you can offer in this region.

2. My second recommendation, very similar to what we are doing at the UNWTO, is expanding a network that tracks the impact of tourism on social and environment parameters. Within the UNWTO, there is a large network called International Network of Tourism Observatories (INSTO) that monitors the environmental and social impact of tourism. It is worldwide and it is growing. There is quasi none of that in the Pacific.

I looked at the map of these INSTO systems: there is one in New Zealand, Waikato, which was one of the first ones and which was a leader. New Zealand is obviously ahead of most of us in this respect. There is one in Australia, in Panama, in Colombia, in Mexico, in Guangdong and in Suzhou, in the southern part of Indonesia, but nothing nearer here. Looking at the map of this network, you see a big hole, which is the Pacific, which I believe could be filled at relatively low cost. I think we should signal this to the UNWTO and to APEC in order to try and mobilise the adequate expertise.

Such a soft infrastructure would, I believe, help insular systems structure a tourist offer, which synergises with local ecosystems instead of damaging them. Overtourism is what global ethics of tourism are trying to avoid. It is not about adaptation, it is about attenuation. We still have time to do it in this region.

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## To Identify and sustain local resilience in the French Pacific Islands

Stephane RENARD, Consultant to the Ministry of Tourism and Labour of French Polynesia

After 40 years of monitoring, analysis and studies of Small Island Developing Economies (SIDS) throughout the world, particularly in the Pacific, there have been many attempts to ensure balanced and responsible economic development, to keep people in their islands of origin by reducing the deficits of migratory flows, and to preserve their natural, cultural and social ecosystems. The result is an unequivocal observation of specific and important fragilities and vulnerabilities, both economic, environmental and community, or to put it another way: cultural and social.

We are talking about tourism, a global industry that has exploded over the last 15 years and responds to the needs, codes, fashions and distribution channels that cannot be ignored except by marginalizing oneself. Air travel is more affordable than it was 15 years ago, connectivity has spread considerably, new technological advances emerge every year, even every month; new business models and greater visa facilitation around the world have also fostered the continued growth of international tourism.

**International tourist arrivals** (figures 2019 below) increased from 770 million in 2005 to +1.5 billion in 2019. Barring a major international crisis, this volume is expected to rise to between 1.8 and 2 billion in 2030.



Today, it is recognized that **tourism is one of the most important economic sectors at the global level**, an engine of growth and development - everywhere in the world, and particularly in island territories.

**It accounts for 10% of global GDP and 10% of global employment and is expected to continue to grow steadily.**

In the absence of raw materials, strong industries, or with limited natural resources, island territories often perceive tourism as one of the few competitive sectors they have in a globalized economy.

While this development offers great opportunities, it also brings with it great responsibilities, particularly with regard to environmental impacts and climate change.

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By intensifying dependency on external flows, by concentrating the financial benefits on a small number of actors, by multiplying uses and pressures on the natural environment and public spaces, by consuming a very high level of energy in relation to local production capacities, or by promoting the dispersion of exogenous and sometimes invasive species and pathogens,

**the tourism sector greatly increases the vulnerabilities of the islands concerned.**

- This is a point that must be fully acknowledged.

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Nevertheless, when it is carried out with skill and method, this economic development generates prospects for activities, jobs and trade, and reinforces the attractiveness of these islands (even and especially for the resident populations) by allowing a wider offer of transport, a greater connection within a group of islands, or even between archipelagos, and an ever-increasing need for access to new technologies.

People are less likely to leave their island when it offers a full range of services, amenities and mobility. And these services, amenities and transport are fully reinforced by a controlled tourism development (air services in Bora Bora or Maupiti or Rangiroa, in the Loyalty Islands... Public sanitation and waste management in Bora Bora... Apataki Marina...). Demographically, for example, Polynesia's most populated islands are also those that receive more tourists.

Thus, tourism helps to settle populations, can improve access to drinking water and waste management, can financially support the protection, or even regeneration, of natural environments, and enhances traditional cultures. These elements are, moreover, an unavoidable condition for the "sustainability", the "sustainability" of tourism.

If I may be permitted to quote you an article published two days ago, concerning Hawaii, also on the topic of cultural enhancement; this article referred to the changing behaviour of tourists, in direct connection with social networks, posters on Instagram and so on. A Hawaiian cultural guide testified: *"In the past, hotels hired cultural counsellors mainly to teach guests how to make lei, weave, or play the ukulele, but out of necessity, we have come to spread messages that allow tourists to interpret and protect Hawaiian culture."* *"Hawaiians are very concerned about what is happening - we know that land, water and beaches are limited. Now our patience is limited. We are afraid of becoming strangers on our own land."*

It is therefore through the affirmation of a culture, a way of life, an identity, on which little or no compromise is made that these populations will not be dispossessed.

Tourism must draw from the source of people's lifestyles, and tourism actors and professionals must adapt to them - even if compromises with the industry are inevitable.

But when in certain large chains, which are in favour of standardization, local teams are managed by imposing a distance from the customers, an obligation, ... and when the affirmation of an identity is not encouraged, we are moving away from inclusive tourism and virtuous tourism. In the same way, administrative norms can sometimes erase, smooth and deprive tourism actors of their culture. This balance is fragile and essential to maintain. We must also take care of it. There are compromises to be found, between international standards or vis-à-vis such types of clientele, and the maintenance and affirmation of a culture that is specific, indigenous and rewarding for those who carry it.

- And this is an often underestimated element of resilience.

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Source: Tahiti Tourisme

I have been asked to address the relationship of tourism to climate change. Already, from a general, global point of view. I think it is important to recall certain data.



Tourism, the industry, the global tourism market, is one of the sectors that is very vulnerable to climate change. The threats to the sector are diverse, including direct or indirect impacts such as **extreme weather events, sea level rise, coral bleaching, ocean acidification, fisheries depletion, increased insurance costs, security concerns and liability, water shortages**, overall loss of biodiversity and damage to property and attractions at destinations, among others. We saw it again last week with a cyclone hitting Fiji and Wallis & Futuna.

As natural and cultural resources are the foundation of the competitiveness of the tourism sector, continued climate-related degradation and the disruption of cultural and natural heritage have direct negative effects, reducing the attractiveness of destinations and exhausting the economic opportunities of local communities.

Destinations such as small island developing States (SIDS) are among the most vulnerable and within them specifically coastal, lagoon and littoral areas.

**At the same time, the tourism sector actively contributes to climate change. It bears a share of responsibility. What is this share?**

A first and authoritative global assessment of global tourism emissions published in 2008 by the World Tourism Organization concluded that the tourism sector contributed about 5% of all man-made CO<sub>2</sub> emissions in 2005.

Tourism transport accounted for the largest share, 75% of the sector's global emissions, or 3.7% of global human emissions [26.4 billion tons]]. Over the decade, the tourism sector would be responsible for 8% of global GHG emissions (transport, accommodation, air conditioning and heating, activities + infrastructure construction) according to a study by the University of Sydney.

A new study, published a few days ago, again from the UNWTO, and focusing on 2016 data, concentrating on tourist transport, with 65% more international tourists and +119% more domestic tourists (within the same economy) compared to 2005.

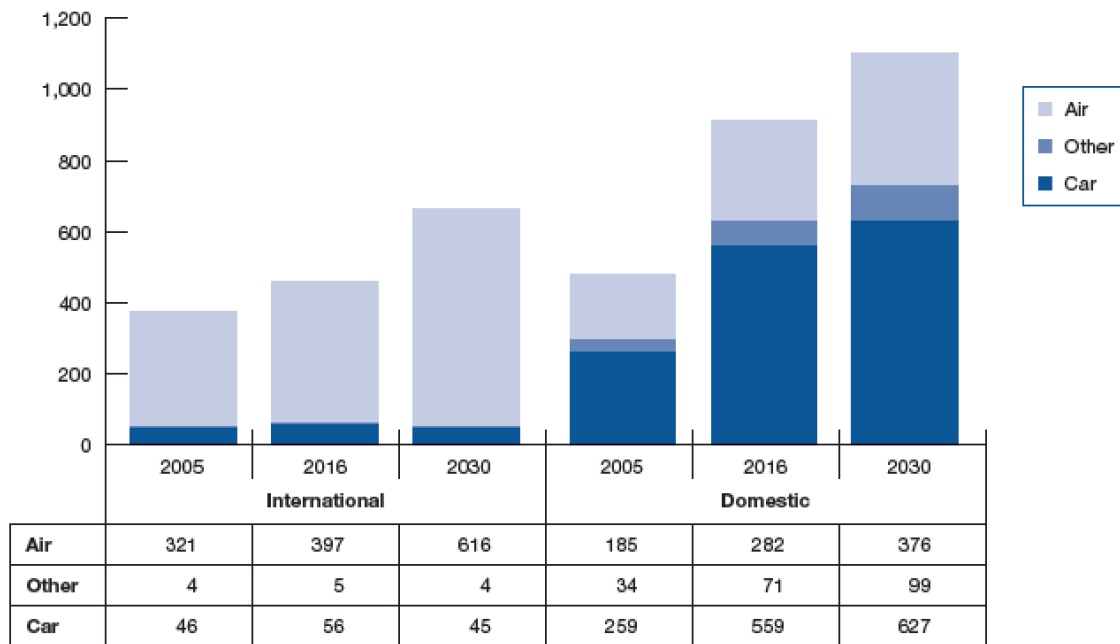
**The share of tourist transport for 2016 is thus estimated at 1.6 billion tons (i.e. 22% of total global transport emissions, 5% of total man-made emissions).**

Transport for international tourism produced 458 million tons of CO<sub>2</sub> (domestic tourism thus produces 2x more).

