

# The Catastrophe Observatory of the Aon Spain Foundation: research, prevention, assistance and continuity

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## Aon Spain Foundation

The **Aon Spain Foundation** is a private non-profit foundation established in 2015. Its motto is "**always with people against risk**", and its primary objective is to help make a better society through its activity in the areas of social integration, art and culture, and catastrophe hazards. It also has an extensive volunteer programme that undertakes initiatives to promote and enhance participation in projects and activities that are related to its objectives.

One of these objectives is research, prevention, assistance and continuity in cases of major natural **catastrophes** that occur in Spain, whether by chance or any other cause, paying special attention to the most disadvantaged groups, providing Aon's knowledge, expertise, resources and volunteers.

Another objective is **social and work integration** for the most disadvantaged people or at risk of social exclusion, through collaborative solidarity projects in multiple areas.

Promoting and disseminating **art and culture** across society and protecting and rehabilitating our natural and cultural heritage are two other objectives of the Aon Spain Foundation, undertaken by designing artistic and cultural activities and providing funding for its implementation and development.

## 1. Introduction

Disasters occur regularly all over the world, occasionally taking on catastrophic proportions depending on their impact on especially vulnerable populations or on the convergence of particularly unfortunate circumstances. Hurricane Katrina, the Haiti earthquake or the great tsunami in eastern Japan are examples of catastrophes that hold a special place in our collective memory. It is not unusual for both governments and society as a whole to take years to recover and rebuild effectively.

The COVID-19 pandemic is a worldwide non-natural disaster of tragic proportions which, besides the loss of life, has triggered a global crisis over and above health considerations alone, setting off a global shockwave and calling our environmental and socioeconomic systems into question. The pandemic has exacerbated inequalities and has cast us into the most serious worldwide economic recession since 1930. In Spain in 2020, this has meant an 8.7% decline in GDP over the previous year.

But this has not been the only disaster in recent months. Aon's latest annual catastrophe report reveals that there were 416 natural disasters in 2020 with 8,000 fatalities, at least 3,500 of which were caused by protracted monsoons in Asia. Economic losses came to 268 billion dollars, 8% more than the average annual loss in this century, with costs continuing to climb because of the changing climate, populations shifting into areas at risk, and the increase of world wealth. Of that amount, 97 billion dollars were covered by private and public sector insurance programmes, a protection gap (percentage of uninsured economic losses) of 64%.

In addition, 2020 was the second warmest year on record since 1880, with ocean and land surface temperatures + 0.98 °C higher than the twentieth century average. Global warming is aggravated by man's impact on nature, which is acting to speed up climate change, the cause behind the rise in natural disasters, plus deforestation, depletion of the ozone layer, landslides, drought, declining food safety, large shifts in population and the emergence and spread of viruses.

## 2. The Catastrophe Observatory of the Aon Spain Foundation

The Aon Spain Foundation stands out for its hazard and catastrophe management. We are experts in the field and are able to make a significant contribution to society. We have set up the Catastrophe Observatory for that purpose, as a platform for exchanging experience and lessons learned from disasters that have already taken place, for conducting disaster-related research, taking preventive steps — drawing up guidelines on best practices and useful and effective measures — helping with the recovery of the hardest hit regions and providing aid for the most vulnerable disaster victims.

Climate change is a natural process that is increasingly exacerbated by progress and unrestrained growth. It remains the cause of a large proportion of natural disasters, but it would seem that there is insufficient awareness around the world to convince everyone to behave sustainably and reduce our impact on the environment and on society. The COVID-19 pandemic has in fact been a wake-up call to our lack of awareness of and unpreparedness for unexpected events and the need to build more resilient societies with more highly developed coping capacities.

At the Catastrophe Observatory we are well aware that in order to be able to meet these risks and build a more resilient and sustainable society, it is necessary to put in practice what are known as **the three "Cs":** **Consciousness-raising, Commitment and Compliance:**

- First, society must become **aware** of the overriding need to take action to stop the harmful effects of climate change, which has had effects highly detrimental to mankind. We need to teach future generations to respect the environment.

- Second, we need **commitment** to solidarity with the most underprivileged to foster currents of public-private cooperation within our society.
- Third, we need to promote a willingness to **comply** with that commitment and act ethically and responsibly, fundamental values of human behaviour.

