



## **Expression of interest**

### **Contact details**

Country	Turkey
Name of the organisation	TUBITAK Marmara Research Center Department of Climate Change and Sustainability (CCS)
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### **Short description of the organisation**

*The equipment available, the relations with the industry, the profile of the main researchers*

TUBITAK MRC Department of Climate Change and Sustainability (CCS) is one of the leading institutes in Türkiye working in the fields of climate change, air quality management, resource efficiency, cleaner production, waste management and wastewater treatment applications. CCS is the focal point of Climate Technology Centre and Network (CTCN) which is the operational branch of the UNFCCC Technology Mechanism and actively taking part in the CTCN Advisory Board Meetings and the Conference of the Parties (COP). CCS has conducted several national projects regarding the preparation of regional/local climate action plans on different levels. CCS has an extensive expertise in national projects like Preparation of Climate Change National Communications, Excellence Center on Cleaner Production, Preparation of Resource Efficiency Guides for Sub-Sectors of Manufacturing Industry Development of National Life Cycle Assessment Database and several EU projects like PROMITHEAS-4 (FP7), EXCEED-I/II (DAAD Programme), PREPARED (FP7). CCS has more than 125 personnel, 25 labs and a research vessel, R/V TUBITAK MARMARA.

### **Specific skills related to the Call**

**“Current calls on Mission «Adaptation to Climate Change» i.e. HORIZON-MISS-2021-CLIMA-02-01, HORIZON-MISS-2021-CLIMA-02-03, HORIZON-MISS-2021-CLIMA-02-05”**

- Development of local/cooperate climate action plans (two projects concerning three metropolitans and 4 airports in Türkiye)
- Close relations with national and regional policymakers, municipalities and universities in Türkiye
- Expertise on environmental cost-benefit analysis, socio-economic analysis, environmental risk management
- Extensive experience on developing decision support systems based on Geographical Information Systems for local authorities, policy makers and first responders. Such works comprise preparing appropriate data models, collecting, analysing, integration, visualizing, publishing and sharing of GIS-based data levels/layers for multi-disciplinary projects
- Energy/economy/environment modelling for mitigation assessment (e.g. using TIMES modelling system)
- Regional/climate modelling and data assimilation
- Climate change mitigation and adaptation studies including technology needs assessment and determination of greenhouse gas mitigation potential for Turkish industry
- Preparation of the sixth national communication of Türkiye under the UNFCCC (including the projection of greenhouse gas emissions using TIMES modelling system as the basis for INDC of Türkiye)
- Air quality management, in-situ observations of air pollution, dispersion, data assimilation and regional atmospheric modelling
- Capability of verifying annual emission reports under the national monitoring, reporting and verification system for greenhouse gas emissions
- Participation to international climate change negotiations (e.g. COP) as the CTCN focal point



## **Proposed activities for the project**

*Indicate which activities you would like to implement during the project*

TÜRKİYE has a unique geographical location where adverse effects of climate change are significantly felt via extreme meteorological events like tornadoes, flash floods, devastating winds, drought and forest fires causing deaths and infrastructural damages and threatening several sectors especially agro-food and tourism. Assessment of decadal climate changes and its regional impacts on social life, economy, and environmental ecosystem are important keys for building future adaption strategies and for building climate resilient future. **We could contribute project proposals with performing past and future climate projections using regional climate model simulations integrated with GIS based decision support system while anticipating projections of economic, population and sectorial growth. Based on severe weather indices and projections of risk maps about extreme weather phenomena, climate resilient future and resilient societies could be built. We, as a research group, would like to take part in projects involving creating climate resilient societies together with local authorities, engaging the development of citizen science program, establishing risk assessment and management plans based on the past and the future climate, extreme risk indices integrated with decision support system.**

As a governmental research institute we are in touch with different actors in Türkiye who are responsible in policy-making, local governance, research and development. Therefore, we can contribute to any activities focusing on engagement and capacity building of these stakeholders. Our institute has coordinated several projects in the fields of environmental protection especially on resource efficiency and urban greening tools for climate change mitigation and adaptation. We are experienced on environmental cost-benefit analysis, socio-economic analysis, and environmental risk management.

We are currently in touch and work with several municipalities in Türkiye to provide guidance on preparation of their local climate action plans. Our team has been working on development of climate change action plans at different levels (e.g. national, local and cooperate). Those projects include; preparation of greenhouse gas inventories and determination of hot spots, assessment of mitigation potential using scenario based approaches, analyzing the benefits (cost, emissions, co-benefits, cross cutting issues) of mitigation actions, assessment of local conditions in terms of climate change impacts, determination of vulnerability for different aspects/sectors, prioritization of adaptation actions, assessment of synergies between mitigation and adaptation actions.