The same study details estimates by region and by mode of transport (**Figure 4.3**).

Thus air transport accounts for 81.9% of CO<sub>2</sub> emissions from international tourist transport, 11.6% from cars, 5.5% from cruises and 1% from railways.

**Figure 4.3 Overview of transport-related emissions from domestic and international tourist arrivals by mode of transport: air, car and other, 2005, 2016 and 2030 (Mt of CO<sub>2</sub>)**



Notes: New tourism-related transport demand model developed for this study.  
Sources: Based on UNWTO, UNEP, WMO, ITF, IEA, IATA and Amadeus data.

*(Thus, just for the record, out of the 32 billion tonnes of CO<sub>2</sub> emitted by human activities in 2016, a segment such as cruising accounted for 0.08% of global man-made CO<sub>2</sub> emissions).*

*(Other mischievous specialists compare the CO<sub>2</sub> emissions of international air transport with those of data centres. They ask the question: is it better to stop travelling or watching Netflix?)*

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Nevertheless, everywhere in all regional or international tourism conventions and conferences over the last 10 years, the subject of climate change, greenhouse gas emissions, CO<sub>2</sub>, nitrogen or Sulphur dioxide and fine particles, and, more broadly, environmental preservation and regeneration, the protection of species and energy efficiency, have always, I can assure you, always been on the agenda. In 10 years, regulations have changed, both in many economies and internationally, and the fuels used, energy consumption, particularly in transport, and even the production and use of so-called clean or at least alternative, decarbonized energies, are being implemented in a great many areas, segments and tourism projects.

**This industry, which is often singled out, is therefore far from being irresponsible in the face of these issues.**

One may question the very existence of "tourism" as a leisure activity perceived as non-essential and carried out solely at the expense of the planet without any real valid reason. But that is another debate.

What we are seeing is that tourism, just about everywhere, with all the **more attention as the ecosystems are fragile**, is taking these issues into account, and as is the case today, it is questioning, testing and developing new technologies, financing major programs, and must continue to intensify its efforts in this direction. This is the meaning of history; **it has become a constituent, ontological element in the evolution of the tourism industry.**

It must be at the forefront of initiatives against climate change and the vulnerabilities it causes.

And the World Tourism Organization, for instance, has been constantly reminding us of this for the past 10 years.

xxx

Returning to island territories, we must also note the recurring difficulties in establishing, maintaining and deploying territorial policies over time, which enable these territories and island States, islands or groups of islands to have the levers they need for harmonious development. There has been no shortage of attempts in the French islands of the South Pacific. Few of them have been conclusive over time, but we can nevertheless cite the regional programs, of the *RESCCUE*, *INTEGRE* or *PROTEGE* type, which have been deployed here, we can cite labels obtained by municipalities or signboards (Blue Flag, EarthCheck, Green Key, etc.).

On the other hand, the number of exemplary and innovative private projects makes this search for impact reduction, a rule of conduct favourable to the protection, respect and environmental regeneration (but also to respect and establish links with island communities), assets, competitive advantages, to differentiate oneself on the international tourism market.

This is a form of emulation (which should be maintained and encouraged).

xxx

One of the major factors in the resilience of these islands lies in the organization, support and strengthening of communities of local actors, firstly around a given economic sector, then gradually extended through economic interdependencies to other sectors of activity.

Tourism can thus make it possible to federate the local actors of a given island, around a conscious, constructed approach of a controlled and chosen inclusive development. Several examples demonstrate this.

The future challenge of the tourism sector in the French Pacific Islands lies in the efficient and sustainable organization of a **global support system** based on identified, constituted and animated local communities and on a territorial strategy including both geographical and sectoral interdependencies.

Perceptions and initiatives are evolving in this direction, although the difficulties linked to isolation, distance and centralization are still difficult to overcome.

This calls for substantial and sustainable funding (on a scale of at least a decade) to set up the teams and bring together the skills that can thus accompany these communities.

*(For the record, a 2016 study concluded, for French Polynesia, that only 0.3% of public jobs in the community were dedicated to tourism, so there are substantial public funds committed to tourism development, but they are not necessarily targeted for this territorial support of structuring and an active approach to the identified vulnerabilities).*

XXX

**If we wish to increase the resilience of these islands, we must therefore work, starting from local problems and wishes, to reduce one by one the vulnerabilities generated by the tourist activity while at the same time proposing development and growth.**

In Polynesia, if the SAGE makes this a prerequisite, if the Environment Code has been strengthened in this respect, the participatory elaboration of the future tourism strategy 2021-2025, based on spontaneous, voluntary and autonomous collaborative workshops, is part of the same intention.

The frontispiece of this approach is that "*Fariira Manihini* - this is its name - A TOURISM INCLUSIVE TO THE SERVICE OF RESPONSIBLE DEVELOPMENT AND SHARED GROWTH IN FRENCH POLYNESIA, identifying a territorial distribution of flows in our islands, acceptable and coherent according to the reception capacities, the wishes of the populations, as well as local and international opportunities, while preserving the environment, the quality of life, the culture and the daily uses of the Polynesians."

This approach is unprecedented for a Pacific island territory, which will be able to learn from the experience of previous initiatives or those of our neighbours.



In 2012, for example, Samoa has recommended the emergence of public/private partnerships to promote the resilience of island areas and populations through tourism projects that would be co-designed, co-constructed and even co-operated with this in mind.

### Conclusion

Thus, if we are to organize and deploy public policies to support or train people to take into account and better manage tourism development that integrates environmental and community issues, in order to free up human, financial and regulatory resources,

**we must train and rely on the stakeholders in the sectors, because no dynamic can be sustainable without them, and even less so against them. The industry must be at the heart of the action plans.**

Finally, while more energy must be put into dynamics and cooperation organized at local level, they must also be able to fit in and find resonance at regional level, and be able to rely on support (particularly financial and technical) and policies on a national scale.

Tourism can therefore contribute to strengthening the autonomy of our islands, with dynamic micro-economic and social balances, monitored and preserved ecosystems for the use and management of areas as well as for the protection of species, and can help to cement the cohesion of the communities of origin in these islands and somewhat scattered territories.

Thank you.



**For a sustainable tourism to make islands more resilient**

Yann RIVAL, Associate Professor, University of French Polynesia and Co-Director of the CETOP (Centre for Tourism Studies in Oceania-Pacific)

**1. What is sustainable tourism?**

Sustainable tourism is related to the notion of sustainable development. The concept of sustainability is based on a triple concern (Bruntland, 1987):

- Environmental protection to ensure its renewal;
- Seeking greater social justice (redistribution of wealth through tourism);
- Economic and financial viability.

People feel concerned about sustainable development and are impacted by marketing campaigns and tools.

Examples of non-sustainable destinations and sustainable destinations



**Examples**

- **Non-sustainable destinations** : Costa Brava, Spain **(1)** and Nha Trang, Vietnam **(2)**
- **Sustainable destinations** : Mai Chau, Vietnam **(3)**





## 2. Sustainable tourism and resilience

By definition, sustainable tourism is part of a resilience approach. Sustainable tourism integrates the protection of the environment and aims **to make environment resistant to tourism activity: this is resilience**. Sustainable tourism assumes that society continues to function in the same way as before the development of tourism activity (**ability to function as before): this is resilience**. Finally, sustainable tourism contributes to local economic growth in a sustainable manner despite cyclical ups and downs (**ability to overcome shocks): this is resilience**.

## 3. Sustainable tourism and resilience in the context of insularity

Is there a special link between sustainable tourism and resilience in a context of insularity?

Insularity is characterized by smallness, remoteness/isolation and vulnerability - Economic and environmental- (Briguglio, 1993, 1995, 2001, 2004 ; Saffache, 2002 ; van der Velde et al., 2006 ; Dehoorne et al., 2008).