The Catastrophe Observatory is an instrument of change, a vantage point along the path to change on which science and innovation play leading roles. Aware of our responsibility to society in the performance of the Aon Spain Foundation's mission to build a better, fairer world, at the Observatory we focus on research and scientific and technical progress under our Chair of Catastrophes. At the same time, we also work on disaster prevention through preparedness, seeking responses to their impacts, sustainable solutions to their consequences, and help for those who are most exposed to weather events, ensuring equality and avoiding social exclusion of those least able to cope.



Figure 1. Meeting of the Catastrophe Observatory's Think Tank.

The Catastrophe Observatory's **Think Tank** meets quarterly. Each year it chooses a catastrophe hazard on which to concentrate its activity (Figure 1). Coordinated by the journalist Jesús Martínez de Rioja under my chairmanship, the Think Tank's members are first responders like the Spanish Red Cross — represented by the Head of its Health and Aid Department, Carmen Martín —; the Spanish Military's Disaster Relief Unit [*Unidad Militar de Emergencias* (UME)] — represented by Lieutenant Colonels Jorge Serra Llopart and Daniel González Garrido —; and Spain's Emergency and Civil Protection Agency [*Protección Civil y Emergencias de España*] — represented by its Director General Leonardo Marcos —; along with top-level institutions such as the Spanish Insurer's Association (UNESPA) — represented by its President, Pilar González de Frutos —; Spain's *Consorcio de Compensación de Seguros* (CCS) represented by its Director General, María Flavia Rodríguez-Ponga —; the Spanish Insurance and Risk Management Association [*Asociación Española de Gerencia de Riesgos y Seguros* (AGERS)] — represented by its President, Juan Carlos López Porcel, and by its Executive Secretary, Gonzalo Iturmendi —; the Spanish Resilience Institute [*Instituto Español de Resiliencia* (IER)] — represented by its President, Dr. Rafaela Santos —; Spain's Foundation for the Blind and Disabled [*Fundación ONCE*] — represented by its Universal Accessibility Director, Jesús Hernández-Galán —; the Comillas Pontifical University (ICAI-ICADE) — represented by the Director of the University Institute for Migration Studies (IUEM), Alberto Ares, the Director of the Research Knowledge Transfer Office, Jorge Larena, and the researcher Mercedes Fernández —; the University of Navarre — represented by the Senior Lecturer Leire Labaka and Research Professor Cinta Lomba —; and Aon Benfield Iberia — represented by its CEO, Alfonso Valera.

The Aon Spain Foundation's Observatory brings its knowledge, resources and volunteers to bear on three different aspects: research, preparedness and prevention, when disaster hits, and during the continuity and recovery process.

## 2.1. Research, preparedness and prevention

Disasters may entail enormous human and economic costs, and anticipating their impact can be of great help when deciding on steps to be taken before they occur in order to mitigate them, by permanently reducing the disaster risk and minimising their impact insofar as possible.

Preparedness and prevention are perhaps the most critical components of catastrophe management and are fundamental to avoid that a natural or man-made event or a potential hazard exert harmful effects on people and property. For preparedness and prevention planning, we start by identifying the hazards, the actual threats faced by a community, and we then assess vulnerability, the community's risk, and its ability to cope with the consequences of a disaster. Based on these analyses, we go on to decide on the most suitable preparedness and prevention strategies.

In terms of preparedness, prevention and resilience-building, in 2016 we established the **Aon Spain Foundation's Chair of Catastrophes**, a ground-breaking initiative in Europe the goal of which is to conduct catastrophe research and studies in a structured, systematic manner.

Classes are held at the Comillas Pontifical University ICAI-ICADE and at the University of Navarre and are the framework for systematically and continuously extending the work carried on by the Observatory into the academic and scientific sphere and a huge step forward in connection with the Foundation's interest in promoting research into events of this kind, systematising and transferring knowledge and helping to create a network of highly qualified professionals who can place their findings at the service of preparedness and prevention, response and mobilisation in crisis situations produced by natural and environmental events and by other hard to control causes.

