# Integrated Tsunami Risk Management in Loyalty Islands (New Caledonia) : Collaborative mapping to reduce vulnerability

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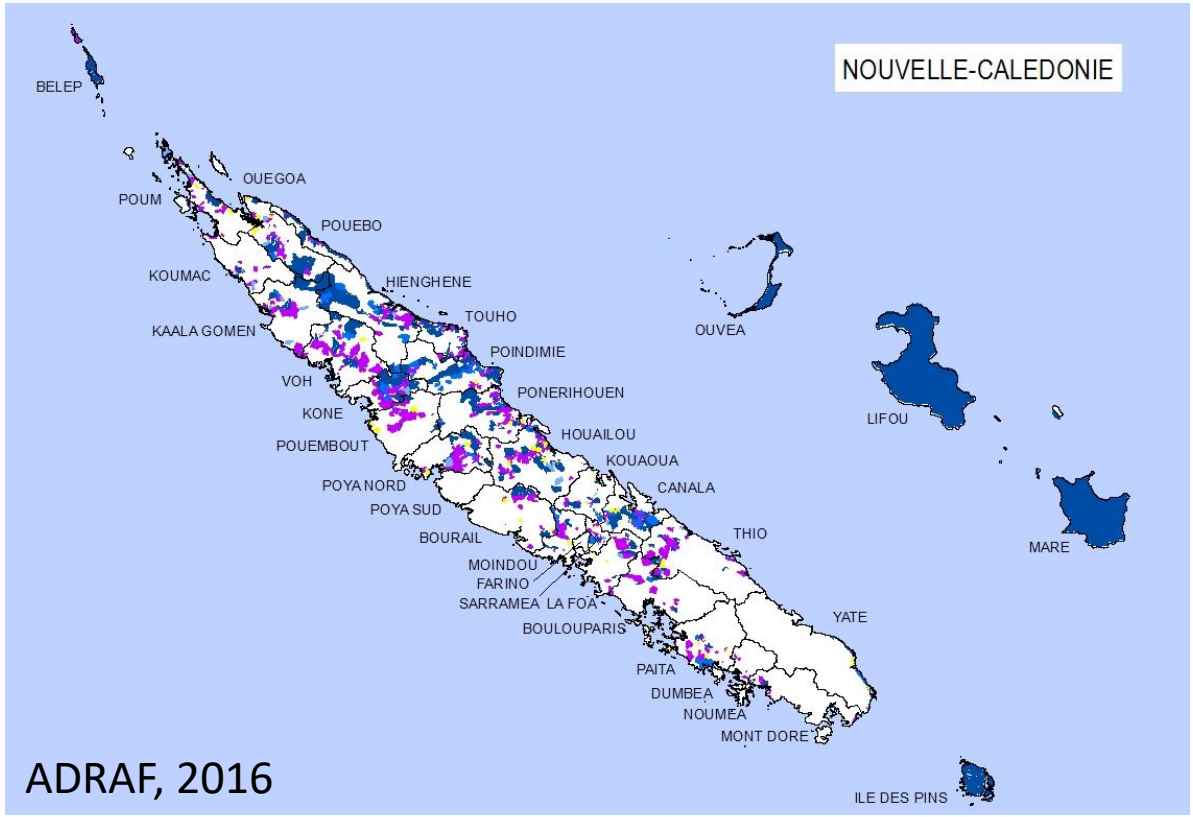
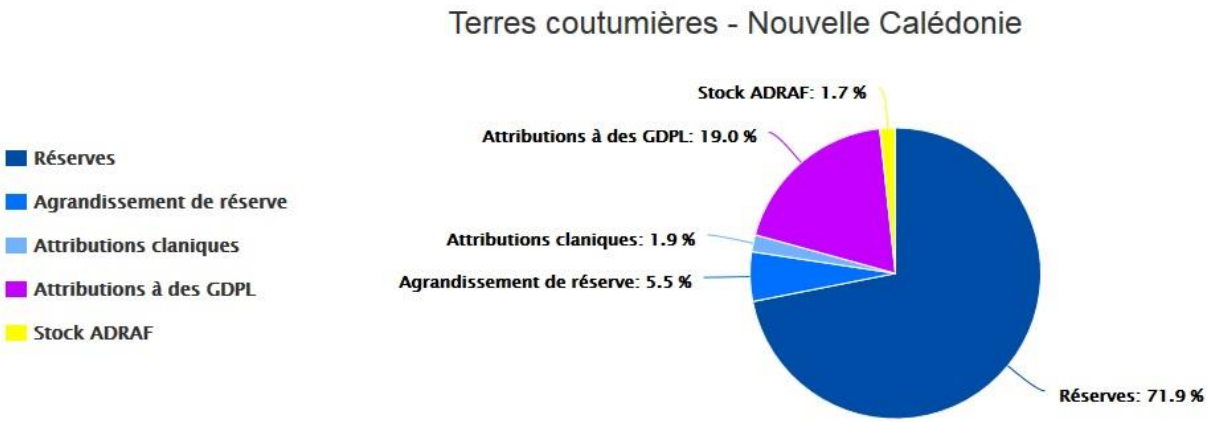