The environment (limited, more fragile in the context of insularity) is preserved within the framework of sustainable tourism that promotes environmental resilience in an island environment. The social dimension (focus on social equilibrium, cultural identity, more vulnerable in the context of insularity) is preserved in the framework of sustainable tourism that promotes social resilience in an island environment. The economic activity (tourism is one of the main activities, if not the main resource in the context of insularity) is developed in a long term in the framework of sustainable tourism, synonymous with economic resilience in an island environment.

Sustainable tourism and resilience are two related concepts. Resilient sustainable tourism takes on its full meaning in a context of insularity.

## 4. From the economic and social dimensions in French Polynesia

The share of tourism in the GDP attains around **17 %**, which places tourism as the first industry of the territory. The share of the active population working in the tourism sector: 11,000 direct and indirect jobs. The use of local suppliers in the tourism sector is quite high since significant progress has been made in recent years, but there is still possible improvement. The social rights of the staff are rather high since French Polynesia is largely inspired by the French social model. Local recruitment is a reality given the existence of a law that protects local employment and to the extent that qualified local labour is available. This is not always the case especially for managerial positions in the hotel and restaurant industry.

Information and transparency vis-à-vis visitors on sustainable tourism practices: we must recognize that much remains to be done. About Training there are Tourism Training and Tourism Forums since 2015 as well as the first training sessions for tourism professions in 2018.

## 5. The environmental dimension in French Polynesia

The recycling of waste by the various actors in the sector: we observe specific actions, particularly in some hotels or family pensions, but this remains too little in general and much remains to be done about water management (reasoned watering), a problem in French Polynesia. Long regarded as an unlimited resource, water is often wasted, and the use of water meter is far from widespread. Much remains to be done in this area and especially in the tourism sector. The use of green energy and in particular solar panels, is in full development in French Polynesia. Polynesia is also at the forefront in terms of air conditioning by rising cold water deep in the sea (SWAC).

Greenhouse gas emissions: much remains to be done, particularly in terms of transport. There is no real significant public transport management policy. In addition, the electric car fleet is still very small today.

The protection of biodiversity: we must emphasize the sensitivity to the protection of coral which is often made in the context of tourism activities (coral garden in hotels for example).

Noise traffic management: nothing is done while, for instance, the airport is located in the urban centre.

Environmental education for clients (encouraging nature, wildlife and the environment, saving water and energy, sorting waste) is present in most hotels and guest houses.

### Conclusion

The direction taken by the political institutions of French Polynesia is part of sustainable tourism. They put a lot of resources to succeed in developing a tourism offer that positions the man at the centre of this economic activity. Of course, a number of elements are to be improved but we can observe the awareness of environmental and economic vulnerability. French Polynesia is an example of resilient sustainable tourism raised by the context of insularity.

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## SESSION 4: ECONOMIC INTELLIGENCE AND DEVELOPMENT OF TOURISM

### Economic Intelligence for the benefit of Polynesian destination: Optimal Strategies for Products and Customers

Sylvain PETIT, Associate Professor, University of French Polynesia

#### Topics addressed:

- The strategy on the very identity of the tourism product proposed in French Polynesia.
- Customer-wise management by talking about the geographic diversity of the customer.

A starting point: a sharp fall following 2008 crisis, which effects are beginning to fade only now with a timid confidence of the players. What for? The 2008 international crisis (and the political instability of the time) was only the catalyst; the problem was structural.

As a result, there are **two strategic problems**:

- The differentiation of the tourist product from the Polynesian destination.
- Diversifying the origin portfolios of tourists.

#### 1. The differentiation of the tourist product from the Polynesian destination

In economics, international competition in tourism can be understood as monopolistic competition.

- **Strong competition** but possibility, through a policy of differentiation, of having a "form of monopoly power" over the proposed variety in the long-term period;
- Economists like having theoretical models such as monopoly, oligopoly and pure and perfect competition models at their disposal. In Tourism Economics **the monopolistic competition model** is used:
  - The producers are able to have economies of scale.
  - The products exchanged are not homogeneous (ability to differentiate products from competitors).

⇒ Ex: Greece and Egypt have monopolies on part of their products.

Therefore, if the product becomes substitutable, the price becomes important. In French Polynesia, for technical and economic reasons: it is impossible to be competitive on price. The tourism product in French Polynesia: bungalow on stilts for newlyweds or retired people (non-repeaters).

Other destinations developed this form of tourism product in the early 2000s (Maldives, Seychelles, ...) with lower prices.

⇒ Hence the change in communication about the destination by Tahiti Tourisme.

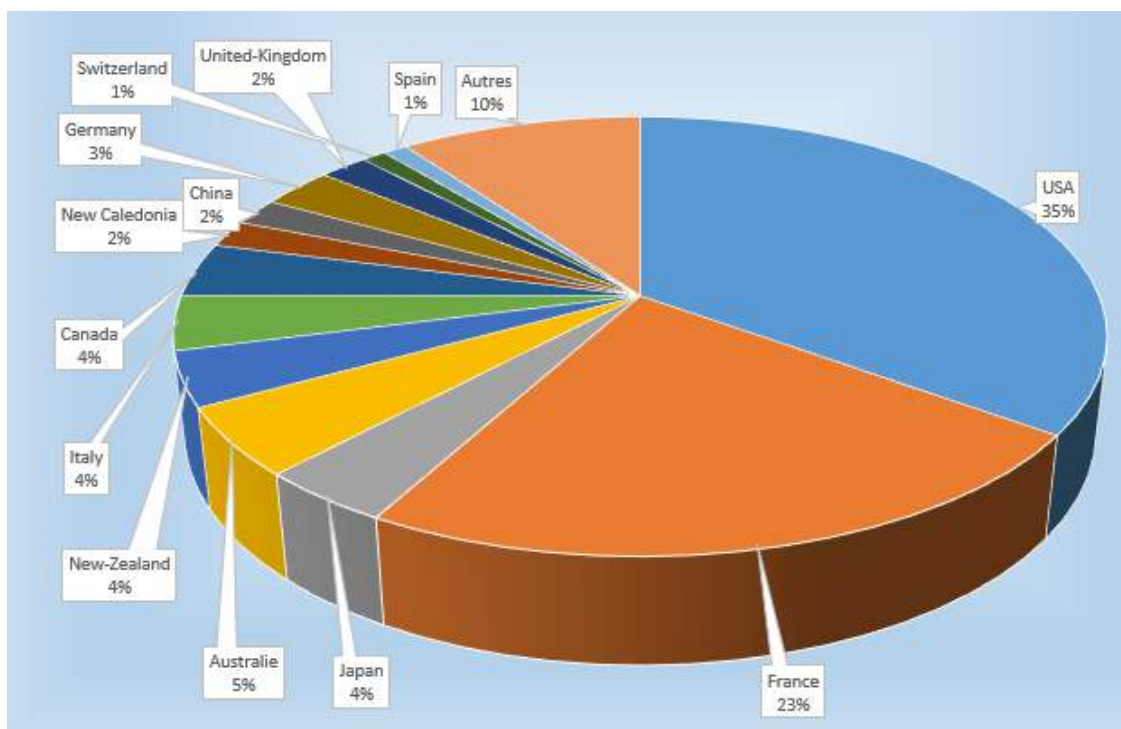
**Therefore, when a destination becomes substitutable to another, the determining variable becomes the price.**

**However, do the Polynesian authenticity and especially the warmth of the Polynesian welcome necessarily pass through a luxury tourism?**

- The **role of family pensions and rentals** is significant.
- The **destination's strategy** should not be limited to the issue of air transport and tourist accommodation. A differentiated product must be built on Polynesian culture and authenticity (the inscription of the *Taputapuātea marae* as a UNESCO heritage site should not be an end in itself). This must be accompanied by good management over time. It is important to develop tourism activities within the framework of product identity, but also to push and improve certifications and certifications.

In addition, we must ask ourselves whether there may be several destinations within the destination. (see: Tourist diagnosis of French Polynesia, De Grandpré et al. 2020). Bora-Bora is a destination in its own right. So are the Marquesas. The 5 archipelagos are very different from the other. It is quite possible to develop destinations within the destination of Tahiti and its islands.

## 2. Diversification of tourist origins portfolios in French Polynesia



We depend very heavily on **2 clienteles**: France and the U.S.

French Polynesia, which depends on these two markets, is therefore very unresilient and presents a high level of risk. These are potential returns that we are being depriving ourselves of. The results come from a study based on portfolio management methods. The basic idea is the use of portfolio management methods (tourist nationality: an action) in the case of the destination.

For a given expected level of return, investors choose optimal and effective portfolios while minimizing risk (volatility, variance).

The **hypotheses** used are the following:

A / All information about a risky portfolio of securities can be summarized in the values of two parameters: the standard deviation and the expected value of the portfolio's return;

B / Investors are rational and try to maximize their utility (the long-term portfolio level).