The Chair of Catastrophes also has an Advisory Council and a three-year Master Plan that picks the subjects of study and research projects and other activities to be carried out, for instance, attending international scientific meetings, training for students and working professionals, visiting researcher positions in Spain and abroad, meetings for information sharing, dissemination on social media and a blog to explain findings.

The Programme's first doctoral thesis was completed at the University of Navarre's Tecnun School of Engineering and published in 2018, entitled ***A framework for public-private-people partnerships in the city resilience-building process***. The second thesis was completed at the Comillas Pontifical University ICAI-ICADE in April 2021 and was entitled ***Socioeconomic variables related to vulnerability and their effect on the characteristics of forest fires in Galicia***. Both thesis earned the grade of excellent and were awarded *cum laude*.

A doctoral thesis on ***Climate change and environmentally forced migrations*** is currently being carried out at the Comillas Pontifical University's Institute for Migration Studies and a fourth is in preparation at Tecnun concerning ***Enhanced resilience of critical urban infrastructure to climate change*** including a ***Taxonomy of predictive tools for catastrophes***.

A further research study was also released by the University Institute for Migration Studies in 2020, on ***Migrations and pandemics: Infectious disease threats in a globalised world***, examining interactions between migratory movements and the spread of infectious diseases and the implications for our country. Last year, Tecnun researchers published a **Manual of lessons learned and best practices for managing pandemics** based on a simulation model explaining the dynamics involved, setting out recommendations to enhance decision-making and resilience in future health emergencies.

The Observatory also created the **José María Sarriegi Science Award** for technical and scientific research in 2018, awarded each year to the best academic research article on catastrophe-related subjects published in a high-impact journal.

The first article to win the prize was *How are cities planning to respond to climate change? Assessment of local climate plans from 885 cities in the EU-28*, published in the *Journal of Cleaner Production* in 2018. The 2020 prize was awarded to *Bi-objective multilayer location-allocation model for the immediate aftermath of sudden-onset disasters*, published in *Transportation Research Part E – Logistics and Transportation Review* in 2019.

This prize is in memory of José María Sarriegi, PhD in industrial engineering, researcher and professor at Tecnum and one of the founders of the Observatory, who died in a sporting accident in 2018. It is a testimony to the personal and professional values exhibited by this extraordinary teacher of engineers, whose integrity, enthusiasm, professionalism and personal stature are and will remain a beacon for many students and professors alike.

## 2.2. When a catastrophe strikes

Some response measures implemented when a disaster hits include evaluating urgent needs, alleviating suffering, limiting spread, mitigating impact and paving the way to recovery.

When a catastrophe strikes, we at the Catastrophe Observatory act through the Emergency System of the Spanish Red Cross, contributing to its sustainability with material and economic resources and volunteers. This first responder's Emergency System has proven its ability to intervene and to collaborate in resolving crisis situations and catastrophic emergencies, assuaging human suffering, protecting health and safeguarding the environment.

Precisely because of the importance of intervening at the moment of impact, each year the Observatory awards a **Distinction** for exemplary action in catastrophes, for relevant contributions to the professional values of business and professional institutions and organisations, and for dedication to catastrophe hazards in Spain.

The first Distinction was awarded to the Emergency Immediate Response Teams (ERIES) of the Spanish Red Cross that were engaged in life-saving, evacuation and support for other intervention units during the forest fire that ravaged nearly 5,000 hectares of land on the island of La Palma in Tenerife province, in August of that year. The **2016 Distinction** was awarded for the Teams' decisive action there but was also recognition for the Spanish Red Cross' unparalleled history of disinterested support and humanitarian efforts all over the world. Its organisational model has been emulated outside of Spain.

The **2017 Distinction** went to the Spanish *Unidad Militar de Emergencias* (Military's Disaster Relief Unit) for its exceptional deployment of material and human resources for fighting the forest fires in Galicia in October of that year, which endangered the lives of thousands of people. The scale of that catastrophe required mobilising more than 900 Disaster Relief Unit service personnel and massive logistical support, both on the ground and in the air, to lessen the impact of the fires on the affected inhabitants and regions.

