PARTICIPATION PLAN 8

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8.1 OBJECTIVE OF THE PARTICIPATION PLAN

The main objective of this section is to compile the actions carried out to develop the Santander Climate Change Adaptation Plan, involving local stakeholders and citizens in the decision-making process and in the identification of measures to address the impacts of climate change. To encourage citizen participation, various activities such as workshops, roundtables, surveys and public meetings have been developed to gather information, opinions and concerns of residents, businesses, organisations and other key stakeholders in the Santander area.

In addition, the participation plan seeks to promote awareness and education on climate change and its consequences, as well as on available adaptation strategies. To this end, the dissemination of the results of the studies carried out on the specific climate risks faced by Santander has been combined with public workshops in which contributions have been gathered from both citizens and different key actors in local risks. These sessions have also sought to encourage the collaboration of these entities in identifying solutions and in providing relevant, up-to-date and highly useful information to ensure the effectiveness of the Adaptation Plan.

8.2 PHASES OF THE PARTICIPATORY PROCESS

The process of citizen participation in the elaboration of the Santander Climate Change Adaptation Plan is organised in several key phases, designed to ensure the effective collaboration of all sectors of society in the identification and prioritisation of adaptation measures:

The first phase, 'Planning the Work to Co-create the Plan', focused on sharing the Project Approach, identifying local priorities and the risk perception of the different actors involved. This initial phase sought to establish a solid basis for working together, starting with the presentation of the objective and scope of the plan. In addition, workshops and interviews were conducted with a wide range of stakeholders, such as representatives of the municipal administration, emergency services, local businesses, biodiversity experts and other relevant entities, in order to gather valuable information on climate risks and the specific adaptation needs of the city.

In the second phase, 'Analysis and Identification of the Risk Index', different actions were carried out to ensure an adequate analysis of the information collected and to identify the main climate risks faced by Santander. To this end, consultations and surveys were carried out with local experts and citizens, including the Second Technical Workshop of local actors, in which valuable contributions were made to complete the validation of the risk analysis. This phase made it possible to establish the climate risk indices that served as a basis for the subsequent definition and prioritisation of adaptation measures.

Finally, in the third phase, 'Definition and Prioritisation of Adaptation Measures', citizens were involved in the technical consultation on possible adaptation measures and in the identification of those considered most relevant and urgent. Citizen workshops were carried out, promoting at the same time the awareness and participation of children and young people. In a final phase, web-based surveys were carried out to ensure broad and diverse participation in decision-making on the future.

The main actions that took place in each of the above phases are detailed below:

8.2.1. Phase 1: Approach to the work of co-creating an adaptation plan

Three types of actions have been carried out in this phase:

Public presentation of the Plan

The project was publicly presented in September 2022 in the Sustainability Room Forum of the 2022 edition of Greencities by the Mayoress of Santander. A few months later, a more extensive presentation was made in Santander, presenting the planned calendar of actions, including the participation programme for the Climate Change Adaptation Plan.

In the public presentation of the project, special emphasis was placed on the importance of public participation in the process: 'Social participation is key to achieving the objectives of "Santander Capital Natural", which is why the entire population of the city has been integrated into the proposal so that they can take ownership of the actions undertaken, through participation in decision-making or volunteering'.

At the same event, the channels for participation and access to the information, coordinated through the website and specifically for dissemination of participatory events, were also announced. Likewise, the approximate calendar of participation in the Adaptation Plan was also made public.

Risk perception initial technical workshop

In December 2022, the first technical workshop was held with a broad representation of local actors and institutions related to the affected sectors. It was a comprehensive session, combining the presentation of the project objectives with technical work in groups to identify the main local hazards, prioritisation of vulnerability factors and localisation of the main exposed sites. The session concluded with a wide range of quantitative and qualitative results.

From this event, which created a collaborative environment between participants and plan drafters, the basis for further technical consultations was established.

Figure 8.1. *Workshop I with the presence of Councillor Margarita Rojo*
Source: CINCc (UC), 2022.

Bilateral technical consultations with key entities

During the months of January to June 2023, bilateral collaboration work was carried out with entities who could provide relevant information for the Plan. During this period, the drafting team met with the following institutions, gathering very relevant contributions for the study, as well as databases, cartography, previous studies and all kinds of essential information for the development of the work. The meetings included the following:

- Those responsible for Smart City, for the collection of climatic data and the influx of people in tourist areas.

