



GOVERNANCE OF CLIMATE CHANGE ADAPTATION AND RISK MANAGEMENT · GOVERNADAPT



VILLE DE DAKAR



Centre de Suivi Ecologique



EUSKO JAURLARITZA
GOBIERNO VASCO



GARAPENERAKO
LANKIDETZAREN
EUSKAL AGENTZIA
AGENCIA VASCA DE
COOPERACIÓN PARA
EL DESARROLLO



BASQUE CENTRE
FOR CLIMATE CHANGE
Klima Aldaketa Ikergai
Sustainability, that's it!



INSTITUTO DE HIDRÁULICA AMBIENTAL
UNIVERSIDAD DE CANTABRIA

OUTLINE

1. What is Governadapt?
2. Main objectives of the project
3. Governadapt project team
4. Project development
5. Expected outputs of the project
6. References
7. Contact information



1. WHAT IS GOVERNADAPT?



- **Governadapt** is a 1-year project funded by the [Basque Cooperation Agency](#).
- The main goal of Governadapt is to assess **climate-induced coastal risks** in the city of **Dakar** and identify **adaptation options** in a **co-design and co-creation process** with local, regional and national **stakeholders**.
- Governadapt is led by the **Basque Centre for Climate Change (BC3)**, with a large experience in climate change socio-economics and policy; and by [IHCantabria](#), a research institute specialised in delivering science based innovative solutions related to the water cycle in general, and coastal areas in particular.
- The project is developed in collaboration with local partners: [Dakar's City Council](#), and the **Centre de Suivi Écologique (CSE)**, a Senegalese institution with significant experience in coastal monitoring.

1. WHAT IS GOVERNADAPT?



The project has a strong **cooperation** and **capacity building** focus, build on three priorities:

- i. participation and co-production
- ii. mainstreaming the gender perspective
- iii. including the needs and views of the vulnerable groups.

In order to respond to these three core objectives, involving stakeholders since the beginning and during the whole duration of the project will be key. We foresee this **co-production process** in two stages:

1. A first capacity building phase that aims to present the results of the risk assessment, discuss with stakeholders their understanding and perception of risk and reach a consensus about tolerable risk thresholds. Co-defining these thresholds will be a key input to phase 2 of the project, which deals with the adaptation solutions.
2. A second participation stage, in which several adaptation pathways will be shared to discuss and agree upon with the stakeholders. The adaptation pathways proposed will be based on the outputs of Phase 1 and the inputs from stakeholders.



2. MAIN OBJECTIVES OF THE PROJECT

- The **general objective** of Governadapt is to design and develop a **dynamic planning process for adaptation** to the risk of climate change in coastal areas, which is replicable in other African cities, and scalable to other levels of government, such as regions or state.
- In addition, it aims to **involve stakeholders** at local and regional level in the process of understanding and management of climate risk, specifically the risks from coastal events (erosion and flooding), to co-decide acceptable risk thresholds in the city of Dakar (Abadie et al., 2017; Galarraga et al., 2018).
- All this in the context of the **Agenda 2030** for Sustainable Development, in close connection with the **SDGs** and other global challenges, such as the loss of **biodiversity** or **disaster risk reduction**.



2. MAIN OBJECTIVES OF THE PROJECT

- Governadapt's **contribution to coastal risks in Dakar** is aligned with the objectives of several adaptation plans and development strategies at national and local levels.
 - Senegal's **NDC** identified coastal challenges and Governadapt might contribute to the NDC's objectives related to the protection of vulnerable coastal areas and communities, as well as to the development of scientific and technical studies on damaged ecosystems.
 - Governadapt shares the same concerns as the **NAPA**, which identified sea-level rise, and resulting coastal erosion as important risks. The project also finds synergies with the **PSE**, the national development plan, which also considers coastal erosion as a potential risk for the economy. Governadapt can contribute to assess the risk and identify and prioritise, through stakeholder participation, some adaptation pathways.
 - Apart from challenges determined at the national level, Governadapt can support subnational strategies: e.g. the **PDU** or **Dakar Resilience Strategy**. Governadapt can collaborate with local stakeholders to promote new partnerships that create opportunities for investment, as well as to enhance citizens' understanding of resilience and participation.