The **2018 Distinction** recognised the Rafa Nadal Foundation (Figure 2), in the person of its founding patron Rafael Nadal, for its role in debris removal and clean-up of the streets, homes and local businesses in Sant Llorenç des Cardassar. That town was one of the areas hardest hit by the floods that followed the torrential rains on the island of Majorca on 9 October 2018, causing thirteen fatalities and requiring the evacuation of more than one hundred inhabitants. Rafa Nadal not only participated in the clean-up effort but also made sizable donations to help the victims and placed the premises of his tennis school, located in the vicinity of the hardest hit town, at the disposal of the people who had been forced to leave their homes.





Figure 2. Awarding the 2018 Distinction to María F. Perelló, Director of the Rafa Nadal Foundation.

The **2019 Distinction** was awarded to the Spain's *Consorcio de Compensación de Seguros* (CCS) for its efficient management of losses suffered and for making substantial resources available to provide indemnities for the damage caused by natural disasters in Spain that year, particularly the devastation caused by the cut-off lows that hit in the last quarter. The CCS is a unique insurance institution in Europe, an international touchstone for the sector and a source of pride for Spain. This entity's track record has been profound and exemplary, and it has always stood out for its agile response in situations of collective misfortune and social distress.

### 2.3. Continuity and recovery

After the response when a disaster strikes, when a permanent solution has been achieved, comes the recovery and rebuilding phase, in which one of the priorities is to aid the most vulnerable victims and strengthen their resilience, not only in terms of adjusting to the new scenarios and circumstances but also in terms of preparing for future disasters.

The Aon Spain Foundation and the *Instituto Español de Resiliencia* (Spanish Resilience Institute) promote the capacity for resilience, the continuity and recovery of affected areas and their inhabitants, with special concern for the most vulnerable.

## 3. Symposium: floods, storms, forest fires and earthquakes, climate change and COVID-19

Every year the Catastrophe Observatory holds a symposium that brings together leading specialists to discuss the current status of catastrophe hazards during the year.

Flooding is one of the most significant natural events in Spain, and our country suffers an average of 10 serious floods each year. According to CCS' statistics, this entity paid out indemnities amounting to 4.564 billion euros for flood-related damage between 1987 and 2015. For that reason, the Observatory focused on "**Flooding**" in 2016. The symposium was held at Fundación ONCE (Spain's Foundation for the Blind and Disabled), and speakers included

authorities from the Integrated Management Bureau for the Public Water Supply and Hydraulic Resources [*Subdirección General de Gestión Integrada del Dominio Público Hidráulico*], the Directorate General for Water [*Dirección General del Agua*] of the then Spanish Ministry of Agriculture, Food and Environment [*Ministerio de Agricultura, Alimentación y Medio Ambiente*], the Spanish Red Cross, CCS, and the Fundación ONCE.

The Spanish Red Cross addressed the main actions required during floods (evacuation, supplying basic aid necessities, installing and operating temporary shelters, medical attention and transport and providing drinking water and sewage disposal). Authorities from the city council of San Sebastián explained their city's flood management. The Fundación ONCE discussed protocols for taking action in the case of persons with disabilities in these emergency situations and the main challenges that were faced.

The following year, the Observatory took up the subject of **"Storms and Tempests"**. Its symposium was held at the Comillas Pontifical University in Madrid, and speakers included the Rector, Julio Martínez, a panel of experts from the Spanish Military's Emergency Relief Unit, the Spanish Electrical Grid Authority, CCS, and the universities that host the Chair of Catastrophes.

CCS reported that between 2005 and 2017 seven windstorms caused 454,314 claims, and indemnities totalling 877.27 million euros were paid out. Worldwide, hurricanes and cyclones caused 4.2 billion dollars' worth of damage between 1980 and 2016, only 1.1 billion dollars of which was covered by insurance according to Munich Re Spain.

Coinciding with the European Year of Cultural Heritage, the symposium dealt with **"Forest Fires and Earthquakes"** in 2018 and was held in Lorca (Murcia) in the framework of the International Conference on Cultural Heritage and Disasters.

Lorca provided a practical instance of proper coordination and was a turning point for the Spanish *Unidad Militar de Emergencias* and the Spanish Red Cross. Both first responders spoke on emergency measures, strategic action in the initial stages of these types of catastrophic event, coordinated mobilisation of the responding organisations and responses to meet the needs of victims in potentially changing scenarios.