- Those responsible for the Santander Fire Department, for the identification of risk areas, potential solutions, as well as the supply and verification of important databases of outings for their geolocation.
- Aqualia, for the identification of potential improvement works and the request for information from cartographic databases.
- Municipal Tourism Office and Department of Tourism, for the collection of data and the interpretation of the potentials and weaknesses found in the local tourism sector with respect to climate change.
- AEMET, for the provision of relevant climatic information for the study.
- Head of the Parks and Gardens Department of the City Council, for the identification and characterisation of municipal green areas, as well as the main management problems.
- Those responsible for the Department of the Environment and the Urban Planning Department. Responsible for the Department of the Environment and the Municipal Urban Planning Department, to provide basic municipal information and coordination with the rest of the entities.
- Municipal Register Office, to update the socio-economic databases used in the study, as well as the supply of a large part of them, complementary to the interviews and requests held with the office of the National Statistics Institute.
- Drafting team of recent urban planning documents (Santander Hábitat Futuro) for an updated database of some of the physical and social features of the city. Based on meetings held with those responsible for the analysis criteria, previous work was interpreted and updated, giving continuity to the studies whenever possible.
- Those responsible for other ongoing research projects on local and regional urban adaptation, with the aim of coordinating methodologies and integrating their proposals into the adaptation measures.

8.2.2. Phase 2: Analysis and identification of the risk index

Three types of actions have been carried out in this phase:

Realisation of the Second Technical Workshop

The second technical workshop, 'Climate Change Risk Analysis in Santander', took place on 27 June 2023, with 26 active participants. This second technical workshop was attended by the same people and institutions as the initial workshop. It was a 5-hour technical session where the methodology applied to obtain the risk index and the main results obtained so far were reviewed. The contributions of the participants were key to complete the study and ensure a correct identification of vulnerability in Santander to Climate Change. With the contributions

from this workshop duly incorporated into the study, the results were validated and the next phase of identification of adaptation measures was carried out.

Figure 8.2. *Photographs from the second technical workshop, preliminary results*
Source:: CINCc (UC), 2023.

Consultation with experts

In the process of selection and weighting of sensitivity factors (social, material and environmental), a process of consultation and prioritisation by experts was followed. In this sense, the methodology involved the collaboration of 5 technicians with expert criteria to identify the weight of different aspects in the sensitivity. These weightings were subsequently validated in the second technical workshop held the validation of the risk index.

Dissemination actions and participation of children and young people

To complete the diagnosis, different dissemination actions were also carried out in which the fundamental ideas of the project were transmitted, requesting the map location of the places identified as most affected by climate change. The aim was not only to gather valuable information for the diagnosis, but also to contribute to the education and awareness of the general public and participating children on the subject.

FigurE 8.3. *Participation in the European Researchers' Night 2023 activities*
Source: CINCc (UC), 2023.

Some of these actions have had an informative and recreational component, such as participation in events like 'European Researchers' Night' (29 September 2023), where people were able to experience and learn first-hand about the benefits of renaturalisation through experiments in order to subsequently provide naturalisation solutions on a giant map of Santander.

Other actions have been developed within the 'Geografícate' programme of the University of Cantabria in different educational centres in Cantabria. The sessions included information and awareness-raising on climate change, followed by the involvement of secondary and high school students in identifying areas for improvement in the city and providing adaptation solutions. These events were held in the schools themselves during the 2022-23 and 2023-24 school years.

8.2.3. Phase 3: Definition and prioritisation of adaptation measures

In the last phase of the participation process, the following activities were carried out:

Technical consultations on measures and prioritisation of experts

Based on the previous scientific work, in which the adaptation needs of Santander were identified, specific technical consultations were carried out to define measures. These consultations included a survey of experts to identify local adapted species, with the aim of prioritising their planting. Experts from the Royal Botanical Garden of Madrid and other specialists in Forestry Engineering and Palynology were involved, given the importance of green infrastructure within the Plan.

In addition, various consultations were held with the municipal technical teams of Parks and Gardens, the Department of the Environment and the Urban Planning Department of Santander City Council. Given the importance of risk management, several meetings were held with the Chief of the Santander Fire Brigade, which resulted in high quality primary information for decision-making.

However, the globality of the measures were also subject to participatory analysis with expert criteria and municipal technical managers. In total, a group of 15 experts and technical managers collaborated in the prioritisation of the initial proposed measures, both through voting and qualitative comments to qualify and, in some cases, group measures. With these contributions, a list of 88 adaptation measures was consolidated, which were taken forward for consultation in the citizens' workshops.

Citizen workshops (co-design of climate change adaptation measures in Santander)

Once the measures had been identified by the research team, and after prioritisation in the previous action, the content of the measures, grouped into adaptation objectives and targets, was put out for public consultation in the last week of November 2023. In the workshops, presentation tasks were carried out, both of the expected reality in Santander in terms of climate risks and of the possible adaptation strategies.

The workshops were held in different cultural centres in the most affected neighbourhoods, as well as in different academic environments, with school children, university students and people from to the senior programme. During the sessions, numerous contributions were made on the measures, helping to define and prioritise them. The final result was 85 adaptation measures.

Awareness-raising, and child and youth participation

The prioritisation of the 85 measures also allowed for awareness-raising in schools, where the Plan continues to be disseminated and participants are asked to collaborate with new contributions. These sessions follow a similar format to the citizens' workshops: a first part of presentation; a second part of work in small groups to prioritise the measures of a specific goal; and a final part of sharing the results where there is an opportunity to include nuances, improvements and possible locations or agents involved for the proposed measures. In these sessions, the scores given for prioritisation by the participants are noted down.