ADRAF, 2016




New Caledonian's juridic context is specific and complex. Classical tools of Disaster Risk Reduction can't be used for traditional land tenure and are inapt to the cultural context.


Loyalty islands are localized in a very complicated structural situation : a subduction of the Australian Plate beneath the Vanuatu arc at an horizontal velocity estimate around 12 cm/year. A seismic context which can be create a tsunami. The last tsunami event were the 28 march 1875 and 25 persons killed.

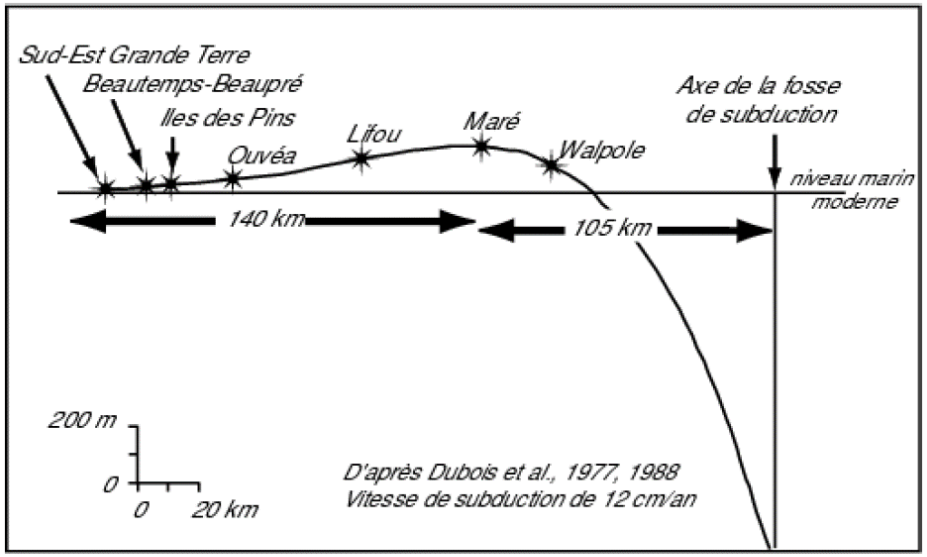
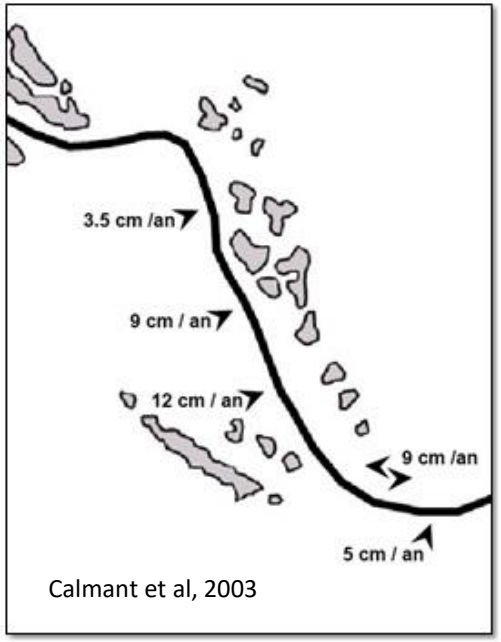
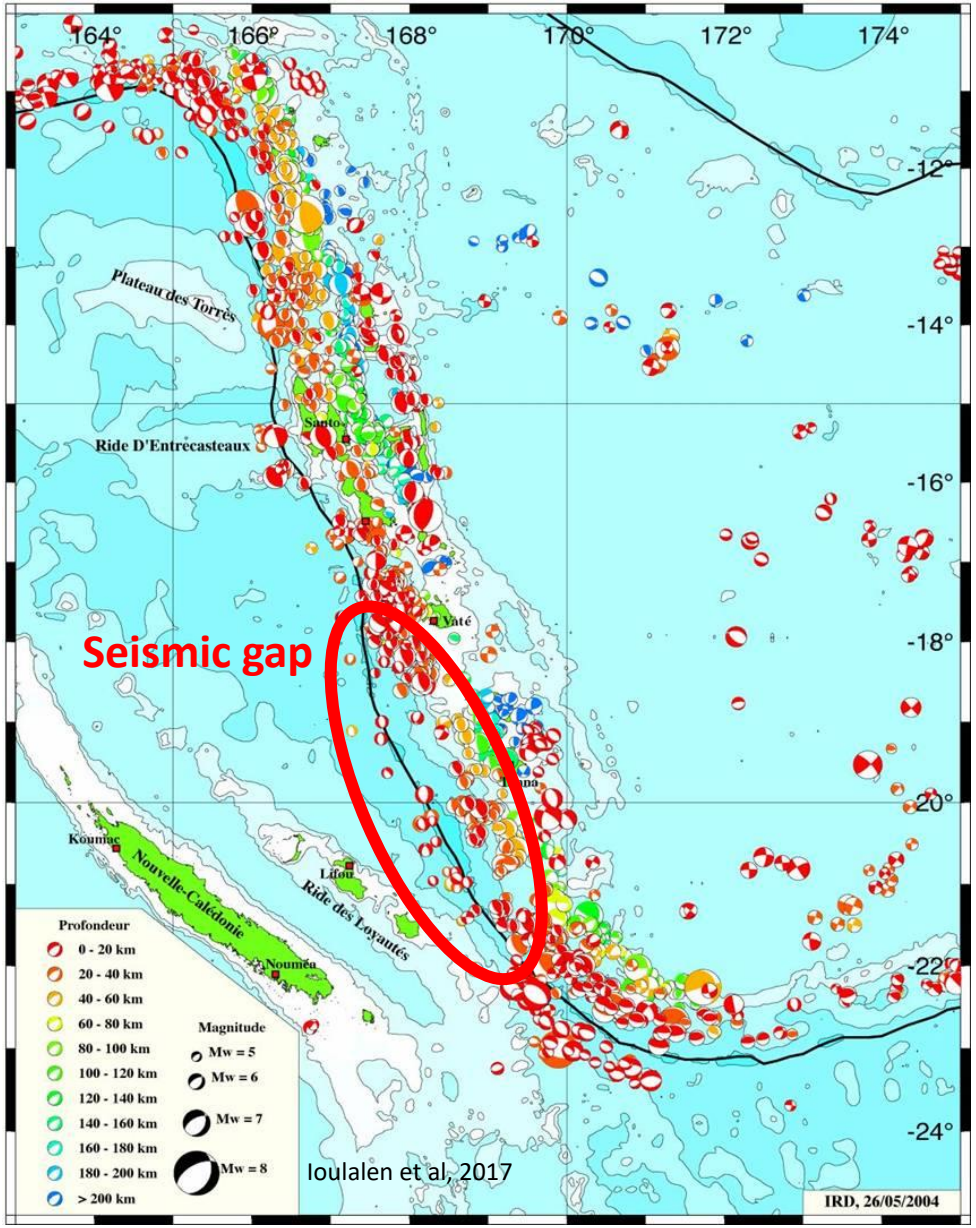



Figure 2 : Le bombement de la plaque australienne avant subduction illustré par l'altitude des différentes îles, notamment les îles Loyauté.