We have conducted several projects focusing on the following topics: determination of impacts of large scale industrial activities (e.g. power plants, industrial zones) on local air quality, assessment of air pollution due to mobile and stationary combustion within basins. We are also interested in development of low-cost air quality monitoring networks and their integration to the smart city applications. We can use these expertises for the development of citizen science practices (e.g. use of low-cost monitoring tools by citizens).

## References

*Previous research project*

Project acronym / starting date	Main objectives	Main activities	Role in the project
Preparation of Climate Change Action Plans for the Provinces of Tekirdağ, Çanakkale and Yalova (2021-2022)	Within the scope of the project, “Tekirdağ Climate Change Action Plan”, “Çanakkale Climate Change Action Plan” and “Yalova Climate Change Action Plan” is being prepared.	For the provincial borders of Tekirdağ Metropolitan Municipality, Çanakkale Municipality and Yalova Municipality; emission inventories of the main sources that cause greenhouse gas emissions will be prepared, baseline scenario will be presented and the amount of greenhouse gas emission reduction for the determined targets will be identified. In addition, measures for the adaptation to climate change will be defined based on risk assessment.	Coordinator
Preparation of Climate Change Strategy for Gaziantep, Erzurum, Ordu-Giresun and Muğla Milas-Bodrum Airports (2021-2023)	“Climate Change Strategy” documents will be prepared as a roadmap on climate change adaptation and mitigation for the four airports included in the scope.	With the project several milestones will be finalized such as; preparation of inventories for greenhouse gas emissions, determination of emission-intensive areas within the scope of the activities carried out in Gaziantep, Erzurum, Ordu-Giresun and Muğla Milas-Bodrum Airports, revealing the expected impacts of climate change in the region and determining the areas that will be most affected by climate change in terms of airport activities. After identification of vulnerable areas, mitigation and adaptation measures will be prioritized based on CBA approach.	Coordinator
Determination of Resource Efficiency Potential in Istanbul (2018)	Main objective of the project was to determine the resource efficiency potential of several sectors operating within the borders of Istanbul.	The resource efficiency potentials were derived under different scenarios for the following sub-sectors: buildings, waste management, transport and manufacturing industry. Project results were used as an input to the <a href="#">Istanbul Climate Change Action Plan</a> .	Coordinator



**TÜBİTAK**

<b>Project acronym / starting date</b>	<b>Main objectives</b>	<b>Main activities</b>	<b>Role in the project</b>
Preparation of Climate Change National Communications (2014-2016)	Within the project the 6 <sup>th</sup> National Communication of Turkey under the UNFCCC was prepared. The projections of greenhouse gas emissions using TIMES modelling system were carried out.	An information exchange process was conducted by ECPI taking into account several stakeholders (e.g. ministries, universities, NGOs). Trainings on TIMES modelling framework were held. The awareness of the stakeholders on climate change was raised.	Coordinator
Technological Needs Assessment of the Manufacturing Industry and Determination of Greenhouse Gas Mitigation Potential (2012-2014)	It was aimed to define the greenhouse gas mitigation potential for some industrial sectors (e.g. iron-steel, sugar, cement, lime, ceramic, glass and petro-chemistry). Within the project a methodology for technology needs assessment applicable to other industrial sectors was developed.	The best available techniques which are applicable to the Turkish Industry were determined. The cost of the climate-friendly technologies were analysed and the overall mitigation potential was determined. The awareness of the industrial representatives on climate change was raised.	Coordinator
PROMITHEAS-4: Knowledge Transfer and Research Needs for Preparing Mitigation/Adaptation Policy Portfolios (2011-2013)	The objective of the projects is to develop and evaluate the mitigation/adaptation policy portfolios and to prioritize the research needs and gaps for twelve countries (Albania, Armenia, Azerbaijan, Bulgaria, Estonia, Kazakhstan, Moldova, Romania, Russian Federation, Serbia, Turkey and Ukraine) which are characterized as emerging economies.	Project has been carried out under seven work packages: <ul style="list-style-type: none"> <li>• Evaluation of available data and information</li> <li>• Choice and implementation of models</li> <li>• Scenarios and policy portfolios</li> <li>• Evaluation of policy portfolios</li> <li>• Prioritization of research gaps and needs</li> <li>• Training and dissemination</li> <li>• Management</li> </ul>	Participant