**Demonstration:** We're going to reason in a medium variance space. The Multi-Criterion Electre III method allows decisions based on upgrade relationships that are binary relationships defined on a set of alternatives to the decision). The Polytechnique people use these methods to know the optimum to choose.

The **principle** of this method leads to the construction of an upgrade relationship:

- **Concordance:** an upgrade relationship is validated if a sufficient majority of criteria are consistent with it.
- **Non-discordance:** When the condition of concordance is met, none of the criteria that are not consistent with it should be too strongly opposed.

We identify **3 optimal investor profiles**:

- A "risk-averse" destination
- A "risk-neutral" destination
- A "risk-lover" destination

	Real portfolio in 2017	Risk adverse decision-maker	Neutral decision- maker	Risk lover decision-maker
Africa	0.21%	0.13%	0.13%	0.13%
Central America	0.38%	0.30%	0.30%	0.30%
North America	28.77%	15.42%	15.42%	15.42%
South America	3.72%	7.47%	2.49%	2.49%
China	2.63%	11.14%	23.95%	28.32%
Japan	4.81%	3.85%	3.85%	3.85%
Europe	4.81%	12.27%	12.27%	12.27%
France	33.69%	42.99%	35.16%	30.80%
Total Pacific	10.16%	6.33%	6.33%	6.33%
Middle East	0.28%	0.09%	0.09%	0.09%

### Results

- Whatever the investment profile of the destination: the weight of the U.S. is too great and Australia/New Zealand too.
- However, there is a problem with the exchange rate. Strong improvements are possible for European economies (less exchange rate volatility) and Chinese markets (cultural proximity and important tourism potential).

### Conclusion

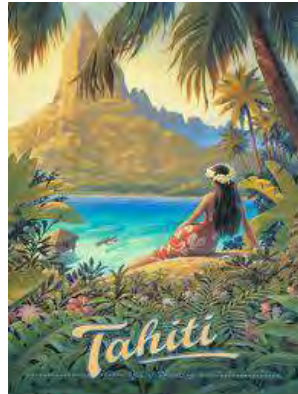
The differentiation of the destination and the diversification of the tourist clientele have played an important role in French Polynesia's lagging tourism development. The identity of the destination's tourism product remains to be refined and clarified. The poor diversification of tourist origins reduces the potential for returns and increases the level of risk.



## An Analysis of Internet Comments on the Polynesian Tourism Industry

Pierre GHEWY, Co-Director of the CETOP (Centre for Tourism Studies in Oceania-Pacific) and Sebastien CHABRIER, Associate Professors, University of French Polynesia, on a joint research with Christophe BENAVENT, Professor, University Paris Nanterre

**How do accommodation facilities adapt their offer to their resources and what do tourists remember?**



### 1. The communication of Tahiti and its islands: from transactional marketing to experiential marketing

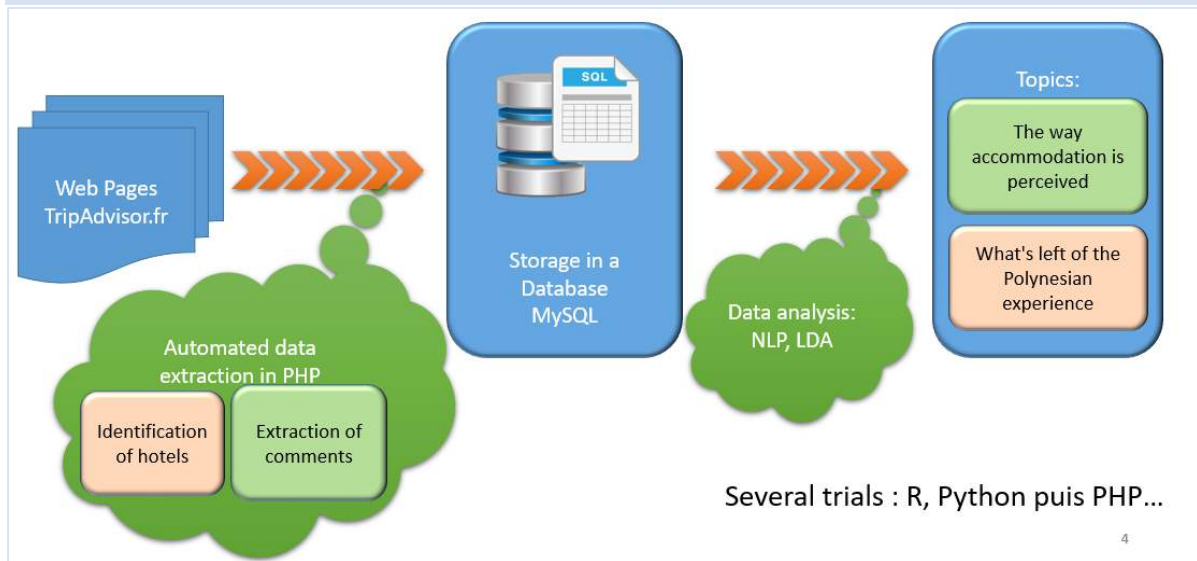
**Tahiti, the islands of *mana*.** Their communication and marketing campaign is based on experience. "*Mana* is that energy, that spiritual force that surrounds us. You can see it, hear it, touch it, taste it. Linger still and there, you will smell its bewitching perfume (...)" (Pascal Erhel Hatuuku). The local culture is what attracts yachts the most (*Tahiti Tourisme - Plaisance touristique; Etudes et analyse statistique, Saison 2015*).

*"It is almost impossible to define Mana, however, Mana is a pillar of our Polynesian culture"* (Hironui Johnston).

**If *mana* is such a complex phenomenon how can one experience *mana*? How will tourists experience *mana*?**

### 2. The commentary analysis

We have an exhaustive collection of comments on the TripAdvisor.fr website by scraping over the last 4 years of production; 26,467 French comments collected and analysed (France 35% of tourists; ISPF Economic Outlook - 3rd quarter 2019).

**Figure 1. Methodology****Problems encountered**

- Several pages of comments per hotel;
- Unfold the comments;
- Separate the comments from the hotelier's responses.

**Internet commentary analysis tools**

- **NLP** Method (Natural Language Processing) to read the text : deletion of articles “le, la, les”, root words, mistakes.
- **LDA** model (Latent Dirichlet Allocation) to identify the content of UGCs (User Generated Content);
- **LIWC** (Linguistic Inquiry and Word Count) to apprehend:
  - Experience through the terms “See”, “Hear” and “Feel”;
  - Temporality: expression in the present, past or future;
  - Emotions: anxiety, anger, and sadness.

**Some general data.** 75% of the comments are produced by 25% of the most important hotels: more rooms, more comments. Smaller hotels produce more per room than larger ones: in smaller, less standardised hotels, guests comment more.

**Most relevant topics (Figure 2)**

- Postcard
- Quality/price ration transit
- Dithyrambic / “Woah” effect
- Polynesian paradise
- Welcome and simplicity
- Quality of the stay

- Room and view
- Customer interaction

**Figure 2.** Topics identified in the comments (NLP + LDA)

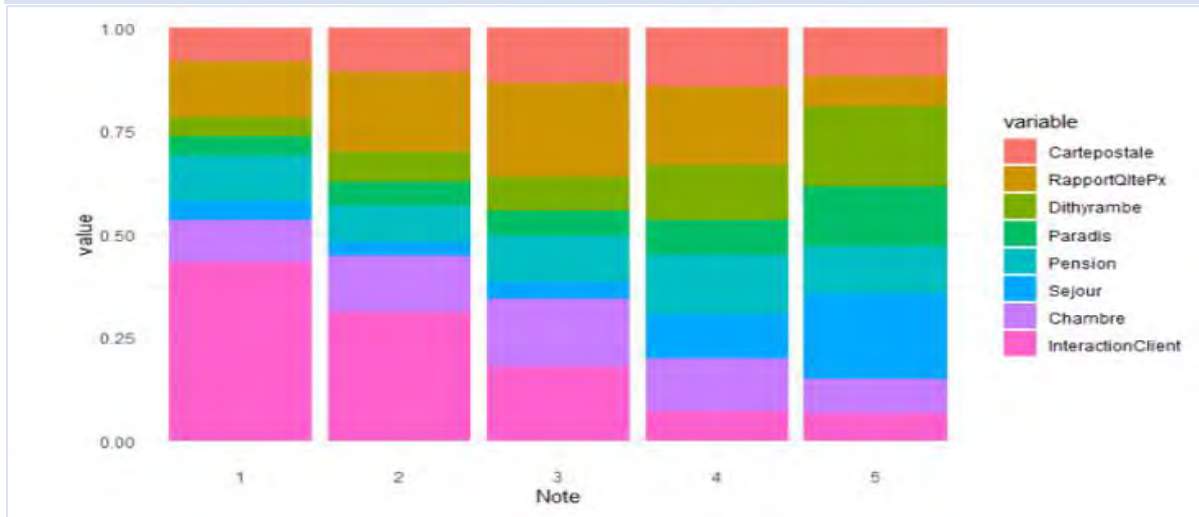


**Accommodation structures characteristics (Figure 3):**

- 5 stars = Dithyrambic; Quality of the stay; Polynesian Paradise; Highlighting the quality of the equipment, the teams and the place: functional quality.
- 2, 3 and 4 stars = Quality-price ratio.
- 1 star = Customer Interaction: Focusing on relational quality. (In family-run guest houses).