Calmant et al, 2003




Ioulalen et al, 2017

The main objectives of this work were :

Characterized the exposition and vulnerability of coastal tribes

Sensibilized population to the tsunami risk in order to reduce their vulnerability, reinforce their resilience, adapting disaster risk reduction policy to the cultural context, identify and used traditional knowledge about this risk.

Coproduct the tsunami strategy of the “Plan Communal de Sauvegarde (PCS)” : is the French document for communal operational risk management

Identified for each tribes needs to facilitate evacuation, evacuation road, safe area to stay during alert, signalization, sirens…

Identified old events, and their consequences by enquiry with population, oral traditions, and capitalization of spatial indicators of the submersion limits like rocks deposits, ruins or toponyms…

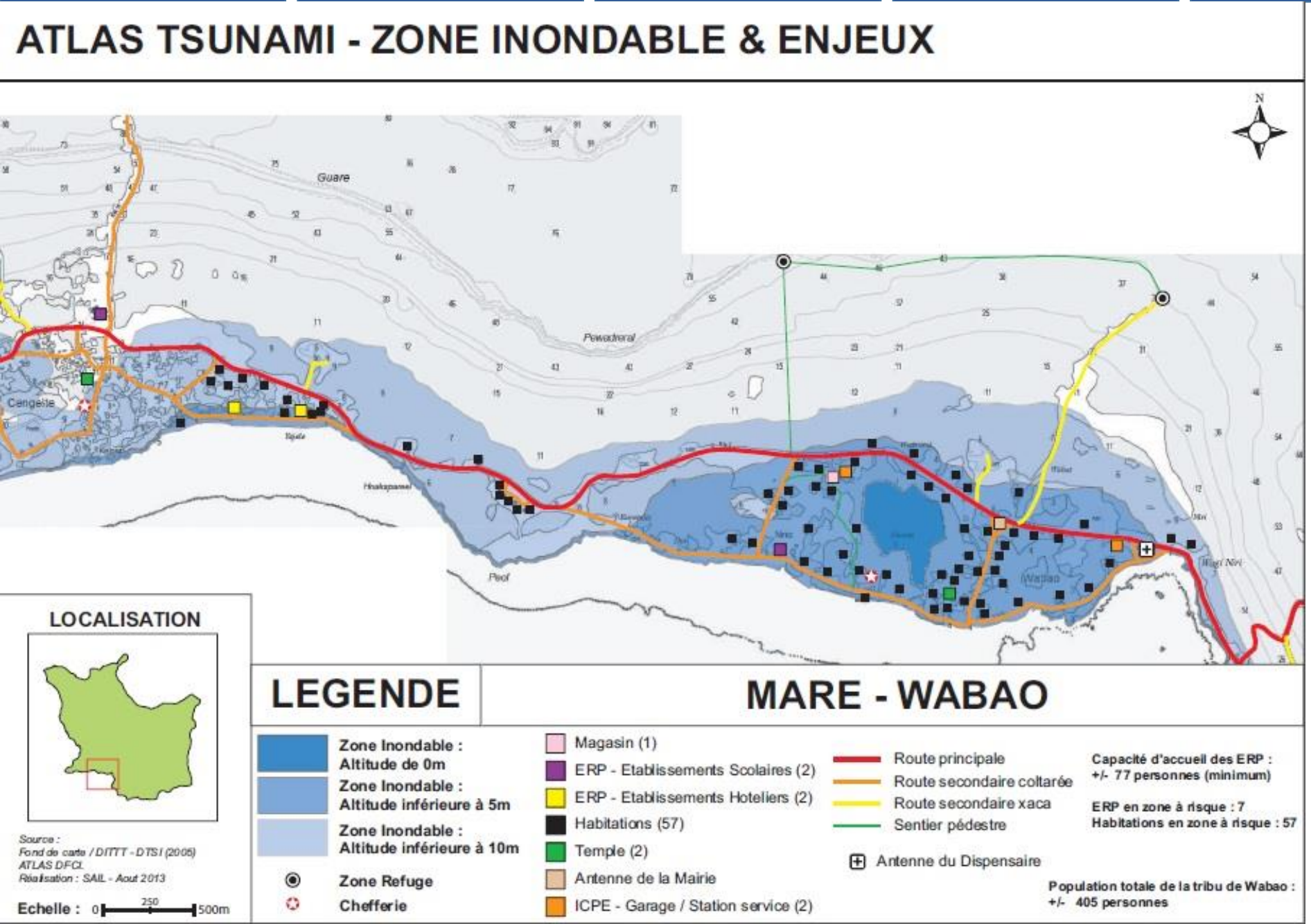
*Sea level oscillation (+/- 1,3 m) in the Ahmelewedr bay (Lifou) +/-2h after an earthquake in Santa Cruz Island (North of Vanuatu) in February 2013 (4 min between each photography)*