Figure 8.4. *Participatory workshops IES Alberto Pico, Santander.*
Source: CINCc (UC), 2023.

Validation through web surveys

In the last step of the Participation Plan consists in publishing the results of the Adaptation Plan in an informative format accessible to all citizens. In this last step of the process, both the Risk results and Santander's Adaptation goals, Objectives and Measures are presented. In this format, the participation of citizens is sought in the identification of priorities, as well as in raising awareness and improving knowledge about the problem.

8.3
AGENTS INVOLVED

In the early stages of the process, participation focused on the people in charge of municipal technical offices and different local agents with responsibilities associated with risk in Santander, as well as the economic and social areas most vulnerable to climate change. These agents, together with experts in climate research and its repercussions, have been the main groups participating in the initial part of the process. Their contributions have made it possible to focus the study from its first steps towards Santander's real priorities, as well as to strengthen a collaborative relationship and enrich the process.

In the phase related to the identification and prioritisation of measures, participation has been open and focused mainly on citizens. Participation in these processes have made it possible to raise public awareness of the issue and to learn about the risks facing Santander in the future.

8.4
RESULTS OF PARTICIPATORY WORKSHOPS

This section includes the results and content of the main participatory actions carried out, as well as the participating agents, the dynamics followed and their contributions.

8.4.1. Participatory Technical Workshop I: Perception of Climate Change Risk in Santander

On the perception of climatic hazards in Santander

The first questionnaire of this consultation process consisted of evaluating a long list of plausible hydrometeorological hazards (direct and derived) for the municipality with the final objective of prioritising the importance of each one specifically for Santander. First, the level of importance of each hazard was scored based on two basic criteria; the frequency with which the hazard occurs and the magnitude of the hazard in terms of intensity. The results of this public consultation are presented in Table 8.1 The process was repeated twice, first for direct hazards and in a second process for derived hazards.

TABLE 8.1. *Intensity and frequency of the direct hazards considered*

CRITERION 1: INTENSITY OR MAGNITUDE OF THREAT				
CLIMATE THREAT	LOW (1)	MEDIUM (2)	HIGH (3)	TOTAL SCORE
Pluvial flooding	1	12	8	49
Coastal flooding	1	7	13	54
Sea level rise	3	5	13	52
Peri-urban fires	8	7	3	31
Gales - extreme wind	8	7	3	31
Heat saves	8	7	3	31
Tropical / torrid nights	8	7	3	31
Drought	7	4	9	42

[.../...]

Continuation **TABLE 8.1**

CRITERION 2: FREQUENCY OR RECURRENCE OF THE THREAT				
CLIMATE THREAT	LOW (1)	MEDIUM (2)	HIGH (3)	TOTAL SCORE
Pluvial flooding	5	12	4	41
Coastal flooding	2	9	9	47
Sea level rise	7	7	7	42
Peri-urban fires	9	4	3	29
Gales - extreme wind	4	9	3	46
Heat waves	4	10	3	39
Tropical / torrid nights	7	1	3	29
Drought	6	5	3	37

Fuente: CINCc (UC) - FIC, 2024.

If we take the range of possible values for each criterion, from 0 to 63 points, we observe that none of the hazards reaches 'low' scores or below its third quantile (below 21), so that, a priori, none of the hazards analysed in the workshop can be considered irrelevant for the municipality.

More than 50% of the respondents (high confidence) agree that coastal flooding and sea level rise are the hazards with the greatest magnitude or intensity for the municipality compared to the rest of the hazards, while the perception of their recurrence becomes less cohesive, i.e., there is the same number of responses in each of the levels of relevance of the frequency criterion (low or medium confidence).

Regarding rainfall floods, more than 50% of those surveyed believe that both their intensity and recurrence have a medium level of importance (high confidence), compared to the rest of the hazards. In the case of windstorms accompanied by extreme winds, there is greater variability in the responses obtained. Nearly 80% of those surveyed considered them to be of medium or high importance for the municipality, both in terms of magnitude and recurrence, with an overall score higher than even pluvial floods. With respect to slow-onset hazards, such as droughts, the results show a level of confidence that is sometimes very low, mainly due to the fact that this type of hazard is generally perceived as more complex. However, droughts, heat waves and increased tropical nights generally achieve medium scores.

In last place, peri-urban fires affecting green areas of the municipality and peri-urban vegetation fires reach the lowest percentage of valuation of approximately 9% with respect to the total.

With respect to the incidence of derived climatic threats, the aggregate assessment of all respondents (a total of 21) indicates a higher relevance for the increase of invasive species together with an increase of vectors of new diseases, with a final score of 23% and 22%, respectively, followed by a proliferation of allergenic pollens and insect pests, both with a final score of approximately 19% and, in last place, an increase in the incidence of Saharan dust, with almost 17% of the final score. As was the case in the assessment of direct threats, none of these derived climatic hazards has "low" scores overall, with the average level being the one usually indicated by the respondents.