CCS and Aon Benfield discussed insurance for such catastrophes as earthquakes and forest fires, making special reference to the 2011 Lorca earthquake, the largest earthquake in the CCS' history, which resulted in 33,200 claims and 487 million euros in indemnities. It was noted that to allay and lessen the effects of the substantial insurance gap existing in some countries, the insurance industry was taking steps aimed at greater public-private cooperation in establishing organisations for mitigating catastrophes, creating insurance pools, and implementing measures for preparedness and for improving infrastructure and building quality codes as a means of lowering risk through risk awareness.

Particularly notable was the discussion by Carlos del Álamo, a forestry engineer and former Secretary for the Environment of the Regional Government of Galicia, and Natalí González, a universal accessibility specialist from the Fundación ONCE, on how to reduce the risk from fires due to arson, in view of the high percentage of fires that are set intentionally in Spain (54%), improved mechanisms and strategies for evacuating the disabled during forest fires (the disabled need special training and guidance on how to act during forest fires), and measures to be taken to improve the safety of residents when fighting forest fires and ensure a rapid response.

The fourth symposium was held at the Postgraduate Campus of the University of Navarre in Madrid in 2019, with H.M. the Queen as President of Honour. The topic was **"The effect of climate change on catastrophes"**. Participants included the Spanish Weather Service (AEMET), the Hydrology Research Centre of the Public Works Experimental and Research Centre (CEDEX), Swiss Re, the Spanish Government's High Commissioner for the 2030 Agenda, CCS, the Spanish Military's Emergency Relief Unit, the Spanish Red Cross, the Spanish Insurance and Risk Management Association (AGERS), the Ecology and Development (Ecodes) Foundation, and researchers of the Chair of Catastrophes (Figure 3).



Figure 3. Fourth Catastrophe Observatory symposium on "The effect of climate change on catastrophes", held in November 2019.

AEMET explained that heatwaves were a killer that society was mostly unaware of and presented a series of scenarios in Spain in 2100, e.g., pollutant gases drive temperatures up to 50 °C, with heatwaves lasting from 5 to 30 days or longer, or temperatures holding constant at around 20 °C. The CEDEX predicted growing water shortages in our country.

Cristina Gallach, the High Commissioner for the 2030 Agenda at the time, said that COP25, which was meeting in Madrid a few days after the symposium, would provide "an excellent opportunity for Spanish private enterprises to become more involved in fighting climate change". AGERS regarded climate change as an inescapable challenge to companies that could not be put off and called for Spain to approve a stable regulatory framework for economic development that would make the Spanish economy more competitive.

The Chair of Catastrophes' researchers noted that there would be more and more "climate refugees" and that "consciousness raising, mitigation and adaptation" were necessary strategies for successfully making critical urban infrastructure more resilient.

The fifth symposium was held at the headquarters of the Spanish Red Cross in Madrid in 2020, and its topic was **"COVID-19: experiences and resilience to future pandemics"**. The actions taken by first responders and the pandemic's impact were discussed on the basis of ethical-healthcare, psychological resilience, social-migratory, industrial, economic, insurance, and legal-regulatory aspects. After the welcoming speech by the President of the Spanish Red Cross, Javier Senent, and the opening address by the Director General of Civil Protection, Leonardo Marcos, the first responders took centre stage. The Spanish Red Cross reported on the outcome of its COVID-19 Response Plan; the Spanish National Association of Civil Protection Volunteer Organisations [*Asociación Nacional de Agrupaciones de Voluntarios de Protección Civil* (ANAV)] spoke about the important role its volunteers played in the pandemic, and the Spanish Military's Emergency Relief Unit reported on the Balmis and Baluarte Operations, carried out during the health emergency.





Figure 4. Fourth Catastrophe Observatory symposium on “COVID-19: experiences and resilience to future pandemics”, held in November 2020.

The President of the IER (Spanish Resilience Institute), Dr. Rafaela Santos, spoke on neuroscience and resilience in the age of COVID and the VUCA world (the acronym for volatility, uncertainty, complexity and ambiguity) and elaborated on the importance of talking about resilience instead of crises.