It means that customer interaction is negatively correlated to the number of stars.

**Figure 3.** Breakdown of the themes accordingly the rate experience comments



### The lived experience (LIWC)

There are just a few quotations of the words 'Feel' and 'Hear', whatever the place visited. 'See' is prevalent for all the archipelagos (especially in the Marquesas) = what remains of the experience of a stay in French Polynesia are **images**, a **visual experience**, the **postcard**.

The combination of the use of the past and a feeling of **sadness** suggests a feeling of nostalgia (strongest for Bora Bora and Moorea, the most spectacular) and the best equipped structures: the largest and most expensive hotels. Comments are written at past tense.

Vecu de l'expérience de la production langagière - F de Cohen									
	Sentir	Voir	Entendre	Verbe passé	Verbe futur	Verbe présent	Anxiété	Colère	Tristesse
destination	0,049	0,065	0,045	0,017	0,016	0,033	0,015	0,026	0,056
Nombre de chambres	0,030	0,062	0,021	<b>0,091</b>	0,014	0,021	0,017	0,010	0,019
Classe de prix	0,029	<b>0,089</b>	0,026	0,068	0,032	0,031	0,020	0,012	0,051
Rédacteur	0,011	0,052	0,015	<b>0,134</b>	0,039	0,033	0,008	0,016	0,046

### Conclusion

While the local culture may attract future tourists, the Polynesian cultural experience, linked to Mana, usually, does not take place. Mana and the main Polynesian terms are absent from the lists of the most frequently quoted terms (Topics). The two players in tourism, accommodation and tourists, are adapting to magnify their encounter. Mana is attractive but is not experienced.

### Future extensions

Planned extensions of this work:

- Pluridisciplinary methods will be key (between IT, management and linguistics) to get expression of *mana*. We will operate the same methods on other booking platforms: TripAdvisor.com, Airbnb, on the different regional websites.
- We will Integrate Artificial Intelligence into the reading of texts to more accurately assess the valence of the feeling expressed but also questioning Twitter to get out of the hotel issue.



## To adapt the tourism industry to environmental issues through environmental certifications

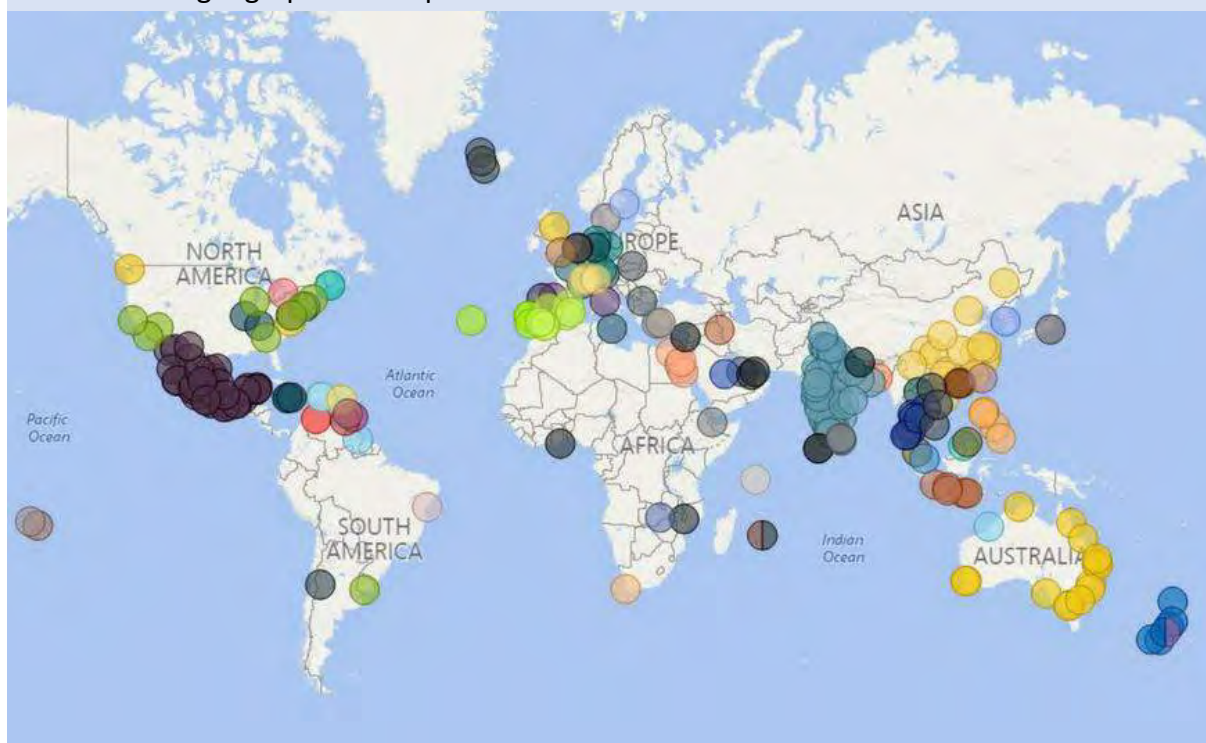
Romain VIVIER, Local EarthCheck Representative and Accredited Auditor

I am responsible for checking the compliance of French Polynesia's hotels with Australian technical specifications to reach sustainability management models.

### 1. Presentation of EarthCheck

EarthCheck is the world leader (more than 1,400 customers in over 70 economies) in scientific benchmarking, certification and advisory group for travel and tourism. Major decisions are made on an international level. The purpose of auditing is to check if the hotels comply with the specifications of the EarthCheck's certifications.

EarthCheck's geographical footprint



We can notice that EarthCheck has:

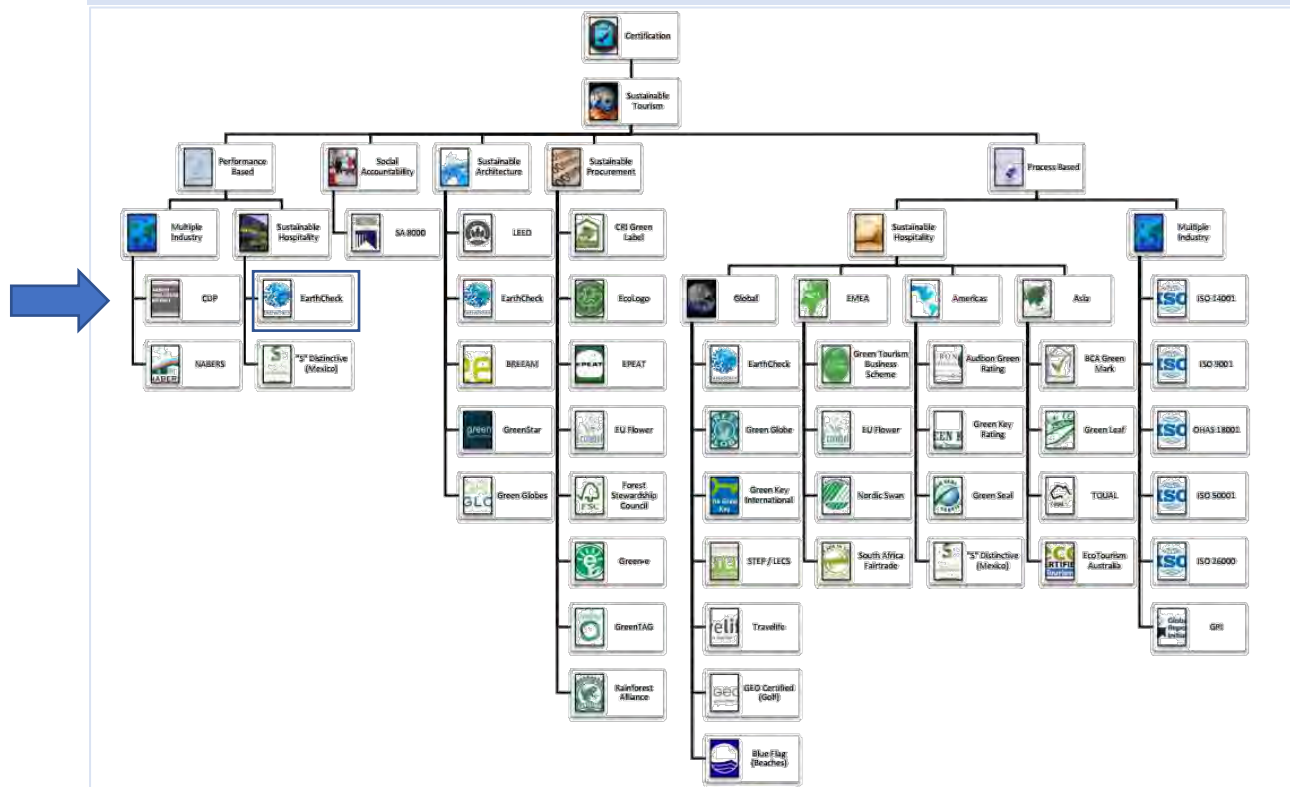
- A strong foothold in the Pacific;
- 12 hotels in French Polynesia (can vary from a year to another – according to some Managers, who can be very sensitive to environmental issues).