3. PROJECT TEAM



BASQUE CENTRE
FOR CLIMATE CHANGE
Klima Aldaketa Ikergai
Sustainability, that's it!



Elisa Sainz de Murieta *Research Fellow*



Ibon Galarraga *Research Professor*



Ambika Markanday *Postdoctoral Researcher*



Andrea Briones *Research Assistant*



Anil Markandya *Former Scientific Director
Distinguished Ikerbasque Professor*



María José Sanz *Scientific Director*



General Director
Coastal and Hydraulic Engineering Area Head
Main Researcher

Raúl Medina



Research Director
Scientific Director of the Cantabria Coastal and Ocean Basin
Head of the Climate, Energy and Marine Infrastructure Dept.

Íñigo J. Losada



Post Doctoral Researcher

Íñigo Aniel-Quiroga



INSTITUTIONAL PARTNER

LOCAL PARTNERS IN DAKAR



TECHNICAL PARTNER



COLLABORATOR



**Soham
EI WARDINI**

Mayor of the City of Dakar



**Assize
TOURÉ**

General Directeur



Amadou Lamine CISSÉ
*National Urban Specialist &
Resilience Expert*



**Ndiaga
DIENG**

*General Studies and
Planning*



**Amadou Moctar
DIEYE**

Technical Director



Amaia Celaya
*DRR and Climate
Resilience Senior expert*



**Ndiouga
SAKHO**

*Urban Planning,
Sustainable Development,
Living Environment and
Coastal Management*



**Ousmane
BATHIERY**

*Governadapt's
Local Coordinator*



**Mourade
DIEYE GUEYE**

General Secretary



**Dieynaba
SECK**

GIS Analyst



**Maguette
SEYDI**

*Prevention and Management of
Natural and Industrial Risks*



**Moussa
SALL**

*WACA's Regional
Coordinator*



**Abdou Birahim
DIOP**

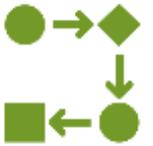
Urban Development Director



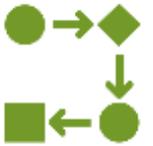
**Marième Soda
DIALLO**

*Environmental and social
protection*

4. PROJECT DEVELOPMENT



4. PROJECT DEVELOPMENT



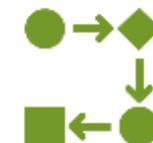
TASK 2. RISK ASSESSMENT (COASTAL EROSION)

- Coastal erosion. Overall recession 0.5-2 m/yr
 - Natural: sea-level rise (40 cm in 2050), sand deficit, land instability, runoff
 - Anthropogenic: sand extraction, beach building, inadequate design
- Coastal occupation
- Recurring flooding
- Salt intrusion