TABLE 8.2. *IIntensity and frequency of the derived hazards considered.*

CRITERION 1: INTENSITY OR MAGNITUDE OF THREAT				
DERIVED CLIMATE THREATS	LOW (1)	MEDIUM (2)	HIGH (3)	TOTAL SCORE
Elevated levels of allergenic pollens	7	12	8	37
Saharan dust intrusion	8	7	13	32
Appearance of new disease vectors	5	10	6	43
Peri-urban fires	4	10	5	39
Gales - extreme wind	2	13	6	46
CRITERION 2: FREQUENCY OR RECURRENCE OF THE THREAT				
Elevated levels of allergenic pollens	7	10	4	39
Saharan dust intrusion	8	7	4	34
Appearance of new disease vectors	4	11	6	44
Peri-urban fires	6	8	5	37
Gales - extreme wind	4	10	7	45

Source: CINCc (UC) - FIC, 2024.

On the perception of vulnerability

The following results were obtained from the sum of the 20 contributions identified, where the variables studied were valued between 0-1 and 3, so that the maximum values will be 60 and minimum values between 0 and 20.

In questionnaire No.1, the participants evaluated the changes observed in five climatic hazards in Santander. Thus, we see in Figure 8.5 the data shows heat waves to be the prioritised hazard where these changes have been most perceived by the participants, especially in variables related to the increase in intensity, frequency and extremes.

On the other hand, all the participants observe notable changes in the prioritised hazards, the only one that does not seem to be as relevant for them being the geographical alteration of sea rise.

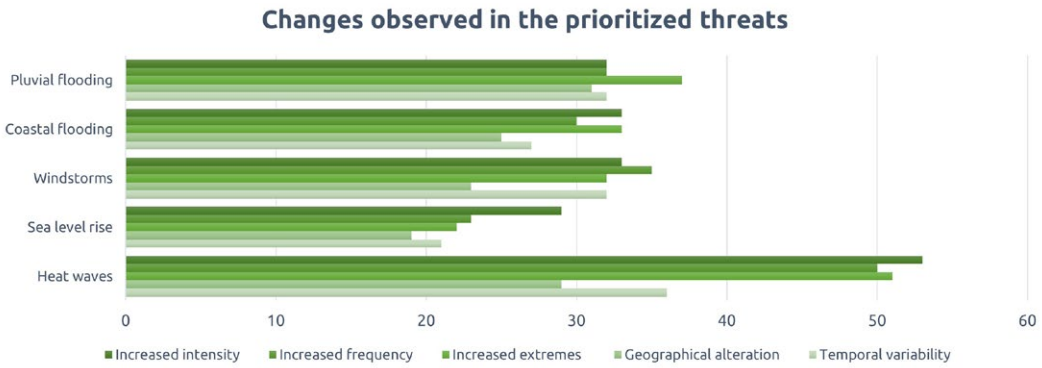

Figure 8.5. *Perceived Changes in Direct Threats*
Source: CINCc (UC) - FIC, 2024.

Questionnaire No. 2 consisted of the identification of different elements exposed to the prioritised hazards in Santander, for which five elements were chosen: population, housing, critical infrastructure, environment and economy.

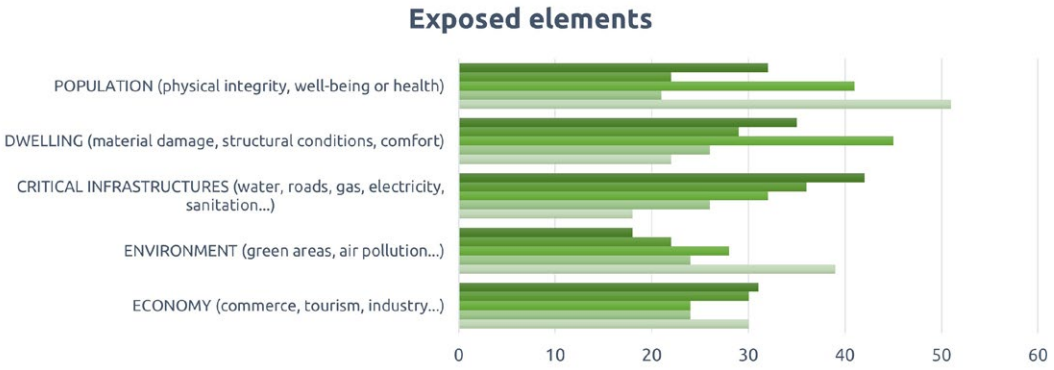

Figure 8.6. *Elements exposed to Direct Threats*
Source: CINCc (UC) - FIC, 2024.