### Tourism emissions - growth needs to be managed to face the scarcity of resources

There are more than 30 labels developed by EarthCheck hotels. It is the world leader in QHSE (quality, safety, security, environment) conformity of the hospitality industry. The market is variable according to the hotel managers environmental awareness.

### Overview of all the labels and certifications existing in the international levels for the tourism industry



We take a holistic view to sustainability:

1. **Destination management:** We develop destination management plans (Great Barrier Reef, Macau, Mexico, Ireland), marketing and brand development, tourism employment and workforce plans, risk and crisis management, events, etc.
2. **Community planning:** Educational Programs for Schools, Local Government Plans, CSR (Corporate Societal Responsibility) Programs (Foundation Development), Capacity Building and Training, ASPIRE Performance Monitoring, etc.
3. **Building & precinct planning:** Building, Planning and Design Performance, Integrated Resorts/Casino's, Airports/Precincts, Convention Centres, Entertainment Centres;
4. **Business operations:** Product and Design Advice, Operational Performance Benchmarking/certification, Experience Development, Investment and Business

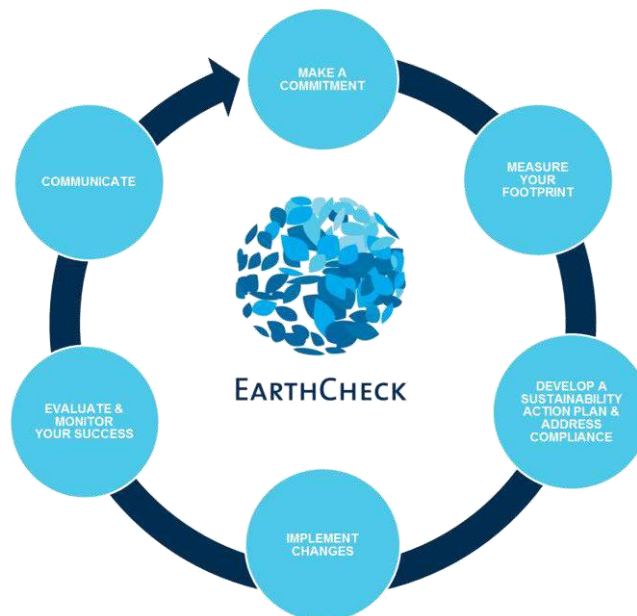


Advice, Risk Management, Green Infrastructure (Green Roofs, Urban Farming), Activation (Art/Heritage/Culture).

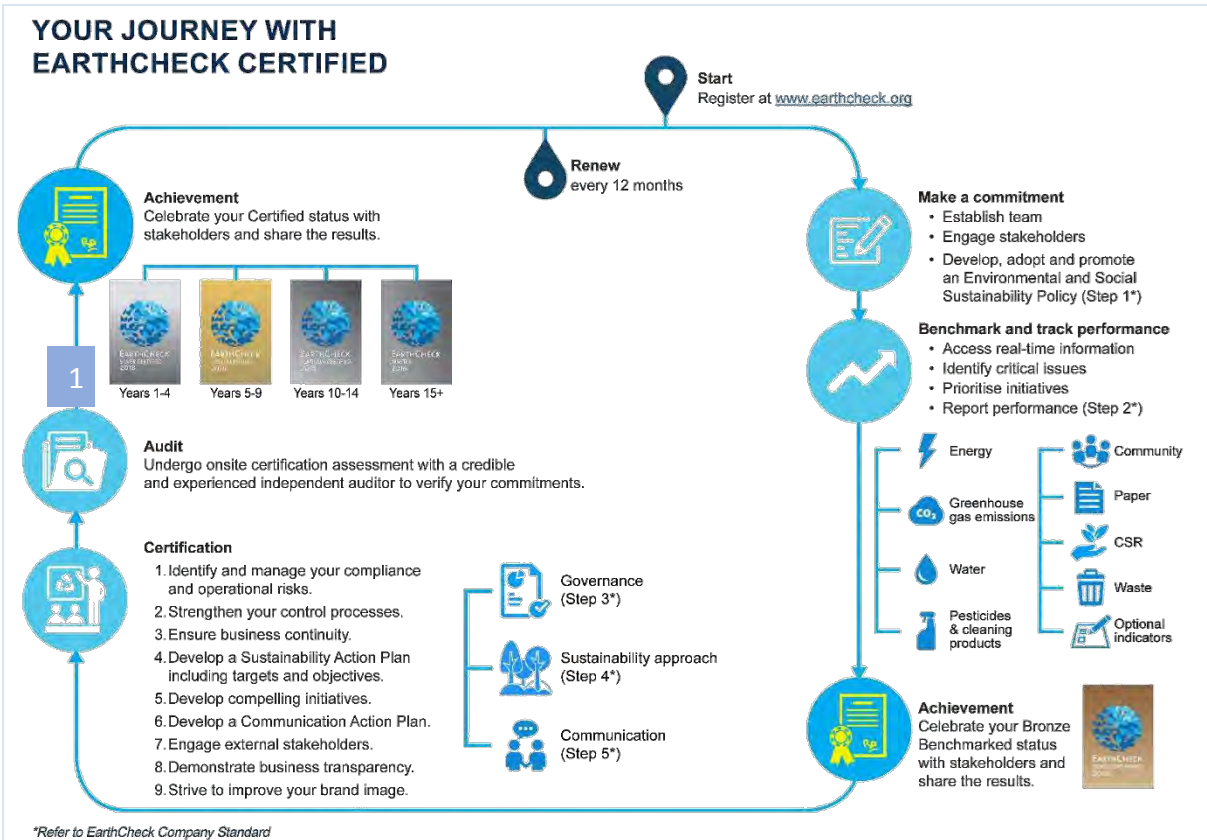
## 2. Focus on certification

The purpose is to support the structure willing to benefit from our services. You cannot lead actions, modify habits on things you have not measured beforehand. A one-year delay is thus necessary to build up a starting-point database and monitor the changes towards sustainability. The institution provides its data.

Sustainable development policies adapted to the hotel are established. The operational phases consist of delivering our international EarthCheck certification.



**EarthCheck certification cycle** is determined by six stages: 1) Make a commitment, 2) Measure of the footprint, 3) Develop a sustainability action plan and address compliance (there is a one-year period during which the Hotel that applies for the certification will be compared to other (similar) hotels, so as to position itself according to a baseline), 4) Implement changes, 5) Evaluate and monitor your success, 6) Communicate on changes.



\*According to improvements achieved, there are many levels of certifications (1).

### “We love data”

The data enables real-time monitoring of the hotel's performance converted into monetary figures (e.g. energy gains or losses), between two given periods.



## Objectives

- In concrete terms, it means helping to **implement solutions** for **sorting, recycling** and **waste** collection (waste management), in particular through composting, compacting and grinding.
- On **energy**, we will recommend renewable and clean solutions with energy balances (examples: to monitor possible energy losses, heat recovery, etc.).
- Concerning **water**, it is absurd to continue to import water from elsewhere when it could be filtered and re-bottled. Customers are demanding to these type of certifications. We also try to encourage the use of local plants, as they are less water-consuming, and sectorization of the networks so as to know where the water leakages come from.
- **Other measures** that can be undertaken: to stop printing flyers and to provide everything on a shelf (luxury establishments) or to make available some electronic tablets, Biodiversity management, coral gardening, sustainable lighting, fish feeding, culture and involvement of local communities (favouring the local), taking biodiversity into account. Staff training is therefore important.



## Conclusion

5 elements are monitored:

- ⇒ Actions plans: progression better than perfection
- ⇒ Risk management strategies: environmental, technological, etc.
- ⇒ Policies
- ⇒ Training
- ⇒ Communication

## Prevention and Management of the Risks in the French Overseas Territories

Frederic MORTIER, Interdepartmental Delegate for Major Risks Overseas

*Honourable President,*

*Honourable Ministers,*

*Honourable Member of Parliament,*

*Ladies and gentlemen,*

Thank you for your welcome and invitation.