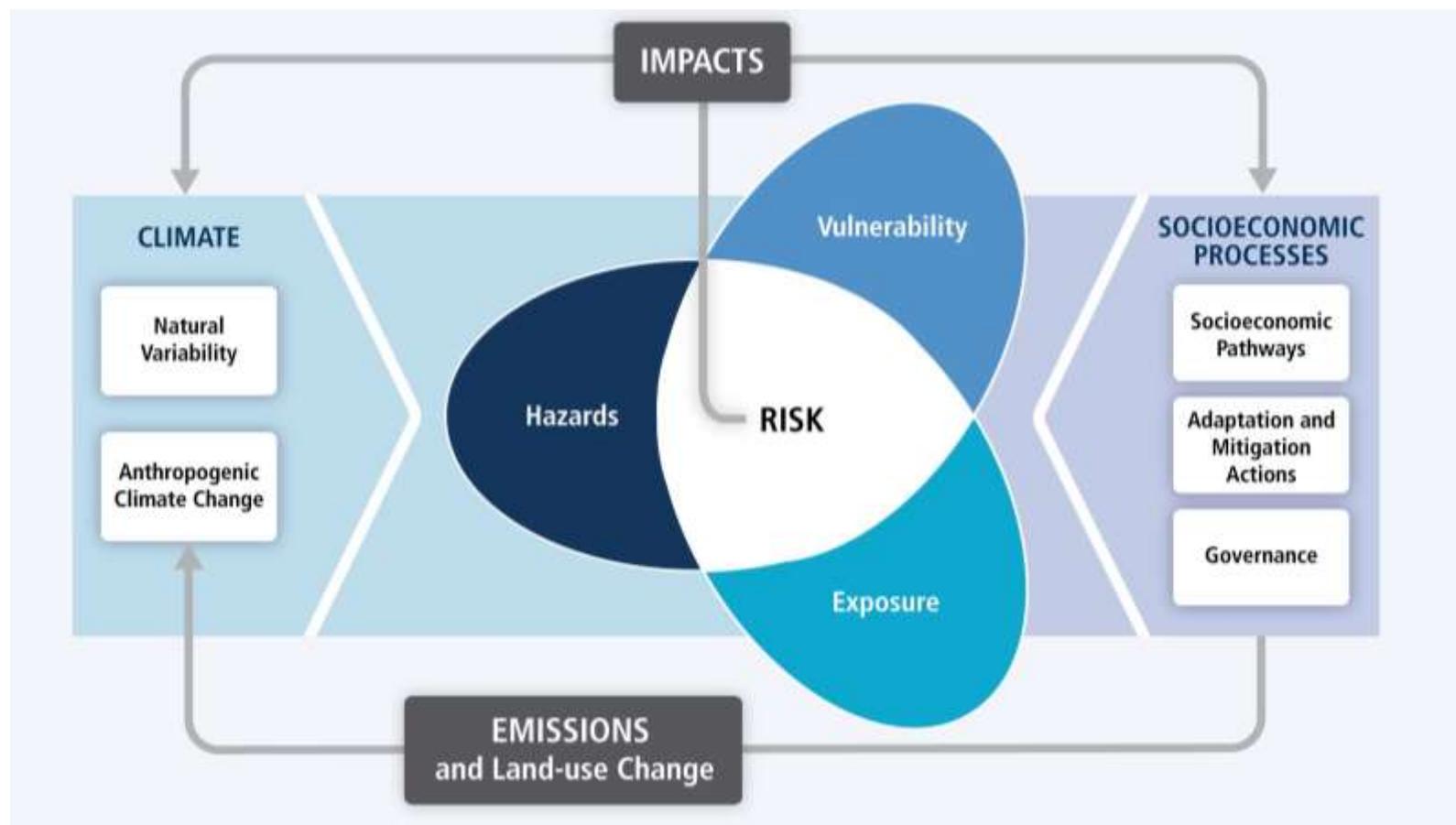


Sources: Ndour et al., 2018; Niang et. al, 2010; Birame Diadhiou et al, 2016; Faye et. al. (2010); Bakhoun et al (2017), among others.