In this case, the participants consider that the population, housing and critical infrastructures are the elements with the greatest exposure to the hazards described, highlighting in particular the effects of heat waves (threat 5) on the population, followed by the exposure of housing to windstorms.

For the participants, the exposure of the environment to pluvial floods and the exposure of critical infrastructures to heat waves were of a lower level.

On the other hand, questionnaire No. 3 analyses the relevance of different factors of sensitivity to climate change in Santander and the prioritised hazards: socio-economic sensitivity, material sensitivity and environmental sensitivity.

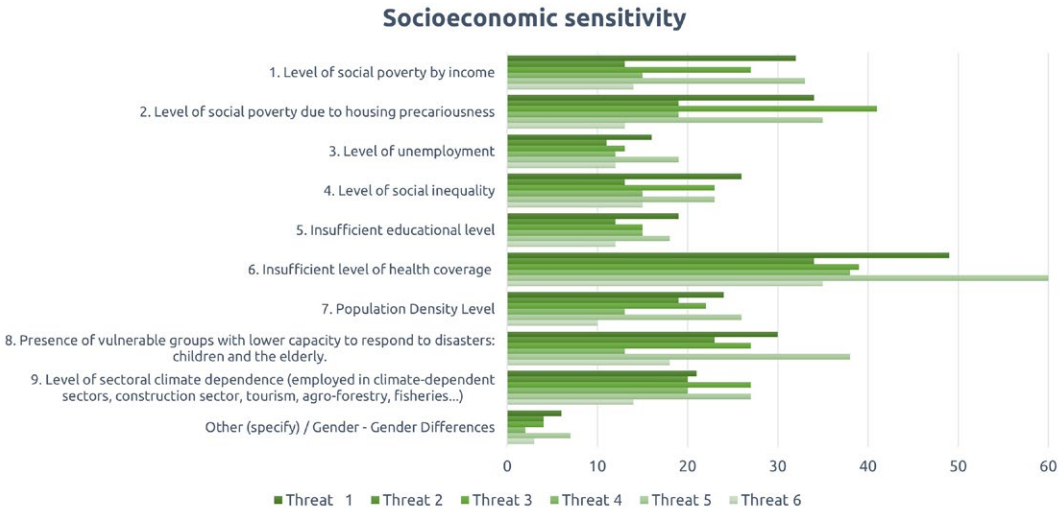

Figure 8.7. *Assessment of socio-economic sensitivity factors to Direct Threats*
Source: CINCc (UC) - FIC, 2024.

For socio-economic sensitivity, the factors related to insufficient health coverage are the most relevant of all those analysed, especially when affected by heat wave threats, thus being a very relevant problem for the respondents, while the unemployment variable and the educational level obtain the lowest values as they are considered to be not very relevant and where the different prioritised threats are not considered significant factors.

With regard to material sensitivity, we observe that none of the factors analysed is very relevant, although it is true that there seems to be a continuity in the relevance of different hazards prioritised over the different factors analysed. In this sense, pluvial floods and windstorms are the two hazards that obtain the highest values as precursors of material sensitivity in the four variables studied.

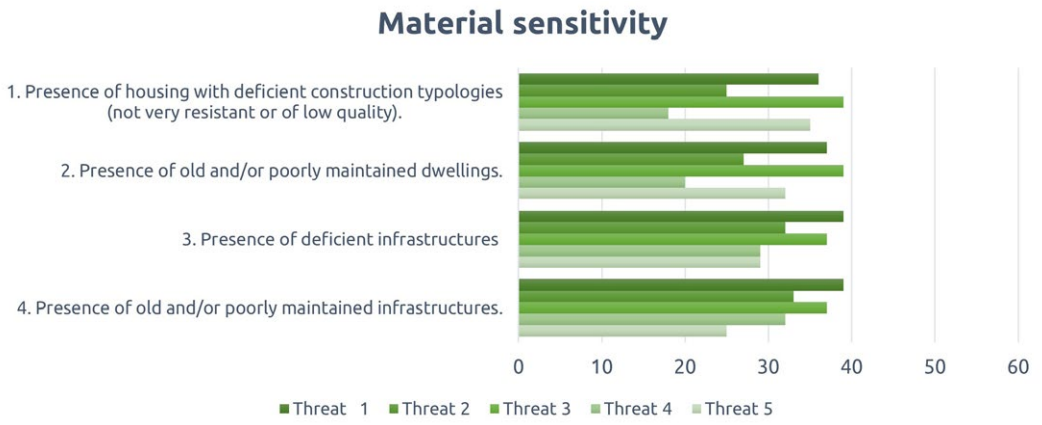

Figure 8.8. *Assessment of material sensitivity factors to Direct Threats*

Source: CINCc (UC) - FIC, 2024.

On the other hand, as we can see in Figure 8.9, environmental sensitivity is, like material sensitivity, considered a factor of little relevance for the participants, with rain flooding and heat waves as the only threats for some of the variables described.