**Identification of evacuation *roads*** *(old field access, hunting trails..etc)*, **safe location** *(old fields, tribal house, sports field)*, **evacuation's time** *(pedestrian)*

**collaborative mapping** *(exposition and tribal evacuation planning)*

**Discuss about tsunami** *(history, legend, traditional knowledge, natural signs)*

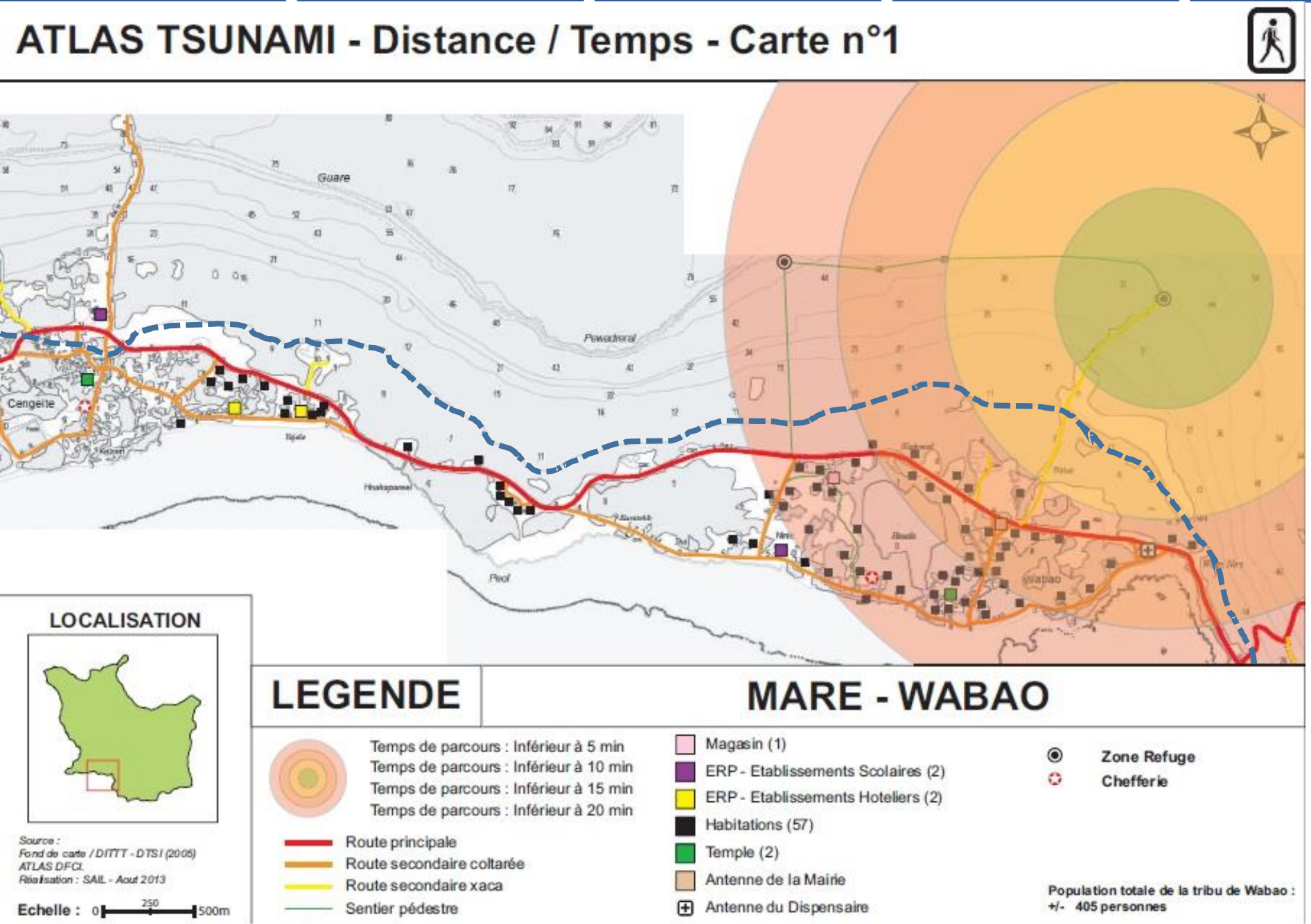
Community produced a synthetically map with all working groups. A complete restitution for all the tribe was organized in evening, there working groups present to the community result of their work and discuss of the planning with everybody and adjusted it.