4. PROJECT DEVELOPMENT



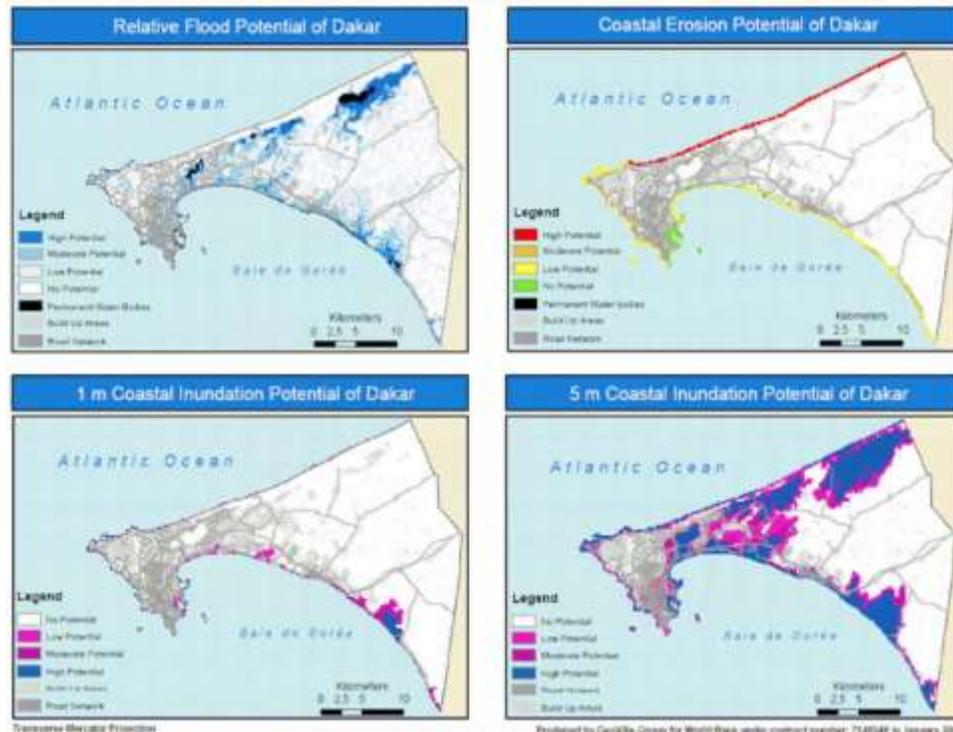
TASK 2. RISK ASSESSMENT: THE METHODOLOGICAL FRAMEWORK



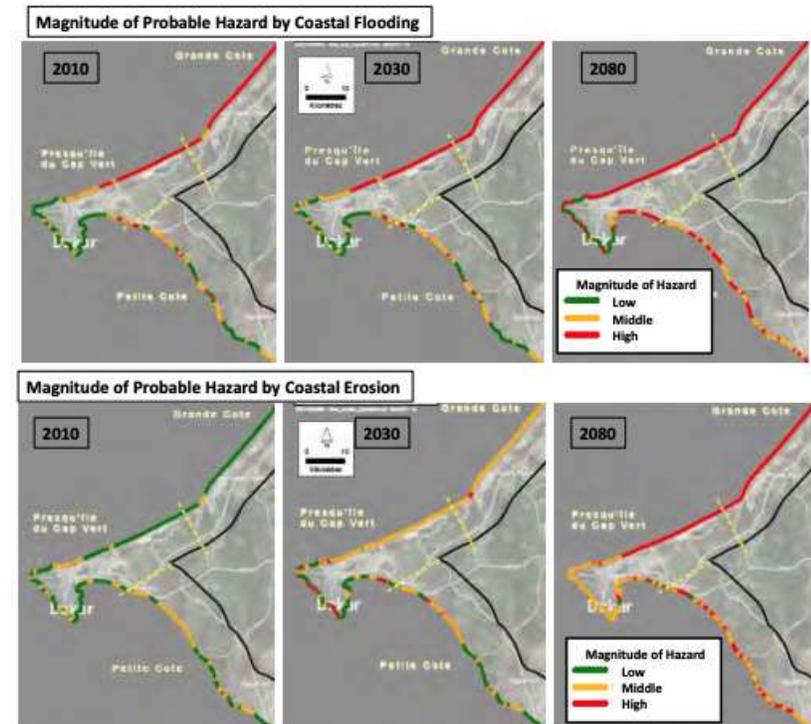
4. PROJECT DEVELOPMENT

TASK 2. RISK ASSESSMENT: MAIN OBJECTIVE

- The main objective of this task is to **improve the approach** of existing analyses and to **update the results** for **Dakar**. Some examples can be found in the next slides.