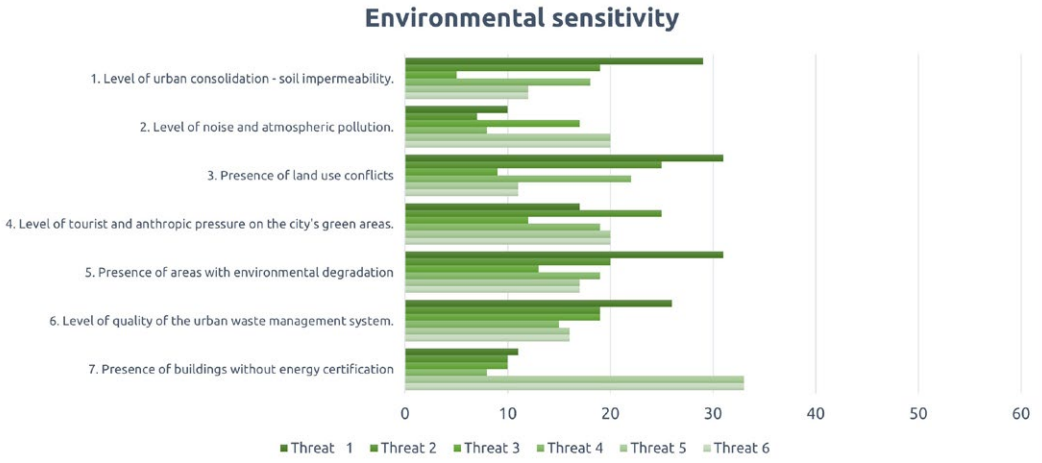

Figure 8.9. *Assessment of environmental sensitivity factors to Direct Threats*

Source: CINCc (UC) - FIC, 2024.

Finally, in questionnaire No. 4, the participants assessed how different factors can help to adapt, reduce or eliminate potential damages derived from the prioritised hazards, for which six blocks were established that group together different capabilities in the face of climate change.

The following factors were analysed for the capacity to anticipate and prevent damage from extreme events:

A.1 Availability of effective early warning systems, hazard monitoring and control systems capable of predicting adverse phenomena and providing adequate warning.

A.2 Knowledge of the population on what to do in case of emergency (level of social training on risk).

A.3 Existence of legislative regulation and urban planning in terms of risk.

In this block, the participants agree that all the factors described above are important for dealing with all the threats.

The following factors were considered for local intervention and response capacity:

B.1 Availability of civil protection services in the event of disastrous events (1st response of security and citizen protection resources).

B.2 Existence of evacuation and relocation centres for affected people.

B.3 Availability of local medical health care resources in the event of disastrous events in terms of the number of people potentially affected.

In general, they were not considered to have a very significant importance, with the exception of factor B.1, the most relevant factor in relation to the different prioritised hazards, and factor B.3 with hazard 5 (heat waves).

The following factors were considered in terms of resilience to disastrous events (institutional and economic approach):

C.1 Availability of mechanisms and resources for early recovery from damage-existence of an insurance system, flexibility of affected companies, efficiency of housing reconstruction companies, etc.

C.2 Existence of public economic resources for intermediate investment in material damage recovery work.

C.3 Existence of private economic resources for intermediate investment in material damage recovery work.

C.4 Institutional capacity to promote and finance disaster recovery projects and adaptation measures with local implementation.

In this case, all the factors were considered important against the prioritised hazards, but it is observed that in hazards 4 and 5 (sea level rise and heat waves) the factors were

less important against resilience after disastrous events with an institutional and economic approach.

On the other hand, two factors were considered for their ability to withstand a potentially disastrous even:

D.1 Having adequate infrastructures (sewage networks, roads, dikes, etc.) to contain climatic hazardas or reduce potential damage.

D.2 Having critical buildings and equipment whose construction typology is efficient to withstand climate hazards or significantly reduce potential damage.

Finally, with regard to ecosystemic buffers against potentially disastrous events (systemic approach), two factors were analysed:

E.1 Open spaces and green infrastructure capable of buffering damage from extreme weather events.

E.2 Degree of green coverage in the municipality to reduce or prevent climate damage.

The results obtained in this workshop were transferred to the subsequent multi-criteria analysis for the selection of vulnerability factors. Likewise, as mentioned above, the results referred to the selection of hazards were integrated into the analysis of the present and future climate.

8.4.2. Participatory Technical Workshop II: Climate Change Risk Analysis in Santander: Presentation of Preliminary Results

After the intervention of the speakers, the last block consisted of the contribution of the different attendees on doubts, considerations, as well as contributions to take into account in the modification of some variables or for the validation of the same.

In addition, an online and collaborative resource, Mymaps, was opened for attendees to post comments on a mapping established by the FIC and the UC with layers of information related to climate hazards, as well as locate areas where they perceived or had witnessed problems of the same nature.