**Example : Wabao's tribe (Maré Island)**

Production of an ATLAS and a needs report for collectivity

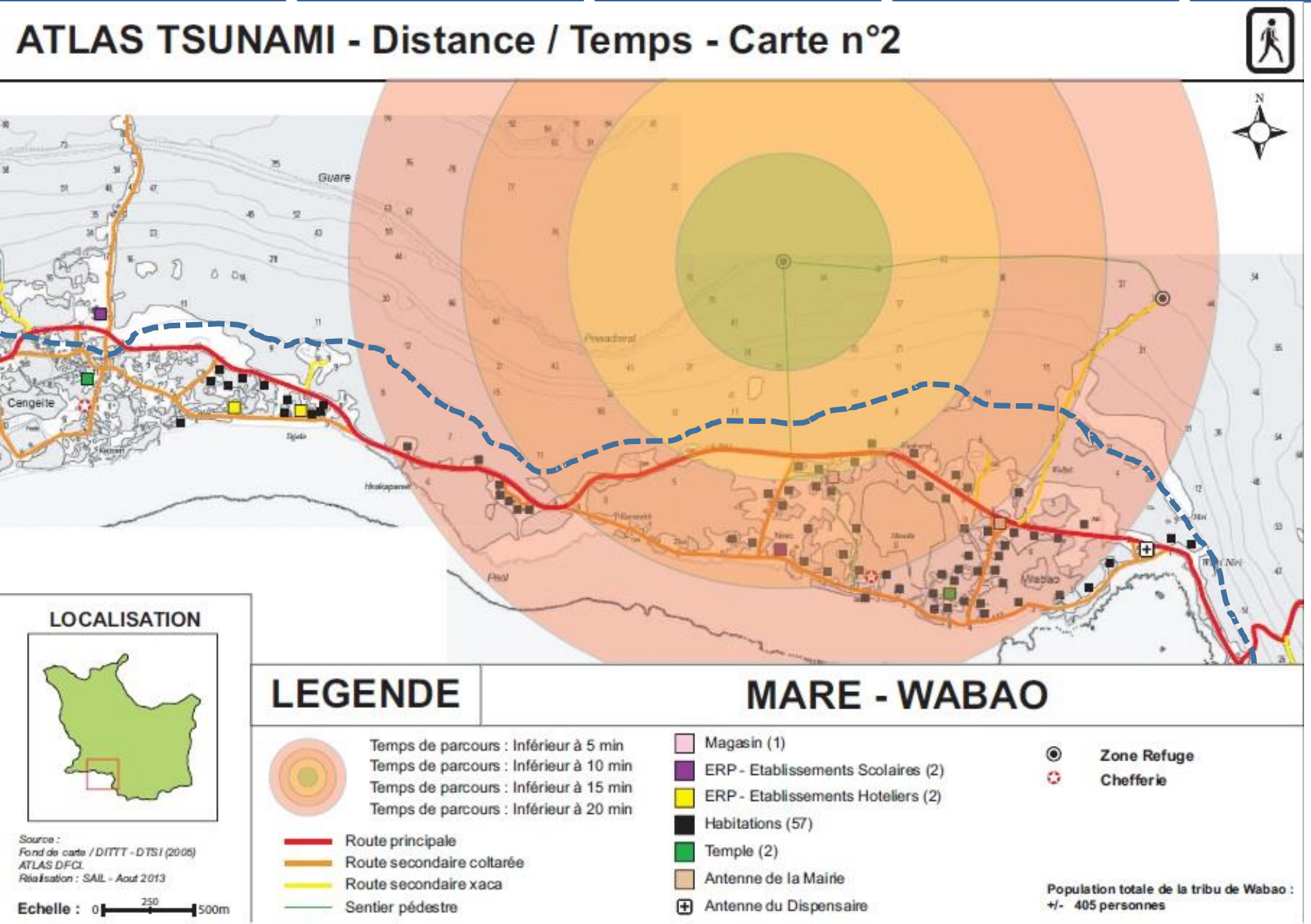
Using collaborative map to produce an operational atlas of exposition and needs.