Health and ethical concerns in the response to COVID-19 were raised by Dr. Fernando García López, Head of the Research Ethics Committee at the National Epidemiology Centre, Carlos III Institute of Health [*Centro Nacional de Epidemiología del Instituto de Salud Carlos III*]. He pointed out that strategies for coping with the pandemic would entail “policies prioritising fairness to balance all sectors, avoiding selective criteria among the health services, protecting those prone to suffer the most from the effects of COVID and taking care of frontline workers”.

Jaime de Rábago, Head of the Spanish Engineering Institute's Committee on Industrialisation [*Comité de Industrialización del Instituto de la Ingeniería de España*], asked for a Compact with Industry to build a more competitive, more enterprising and more modern production model.

The President of UNESPA (the Spanish Insurer's Association), Pilar González de Frutos, reported that Spanish insurers set up a fund with 38 million euros for a group policy affording free life insurance coverage to all healthcare workers involved in the fight against COVID in case of death from contracting the disease.

Gonzalo Iturmendi, Executive Secretary of AGERS, spoke on the legal repercussions of the pandemic. He noted that “the reactive rather than proactive response in the field of law is due to a lack of organised risk management that enables firmly addressing events like the pandemic”.

Dr. Alberto Ares, Director of the IUEM (Institute for Migration Studies), set out the results of research on *Migrations and Pandemics: Infectious disease threats in a globalised world*, and Dr. Leire Labaka, Senior Lecturer at Tecnun, explained the lessons learned and best practices for managing pandemics contained in the manual they had drawn up based on a simulation model.

## 4. The cost of disasters in Spain and Storm Filomena

The effect of climate change is unquestionably discernible in the greater frequency and impact of natural disasters and their increasingly more serious consequences. Ascertaining the losses they cause is essential if we are to be able to get a clear idea of the risks and extract the key factors to be taken as a basis for setting public civil defence policy.

With this in mind, in 2021 the Aon Spain Foundation, in cooperation with Spain's Emergency and Civil Protection Agency, is conducting research into the *Cost of disasters in Spain (2015-2020)* and a case study on *Storm Filomena within the COVID-19 pandemic (2021)*, with the participation of the institutional members of the Catastrophe Observatory's Think Tank and the Chair of Catastrophes' researchers.

Furthermore, early in the year, Madrid and a number of other regions in Spain were buffeted by Storm Filomena, a history-making blizzard that sorely tested the emergency response systems contemplated in Spanish Law 17/2015 on the National Civil Protection System [*Ley 17/2015 del Sistema Nacional de Protección Civil*], intended to strengthen the mechanisms for expanding and enhancing operability of the national civil defence system in emergencies and catastrophes. Filomena gave rise to countless incidents and declarations of disaster areas. This has put the capacity to manage the myriad personal injury and property damage claims lodged with government agencies and insurance companies and the system's durability under great strain, with the ensuing administrative procedures.

The cost of the losses brought on by this weather emergency, coming on top of the COVID-19 health crisis, is the subject of a case study focusing on examining convergence and crosscutting involving the storm and the pandemic.

## 5. The Aon Spain Foundation and the SDGs

The Aon Spain Foundation's mission is to build a better, fairer future based on equality, inclusivity, peace, environmental sustainability and resilience. In carrying out its activities in the context of its three aims, namely, Catastrophes, Social Action and Art and Culture, the Foundation is helping to achieve the United Nations' 2030 Agenda, consisting of 17 Sustainable Development Goals (SDGs) and 169 targets.

The Catastrophe Observatory brings knowledge, resources and volunteers to bear to mitigate the harm caused by disasters occurring in Spain, focusing on the most vulnerable people. We promote health and well-being for all (SDG 3), we have substantial resources available for reducing inequality (SDG 10) and we take action to protect the environment and enhance the planet's sustainability, for instance, through reforestation and the recovery of degraded areas by our volunteers and other third sector organisations we collaborate with (SDG 13 and SDG 17).