Source: World Bank (2009)



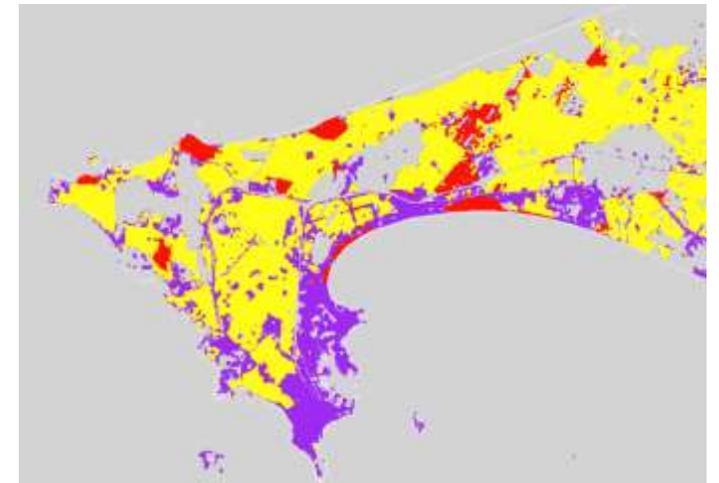
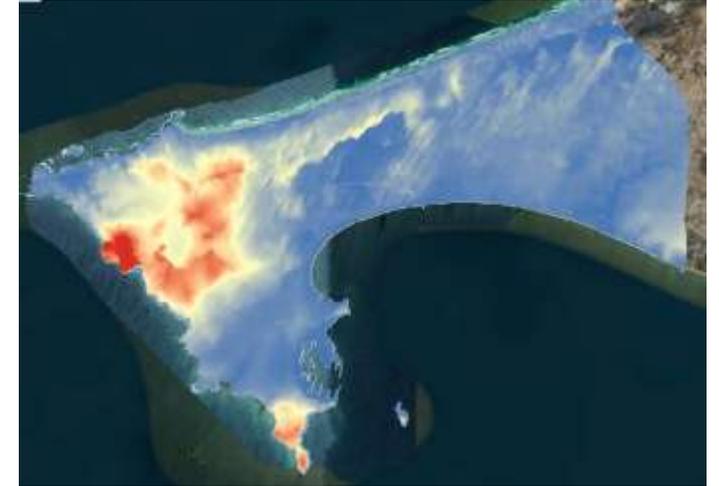
Source: World Bank (2013)

4. PROJECT DEVELOPMENT

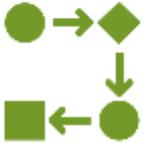
INPUT DATA FOR THE ASSESSMENT

SPATIAL DATA

- Digital Terrain Model
- Bathymetry
- Storm Surge events Records
- Satellite Imagery
- Land Use
- Population
- Buildings categories/distribution



4. PROJECT DEVELOPMENT



TASK 3. RISK GOVERNANCE



Survey

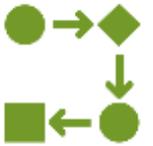
- We plan to conduct a survey among stakeholders to determine **their risk perception** and knowledge, **past experience**, understanding of **uncertainty** or **adaptive capacity**.