**Goal : Pedestrian evacuation less than 20min from every point of the tribe.**

**Evacuation Map :**
Pedestrian time to go to the safe location *(Distance/Time evaluation from collaborative exercice)*

**Blue (dash) : Topometric 10m line, from which one we can considered in the Loyalty island context that risk is less. (Coastal distance > 500m)**

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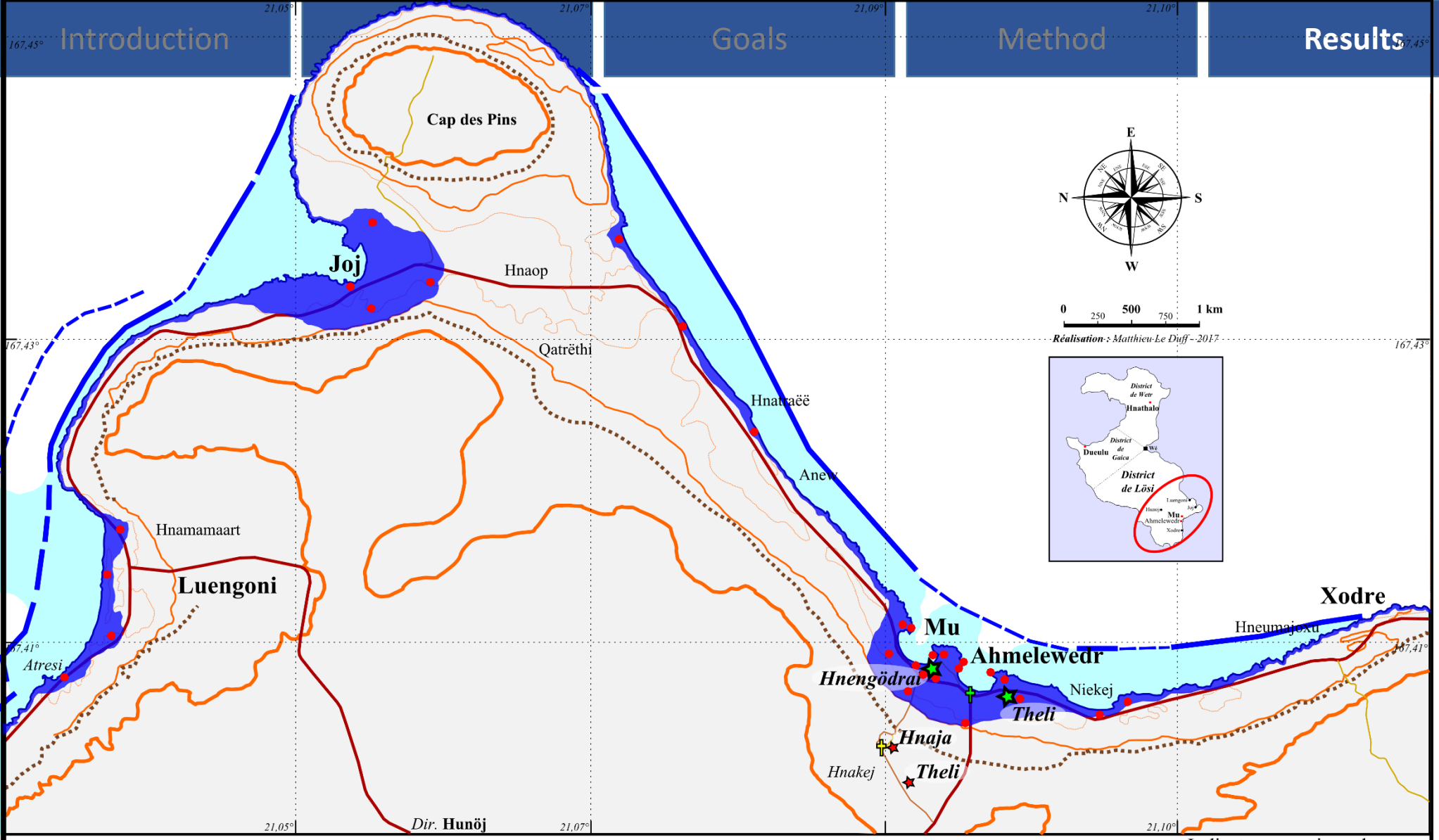