The following My Maps web link was used for participation: https://www.google.com/maps/d/u/0/edit?mid=1MrgOUs6Y35hXPq9KAOLJOUTsCXc7xXo&ll=43.46658008636385%2C-3.86348592455598&z=12

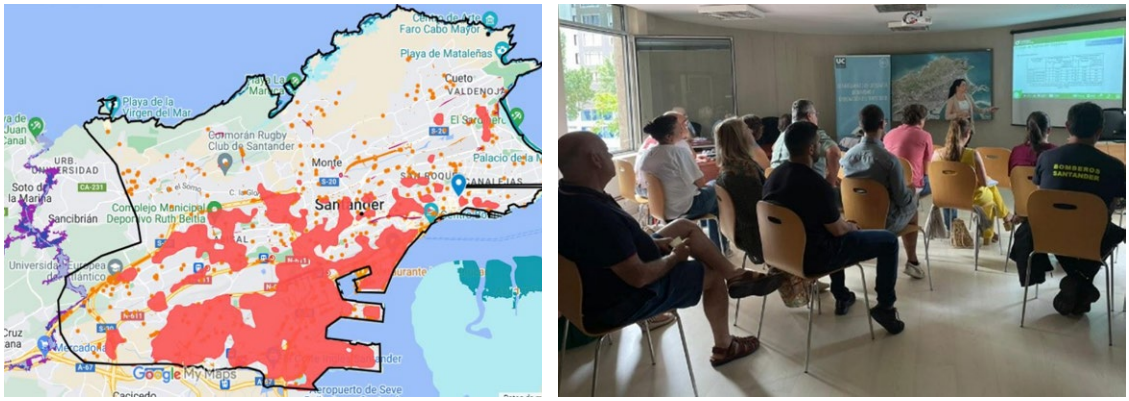

Figure 8.10. *Photographs from the second technical workshop, preliminary results*

Source: CINCc (UC), 2023.

The results of the workshop made it possible to ratify and qualify the preliminary results of the Climate Change Adaptation Plan and, more specifically, the Climate Change Scenario analysis for Santander (2050-2100), the hazard analysis and the vulnerability analysis.

8.4.3. Citizen Workshops: Co-Design of climate change adaptation measures in Santander

Once the presentation was finished, through collaborative activities, the participants began to evaluate and prioritise the different goals and objectives of the Adaptation Plan, assessing the aspects of the Plan that seemed the most and least relevant to them.

Figure 8.11. *Development of Participatory Workshops in civic centers*

Source: CINCc (UC), 2023.

In groups of 2-3 people and in a brainstorming format, different groups were formed to evaluate and discuss the specific measures for each of the goals, to finally indicate which of them was of the highest priority for each of the specific objectives described, as per their perception and knowledge, justifying and debating with the rest of the attendees.

The attendees validated the grouping of the measures into 4 goals: Resilient City, Biodiversity, Health, and Adapted Society and Economy, which in turn have specific objectives:

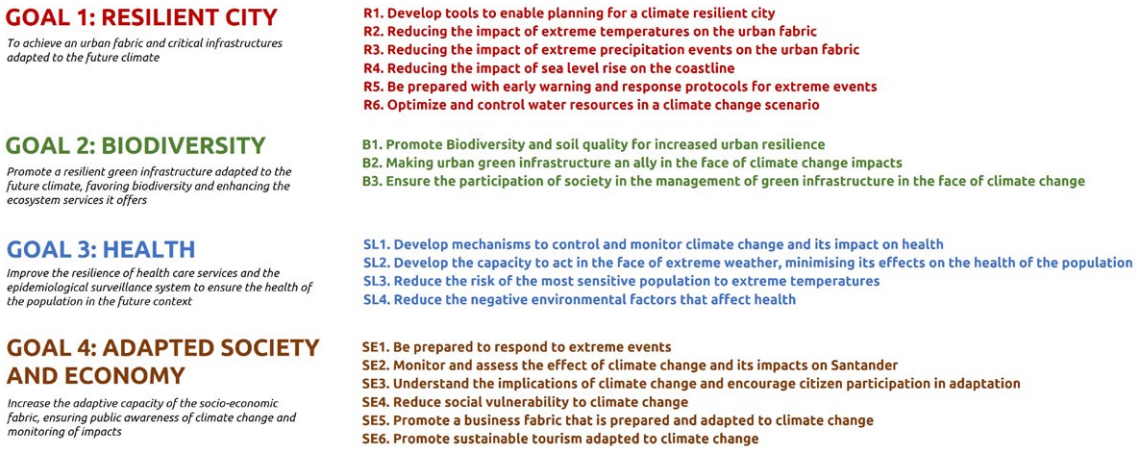

Figure 8.12. *Structure of pre-selected goals and objectives*
Source: CINCc (UC), 2024.