I am pleased to come and exchange with you on the prevention and management of risks in Overseas Territories. By decision of the President of the French Republic, the work of risk prevention and management in the French Overseas Territories has been decided, initiated and promoted. The French Overseas Territories are exposed to all-natural hazards (excepted avalanches).

In Overseas Territories we have all-natural hazards (except avalanches) and densely populated territories. **Therefore, the purpose is to:**

- **Develop risk culture,**
- **Reduce vulnerability of the territories to enhance their resilience** (prevention and planning).





### 1. Major risks in the French Overseas Territories

Presentation of the French Overseas Territories in the world










**Major risks by territory****Atlantic Ocean**

	Territoire	Sup. ter. (km <sup>2</sup> )	Pop.	Dist. Paris (h. de vol)	Risques majeurs
	Guadeloupe	1 628	382 700	8	Risque cyclonique, Mouvements de terrain, Risque sismique, Inondations, Risque volcanique, Tsunami
	Martinique	1 128	364 360	8	Risque cyclonique, Mouvements de terrain, Risque sismique, Inondations, Risque volcanique, Tsunami
	Saint-Barthélemy	21	9 800	9	Risque cyclonique, Mouvements de terrain, Risque sismique, Inondations, Tsunami
	Saint-Martin	90	35 750	9	Risque cyclonique, Mouvements de terrain, Risque sismique, Inondations, Tsunami
	Guyane	83 846	296 700	9	Dynamique du trait de côte, Submersion marine, Mouvements de terrain, Inondations
	Saint-Pierre et Miquelon	242	6 000	11	Inondations, Risques littoraux / submersion marine, Tsunami, Aléas météo exceptionnels

**Indian Ocean**

	Territoire	Sup. ter. (km <sup>2</sup> )	Pop.	Dist. Paris (h. de vol)	Risques majeurs
	La Réunion	2 250	866 500	11	Risque cyclonique, Mouvements de terrain, Risque sismique, Inondations, Tsunami
	Mayotte	375	270 400	11	Risque cyclonique, Mouvements de terrain, Risque sismique, Inondations, Risque volcanique, Tsunami
	Terres australes et antarctiques françaises (TAAF)	439 665 (7665 hors Terre Adélie)	300 max Missions	> 1 semaine (sauf Eparses)	Enjeux humains très limités

**Pacific Ocean**

	Territoire	Sup. ter. (km <sup>2</sup> )	Pop.	Dist. Paris (h. de vol)	Risques majeurs
	Polynésie Française	4 200	283 000	23	Risque cyclonique, Tsunami, Mouvements de terrain, Risques littoraux / submersion marine, Inondations
	Wallis-et-Futuna	142	11 560	23	Risque cyclonique, Tsunami, Risque sismique, Risques littoraux / submersion marine
	Nouvelle Calédonie	18 576	282 200	23	Risque cyclonique, Tsunami, Mouvements de terrain, Risques littoraux / submersion marine, Risque sismique, Inondations
	Clipperton	1,7	0	Par mer uniquement	Aucun enjeu humain

**Examples of risks in the Overseas territories:**

- Saint Pierre & Miquelon : *erosion of the coastline, cyclones and wind.*
- The West Indies (Saint-Martin, Saint-Barthelemy, Guadeloupe and Martinique): *seismic hazards, cyclones, erosion, landslides and floods.*
- French Guiana: *floods, heavy rainfall, ground movements, sedimentological dynamics.*
- Mayotte: until recently it was spared. But other issues have arisen, *because of land use (increase in immigration, clearing of fragile tropical soils), land movements and landslides, thousands of earthquakes and emergence in 14 months of a volcano.*
- Reunion Island: *volcanic activity, flood, ground movement, cyclonic risk.*
- French Polynesia: *submersion, flooding, land movement and tsunami.*

**Each economy has its own rhythm and specificities. These variable contexts require adapted responses.**

**1.1. What is a major risk?**

In French rule-of-law, it is defined as a potentially dangerous event (**hazard**), which is a major risk only if it applies to an area where human, economic or environmental issues are at **stake**.

There are plenty of tools that serve as decision-making tools in order to properly integrate those factors.

**1.2. Natural risk prevention plans (PPRN)**

(Natural risk prevention plans were enacted on 2 February 1995)

Prevention policy is the result of a **shared responsibility**, involving the French Government departments, local and regional authorities and citizens. The objective of natural hazard prevention plans is to **reduce exposure to risk** and the **vulnerability** of people and property. The purpose is thus to improve the resistance to hazards and the resilience, which is the ability of the system to bounce back following a hazard.

The PPRNs define the **areas of exposure** to foreseeable natural phenomena, direct or indirect, and characterize the possible intensity of these phenomena. In these so-called "hazard zones", the PPRN **regulates land use, construction, use and management of risk zones** in a global/integrated approach to risk.



### 1.3. Information on major risks

The **major risks file** (DRM – ‘*Dossier des Risques Majeurs*’) lists in each department or territory the major risks (natural, technological or other) with which the population could be confronted.

It specifies the **appropriate protection and prevention measures** implemented by the public authorities to deal with them.

It reminds the **behavioural instructions** that everyone must adopt if these risks materialise. It is supplemented by the **communal information files on major risks** (DICRIM) that each commune produces to provide information to the citizen.

### 1.4. Prevention measures: the ORSEC system (Organization for Civil Security Response)

The **ORSEC system** (Organization for Civil Security Response) is a program for **organizing relief** at the departmental level, for daily life as well as in the event of a disaster. It enables the rapid and efficient implementation of all **public and private resources** and their coordination by a **single management team**.

This system includes general provisions applicable in all circumstances and **specific provisions for certain particular risks** (major natural risks more specifically).

The **directorate for relief operations** most commonly relies on the **Mayor**. If the seriousness of the event exceeds the local capacity to intervene or when the problem concerns several municipalities, the **Prefect** or the **High Commissioner** takes over the management.

The **Mayor** then remains responsible for measures to **support the population**.

### 1.5. The municipal rescue plan (PCS)

The municipal rescue plan (PCS – ‘*Plan Communal de Sauvegarde*’) determines at the level of the municipality the **immediate measures for the safeguard and protection of persons**, establishes the organisation necessary for the **dissemination of the alert** and safety instructions, lists the means available and defines the implementation of accompanying and **support measures for the population**.

The PCS is compatible with the ORSEC system. Its preparation is compulsory for **municipalities subject to an approved risk prevention plan** or within the scope of a special intervention plan (PPI – ‘*Plan Particulier d’Intervention*’).

## 2. Why a specific approach to Overseas Territories?

French Overseas Territories have their own specificities: **concentration of possible hazards** on commonly densely populated territories, which implies high risks. There are **2 fundamental objectives**:

- To protect the population;
- Preserve the strategic interests of the territories and their attractiveness: investors, entrepreneurs, insurers, etc.

➔ **Strategic focus for public policies and spatial planning in the French Overseas Territories. It can trigger financial means and tools (i.e. European Funds).**

### 2.1. Develop and strengthening the risk culture

The French government's intention is to boost prevention and risk management in Overseas Territories and to reduce vulnerabilities in order to increase the territories' resistance and resilience.

- **Intangible actions**: information, insurance, anticipation, good gestures, good practices, training, exercises, etc.
- **Tangible actions**: risk prevention plans, master plans/documents and town planning authorisations, project design, earthquake and hurricane resistant measures, hydraulic transparency, construction best practice, quality of materials, controls, etc.

⇒ The land-use planning and construction issues, transport infrastructure, dry and wet networks, buildings are **at a stake**. The first step consists into analysing the situation and then we mobilize the necessary mechanisms, expertise and consultation, to make the territory progress.

⇒ **€1 put into raising awareness, is a gain or saving of €7.**

### 2.2. Decisions of the President of French Republic and the French Government

The purpose is to **enhance risk prevention and management** in Overseas Territories by:

- Drafting a bill on major risks in the French Overseas Territories with every sector (private, public, associative);
- Consolidating a global system up to territorial action: regulatory measures, action plans, pooling of best practices, training, information, governance, making the existing system work well and optimising it.
- Creating the Interdepartmental Delegation for Major Risks Overseas (DIRMOM – ‘*Délégation Interministérielle aux Risques Majeurs Outre-mer*’).

### 2.3. The Interdepartmental Delegation for Major Risks in Overseas France (DIRMOM)

- To lead and to coordinate policies for the acquisition of hazard knowledge and the prevention and management of major risks specific to ultramarine communities.
- To take into account hazards in land-use planning and good building practices.
- To ensure the proper implementation of the action plans decided by the Government in accordance with the powers vested in the Overseas Collectivities, French Polynesia and New Caledonia.
- To federate for acculturation to risks with approaches adapted to each territory and the local cultural context.
- To work in an integrator mode in conjunction with all Ministries, Territorial Services of the State, Elected Officials, Local Authorities, Public Operators, the Private Sector and Associations.