Workshop

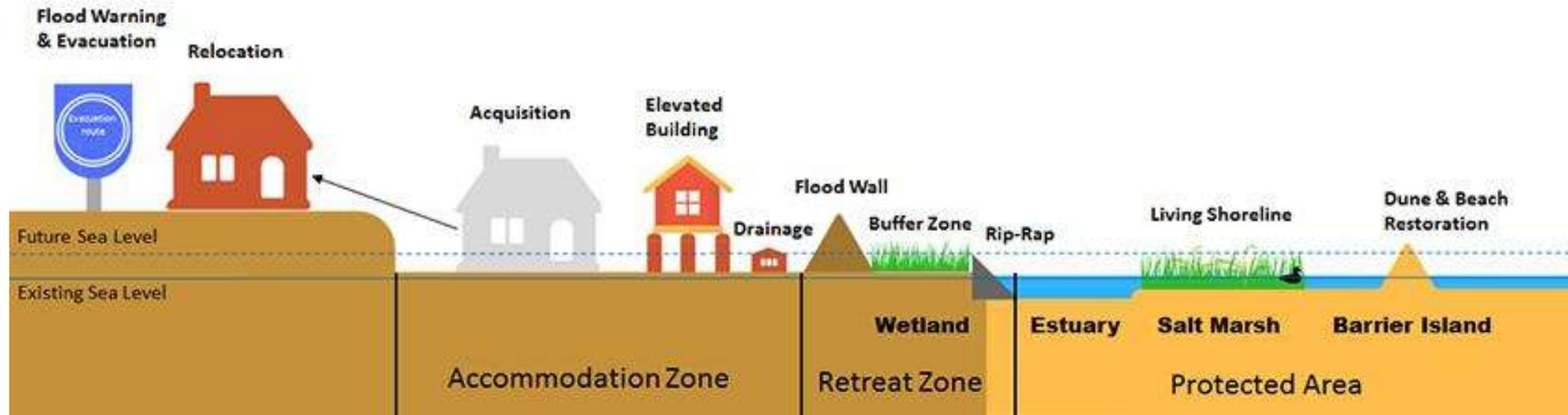
- Once the risk modelling work is advanced and we have analysed the results of the surveys, we plan to organise a workshop with stakeholders to **present the preliminary results**, gather comments and explore how **risk thresholds** could be **co-designed** and agreed upon.

4. PROJECT DEVELOPMENT

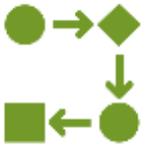


TASK 4. DEFINING ADAPTATION PATHWAYS

- We will explore different potential adaptation measures to cope with the climate-induced coastal risks identified.



4. PROJECT DEVELOPMENT



TASK 4. DEFINING ADAPTATION PATHWAYS

Nature-based solutions



Beach nourishment



Infrastructures



Land planning



5. EXPECTED OUTPUTS OF THE PROJECT

WHAT IS GOVERNADAPT'S CONTRIBUTION TO PREVIOUS WORK AND EXISTING KNOWLEDGE?

- **Updated** (new climate and socio-economic scenarios) **and downscaled information** on coastal risks in the city of **Dakar**.
- An inclusive **co-production process** with national, regional and local stakeholders to discuss on acceptable levels of risks.
- A **network of stakeholders** including institutions, academia, NGOs, the private sector and the citizens to address coastal risks.
- A **prioritisation of pathways for adaptation** based on existing and future risks, different technical solutions and stakeholders preferences.

6. REFERENCES

- Abadie, L.M., Galarraga, I., Sainz de Murieta, E., 2017. Understanding risks in the light of uncertainty: low-probability, high-impact coastal events in cities. *Environmental Research Letters* 12. <https://doi.org/10.1088/1748-9326/aa5254>
- Galarraga, I., Sainz de Murieta, E., Markandya, A., Abadie, L.M., 2018. Addendum to ‘Understanding risks in the light of uncertainty: low-probability, high-impact coastal events in cities.’ *Environmental Research Letters* 13, 029401. <https://doi.org/10.1088/1748-9326/aaa513>
- Toimil, A., Losada, I.J., Camus, P., Díaz-Simal, P., 2017. Managing coastal erosion under climate change at the regional scale. *Coastal Engineering* 128, 106–122. <https://doi.org/10.1016/j.coastaleng.2017.08.004>
- Toimil, A., Losada, I.J., Díaz-Simal, P., Izaguirre, C., Camus, P., 2017. Multi-sectoral, high-resolution assessment of climate change consequences of coastal flooding. *Climatic Change* 145, 431–444. <https://doi.org/10.1007/s10584-017-2104-z>

7. CONTACT INFORMATION

FOR FURTHER INFORMATION, PLEASE, CONTACT:



Ms. Elisa Sainz de Murieta, PhD.

Basque Centre for Climate Change (BC3)

Edificio Sede Eraikina No 1, 1

UPV/EHU Zientzia Parkea

48940 Leioa, Bizkaia (Spain)

elisa.sainzdemurieta@bc3research.org

governadapt@bc3research.org