**Example : South of Lifou island**

Mapping reconstitution of the historic tsunami submersion of the 28 march 1875 *(25 killed, several dozens hurt, several hundred homeless)* from oral traditions, archive and spatial indicators

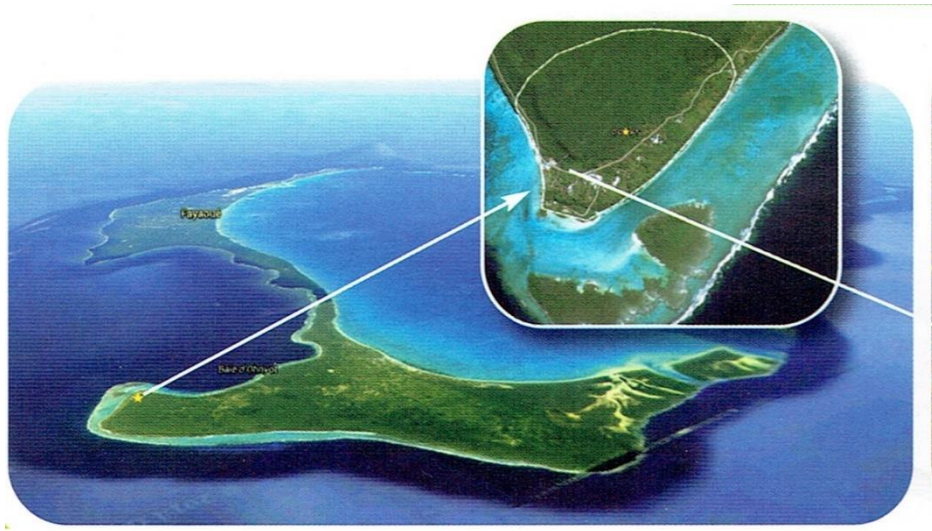
## Conclusion

From this collaborative work are borned different projects. Different roads has been opened, authorities put a bilingual signs (French and vernacular language) and safe zones had been create in different sites.

**An essential aspect have to be noted, in this kind of collaborative approach of the prevention, the most efficient is the process of co-construction more than the finality herself. The concretization around materiel object is the materialization of the collaborative effort and that is the an important point but the most important is the processes himself.**

In fact, today, collectivity used this work in collaboration with traditional stakeholders and population to do a development planification of the coastal tribes on the 2016-2021 period. That is possible because, each participants appropriated them the tools and comprehension of process.

**In our work, mapping had been a pedagogical, mediation and prevention tool partaged with all territorial stakeholders.**



Medicalised safe location for the free clinic (Lifou)


Bilingual evacuation signs (French/Vernacular language)

END

# Thank You

*Vinaka*