#### Examples of proposed measures

- To create **mandatory prevention days** for the public service;
- To adapt the **insurance offer**: how to make it affordable to the neediest people?
- To support the **promotion and integration of earthquake and cyclone proofing**;
- To create a state of exceptional natural calamity;
- To restore at least the **dry and wet networks**;
- To adapt **labour law**.

#### Communication on major risks

The major risk file (DRM : '*dossier des risques majeurs*') lists all major risks (be they natural, technological, etc.) in each territory or department.

#### Further projects (DIRMOM)

- To lead and to coordinate the **upstream phase of the development of the bill** and to participate in territorial consultations.
- To strengthen the improvement of the **knowledge of the seismic-volcanic phenomenon** in Mayotte and of the measures for prevention and risk management.
- **To boost the West Indies earthquake plan** with new governance.
- To steer the **progress of the national plan for the prevention and control** of Sargasso algae.

## Chile's management of tourism activities in sensitive or protected areas: the process of creation of a Marine Sanctuary in the Mediterranean Central Coast

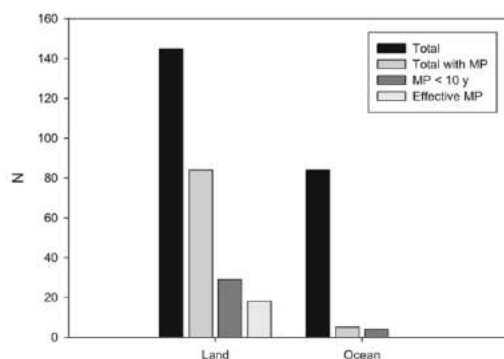
Juan Esteban BUTTAZZONI, Representative of CHILPECC and Environmental Lawyer



### Main issues addressed by Rompientes Foundation:

- Surf break legal protection : surfers are part of the problem not the solution.
- Public beach access;
- Community engagement;
- Biodiversity conservation.

### 1. Background information



Chile has been an active player in the creation of Marine Protected Areas (MPA) in Exclusive Economic Zone (EEZ) - increase from 4% up to 46% in the last 4 years. MPAs are underrepresented in Central Coast of Chile. Today, the protection and effective management of near-shore waters is an urgent need. There is a lack of sustainable planning for coastal development and the increasing tourism activities.

### The problem and challenges

- Real Estate development
- Restriction of public access
- Pollution
- Tourism activities

Being responsible is a call for action. **How could we create a scalable model to legally protect waves and local coastal people in Chile?**

### 1.1. Surf ecosystems

A **surf ecosystem** is a system composed of natural and social components, where there is a special interconnection between the ocean, waves, watersheds, plants, animals and people.

**Social and cultural analysis of the traditional fisheries.** How do they handle the arrival of surfers and tourists? The level of endemism in Chile's central zone has earned it the title of world biodiversity hotspot.

### 1.2. Cultural interactions



**Surf & Turf <sup>30</sup> concept: We surf at artisanal Fishermen's "offices", therefore we must work together.** Fishermen are the stewards of the place.

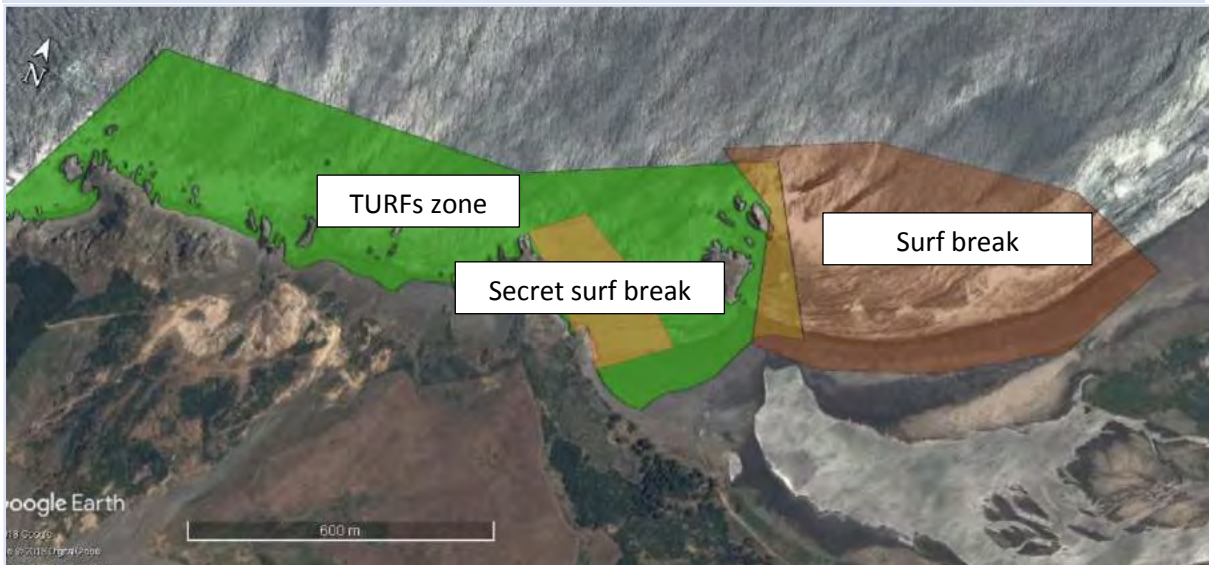
**How to create effective management and connect surfing to fisherman communities?**

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<sup>30</sup> Territorial Use Right for Fishing

Case study: Topocalma

Identification of the different sea zones in Topocalma



There has been a few research on the matter - **how to create effective management to sensitive areas?**

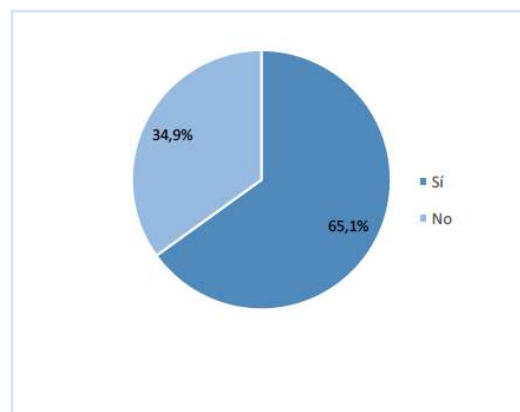
In February 2019, we conducted 250 interviews to visitors in the area.

Purpose of the visit in the area



**70.3%** visited the area for sports purposes (surf and windsurf).

% people that considers tourism as a risk to Topocalma



**65.1%** considered tourism as a risk under current scenario. Visitors don't really know the rich biodiversity and artisanal fishers practices.



## 2. Why a marine natural sanctuary?

**Natural sanctuaries** are recognized by Chilean law: “Sanctuaries of Nature are all those terrestrial or marine sites that offer special possibilities for geological, paleontological, zoological, botanical or ecology studies and research, or that have natural formations, whose conservation is of interest to science or to the State”. Specific Surf Ecosystems are natural formations whose conservation is of interest to the State due to values : Economics, Social, Environmental.

Also, we must take into account that marine natural sanctuary may be the **tool** to allow us to protect land and water while including multiple uses and to all tax benefits.

### 2.1. Example: Marine Natural Sanctuary - Topocalma & Puertecillo beach.

We created sanctuaries to protect the following objects of protection: artisanal fishermen practices, biodiversity, surf breaks. Unregulated real-estate development threatens artisanal fishers, beach access and ecosystems. Theses beaches are World class surf breaks concentrations. TURF (Territorial Use Right For Fishing) areas overlapping with surf breaks. Marine Sanctuaries improve TURFs, protect surf breaks and push for better development regulations.

**Figure 1.** Unregulated real-estate development threatens artisanal fishers, beach access and ecosystems - *Marine Natural Sanctuary - Piedra del Viento - Topocalma & Puertecillo beach.*



**Figure 2.** World class surf break concentration - *Marine Natural Sanctuary - Piedra del Viento - Topocalma & Puertecillo beach.*



**Figure 3.** TURF areas overlapping with surf breaks - *Marine Natural Sanctuary - Piedra del Viento - Topocalma & Puertecillo beach.*



**Figure 4.** MS improves TURFs, protects surf breaks and pushes for better development regulations - *Marine Natural Sanctuary - Piedra del Viento - Topocalma & Puertecillo beach.*



## 2.2. Marine Natural Sanctuary - Piedra del Viento

In December 2019, the **Marine Sanctuary was presented to the Ministry of Environment.** Our goal is to convince surfers, fishermen, public powers and private sector to fund our actions: research, legal defence, communication, etc.



### Conclusion

I would conclude saying that there is no philanthropic culture in Chile that would give the private sector incentive to privately fund Rompientes Foundation’s actions. There is a need to raise awareness on the surf activity amongst its aficionados.



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