The main measures that obtained the highest scores were the following:

Goal 1. Resilient City

- Avoid maladaptation, planning with a multidisciplinary approach and effective measures that include landscape, socio-economic, environmental, etc., criteria.
- Integrate adaptation criteria in urban planning: 1. future climate scenarios; 2. delimitation of Urban Adaptation Areas (AAU) and 3. general systems of open spaces as a reserve for adaptation.
- Create a protocol for monitoring adaptation criteria in public and private works projects, justifying the progress achieved.

Goal 2. Biodiversity

- Renaturalise large paved surfaces by increasing the permeability of soils with the contribution of high quality soils for the promotion of biodiversity.
- Greening common spaces between blocks and block courtyards in the urban environment.
- Control and eradicate invasive species by generating an exhaustive system of data collection and species evolution.

Goal 3. Health

- Develop a Biometeorological and Human Health Research Laboratory to study the relationships between atmospheric processes, and human health and well-being.
- Create a complementary network of air quality observatories, and bio-aerosol control (with aero-allergen capture stations) for monitoring pollutant emissions and nanoparticles at census section scale.
- Optimise the Smart City sensor network to enable real-time detection of high temperature hotspots.

Goal 4. Adapted Society and Economy

- Adapt the Municipal Emergency Plan considering the expected climate variability, defining the appropriate emergency services in the event of extreme rainfall, heat waves and extreme wind.
- Identify weather shelters among open spaces and facilities, providing a list of assistance centres for vulnerable people in case of extreme events.
- Create an early warning system through cellphone applications (SmartCity or others) related to extreme weather events.
- Establish security capacity at events, celebrations or spaces with a high concentration of people, in order to guarantee response to extreme events.

The contributions made in the workshops have contributed to the adjustment of the content of the measures, finally reduced to 85 actions, incorporating the nuances, corrections and contributions of the workshops held. This consolidation of the results have made it possible to face a final phase of validation of the Plan.

8.4.3. Conclusions of the Participation Plan

The participation process as a whole has allowed the co-design of this Adaptation Plan, both with local experts and key actors, as well as with the citizenry as a whole. The participatory process has been present throughout the development of the Plan. From the beginning, it has

laid the foundations of what was necessary to study to make a good Adaptation Plan for Santander, until the end of the process where citizens have intervened to define and prioritise the appropriate adaptation measures.

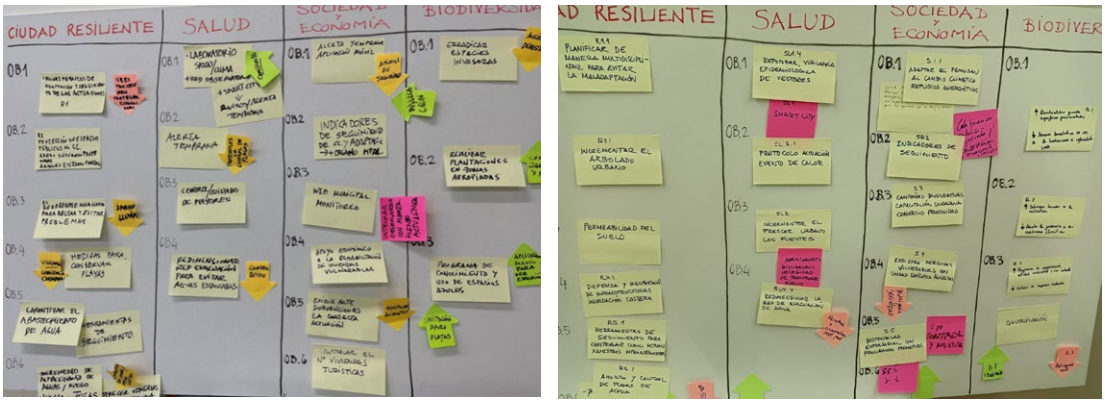

Figure 8.13. *Panel discussion of the second cycle of citizen workshops*
Source: CINCc (UC), 2024.

From the participatory processes followed for the preparation of the Plan, the following contributions stand out:

- The identification of **climate hazards**, based on the survey conducted in the initial face-to-face Workshop 1.
- The assessment of **vulnerability** and **sensitivity** by the key actors and technicians of Workshop 1, which has made it possible to assign weights to the different factors, based on knowledge of the local social, economic and material reality.
- Create an **early warning system** through cell phone applications (SmartCity or others) related to extreme weather events.
- Refinement and **validation of the risk index** and the values used to quantify vulnerability through the contributions made by the city's social actors in Technical Workshop 2.
- **The assessment and prioritisation of the 85 adaptation** measures by the public, based on Workshops 3 to 6 held in the Civic Centres and the University. The contributions made have allowed the nuance and grouping of some of the measures, as well as the reconsideration of some of those initially listed among the 88 priorities.

The consolidation of a list of sufficiently contrasted measures allows for a final phase of dissemination and publication of the results. This last phase consists in the dissemination of the information generated to the affected entities and experts who have participated in the process, as well as the dissemination to the public through the project's website and the organisation of scientific dissemination events by the University of Cantabria.