SDG 13, "Climate Action", is an opportunity and a responsibility. In this respect, we are a member of the Ecodes Foundation's **Comunidad #PorElClima** [*Community for Climate Action*], established to speed up climate action by bringing together the different sectors of society that are already battling the crisis and reducing their emissions to attain carbon neutrality by 2050. Furthermore, in 2020 we adhered to the **#FundacionesPorElClima** [*Pro Climate Foundations*] action and consciousness raising movement and signed the **Pacto por el Clima** [*Climate Compact*] promoted by the **Asociación Española de Fundaciones** (AEF) [Spanish Association of Foundations]. Its aim is a foundation sector which is active and fosters actively combatting the climate crisis and the inequalities it produces. In addition, I head the Sustainability Committee of **Multinacionales por marca España** [*Multinationals for Brand Spain*], which promotes actions and makes proposals for contributing to sustainable development and wealth and job creation without jeopardising environmental and social needs.



Figure 5. Activities with Aon Foundation volunteers.

The Chair of Catastrophes works towards sustainable development by promoting sustainable industries, investing in research and scientific innovation (SDG 8), and developing tools that can be used for integration and to adopt the principles of the circular economy (SDG 12) by reducing waste generation and optimising the waste life cycle. Through our scientific and technical research we help make cities more inclusive, safer, more resilient and more sustainable (SDG 11) and promote taking urgent measures to fight climate change and its effects on the environment (SDG 13).

In the framework of our "Social Action" objective, we are working to attain zero hunger (SDG 2) in cooperation with soup kitchens, we support equal, inclusive, quality education for people with different abilities and people at risk of social exclusion and promote learning opportunities for all (SDG 4), and we are involved in numerous cooperative projects to achieve integration in the workplace.

We work with the Spanish Red Cross to face energy poverty (SDG 7) by helping to pay the bills of families in dire circumstances so that they can meet their most essential needs, distributing energy efficiency kits, and holding household savings workshops. Furthermore, to mitigate the digital divide (SDG 9), we donate computing equipment and material to those most in need.

Ensuring that promoting "Art and Culture" and conserving and protecting our natural and cultural heritage (SDG 11) are key elements in sustainable development policies is the only way to guarantee that these policies will be equitable, inclusive, and human-centred. Culture plays a cross-cutting role in all the SDGs and at the same time the environmental, social and economic aspects of sustainable development are part of safeguarding our tangible and intangible cultural heritage and nourishing creativity.

The Aon Spain Foundation helps diminish social inequality by designing inclusion initiatives and by bringing people in a position of vulnerability, at risk of exclusion or with different abilities into contact with art and culture. In an effort to recover the values of our country's cultural roots, we are committed to peace, justice and solid institutions (SDG 16). Culture plays a key role in building peace by promoting knowledge and freedom of thought, which, broadly speaking, help create better informed, more participatory societies through quality education (SDG 4) and exposure to cultural expression.

## 6. Ethics, research and responsible behaviour in a more resilient, sustainable, and fairer world

The next ten years will be critical. In that time span an urgent priority will be to change the way we view the world and take definite action to stop the effects of climate change and in that way to a large extent keep catastrophes from happening and mitigating the damage they cause to humankind and ecosystems.

The action we take, and the action we take all together, must be ethical, responsible, in the service of the common good and rooted in solidarity; and to be effective, consciousness raising and collective commitment to building a fairer, more sustainable and more resilient world are needed. Only in that way can this be attained.

**Ethics** is the basis for correct economic, social and political decision-making. In 2020 we learned that a lack of medical resources to combat a global pandemic in combination with massive numbers of victims raises ethical challenges for crisis management. Therefore, understanding the nature of these challenges is crucial both to preventing ethical conflicts and to being able to select the most suitable option when conditions grow dire.

**Research** too is key, because more effective, accessible use of scientific findings and past experiences will contribute enormously to our handling of disasters at the preparedness and prevention, response and recovery stages.

The planet also needs a change in **individual behaviour**, not just to create communities that are more resilient to catastrophes but to be able to take the most appropriate decisions, practice responsible consumption, reduce greenhouse gas emissions and become agents of change and thus contribute to sustainable development while teaching future generations to respect the Earth and its inhabitants.

We must conduct ourselves responsibly and ethically, and we need to be prepared and to be capable of reacting to adversity quickly, sustainably and effectively in a manner rooted in solidarity, because only in that way will we be able to become more resilient. The decisions we take today may diminish tomorrow's vulnerabilities, facilitate future responses to the unpredictable and help build a more resilient, sustainable and fairer world.