CLIMAAX
climate ready regions

Deliverable Phase 3 – Climate risk management

KÉZDI_Adapt

Romania/ Municipality of Târgu Secuiesc

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Document Information

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Brief Description	This deliverable presents the Climate Risk Management (CRM) framework developed for the Municipality of Târgu Secuiesc and the wider Covasna County within the CLIMAAX KÉZDI_Adapt project. Building upon the Climate Risk Assessment results during Phase 2, the report translates the identified priority climate risks, agricultural drought and river flooding into a comprehensive set of adaptation measures, governance arrangements, and implementation mechanisms. It examines the existing European, national, regional, and local policy framework, identifies enabling conditions for effective climate risk management, and assesses stakeholder roles, institutional capacities, and supportive technological and financial mechanisms. Furthermore, the document proposes a structured roadmap for the implementation, monitoring, and evaluation of climate adaptation actions, providing an evidence-based framework to enhance the long-term resilience and adaptive capacity of the KÉZDI_Adapt pilot region under current and future climate conditions.
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Abbreviations and acronyms

Abbreviation / acronym	Description
AGROSIC	AGROSIC Intercommunity Development Association
APIA	Agricultural Payments and Intervention Agency
AWC	Soil Available Water Capacity
Bbox	Bounding box
CLIMAAX	CLIMate risk and vulnerability Assessment framework and toolboX
CRA	Climate Risk Assessment
CWB	Climatic Water Balance
ET_o	Reference Evapotranspiration
GCM	Global Climate Model
GIS	Geographic Information System
ISU	Inspectorate for Emergency Situations
IUDS	Integrated Urban Development Strategy
KPI	Key performance indicators
Ky	Yield response factor
LGP	Length period
MIP4Adapt	The Mission Implementation Platform (MIP4Adapt)
NRRP	National Plan for Recovery and Resilience
NUTS	Nomenclature of Territorial Units for Statistics
OER	Energy Cities Association
RCM	Regional Climate Model
RCP	Representative Concentration Pathways
RMP	Risk assessment and management plan
SECAP	Sustainable Energy and Climate Action Plan
SGA	National Administration Romanian Waters
INHGA	National Institute of Hydrology and Water Management

Executive summary

This deliverable presents the results of Phase 3 – Climate Risk Management (CRM) of the KEZDI_ADAPT project, implemented within the CLIMAAX framework for the Municipality of Târgu Secuiesc and Covasna County, Romania. Building on the Climate Risk Assessment developed during Phase 2, this phase translates scientific risk assessment results into practical adaptation measures and decision-support tools for local authorities and stakeholders.

The assessment confirms agricultural drought and river flooding as the region's priority climate risks. Based on quantitative analyses, stakeholder consultations and local knowledge, the project identified and prioritised Climate Risk Management measures including improved irrigation systems, sustainable soil and water management, flood protection, nature-based solutions, early-warning systems and climate-resilient spatial planning. The project also evaluated the policy framework, governance arrangements and implementation mechanisms required to support these measures.

Phase 3 generated practical outputs that can directly support municipal planning, including flood hazard and risk maps, agricultural drought indicators, crop yield-loss assessments and economic impact analyses. These results provide an evidence base for future investment planning, spatial planning, emergency management and climate adaptation strategies. To ensure long-term accessibility, the project outputs have been published through the KEZDI_ADAPT climate portal (https://climaax.kezdi.ro).

Overall, the project strengthens the Municipality's capacity to manage climate risks by providing scientifically robust, locally relevant information and a practical roadmap for implementing climate adaptation measures. The KEZDI_ADAPT methodology also offers a reproducible approach that can be updated as new climate data and local information become available.

Key take-away messages

- Agricultural drought and river flooding remain the highest priority climate risks for the region;
- The project provides quantitative evidence to support adaptation planning and investment decisions;
- The proposed Climate Risk Management measures are based on both scientific analyses and stakeholder engagement;
- The generated maps and datasets provide long-term decision-support tools for local authorities and stakeholders.

1 Introduction

1.1 Main objectives of the project

The main objective of Phase 3 of the KEZDI_ADAPT project was to translate the results of the Climate Risk Assessment (CRA) developed during Phase 2 into practical and implementable Climate Risk Management (CRM) actions for the Municipality of Târgu Secuiesc and Covasna County. Building upon the identification of agricultural drought and river flooding as the region's priority climate risks, Phase 3 focused on developing a comprehensive framework that supports evidence-based decision-making, strengthens institutional capacity and facilitates the integration of climate adaptation into local planning and investment processes.

A key objective was to identify and prioritise adaptation measures capable of reducing current and future climate risks while considering their technical feasibility, environmental sustainability and socio-economic benefits. Particular emphasis was placed on improving flood resilience through enhanced flood protection, spatial planning and early-warning systems, and on increasing agricultural resilience through irrigation development, sustainable soil and water management, and the promotion of climate-resilient farming practices.

Another important objective was to strengthen cooperation among local authorities, public institutions and stakeholders involved in climate adaptation. The project aimed to ensure that the proposed CRM measures reflect local priorities, benefit from stakeholder knowledge and can be effectively integrated into strategic planning documents such as the Sustainable Energy and Climate Action Plan (SECAP), the Integrated Urban Development Strategy (IUDS), municipal emergency management plans and future investment programmes.

Phase 3 also sought to improve access to climate information by transforming the results of the CLIMAAX workflows into practical decision-support products, including hazard and risk maps, with spatial indicators and online GIS based visualisation services. Through the publication of these outputs on the KÉZDI_ADAPT website„ the project contributes to long-term knowledge sharing, transparency and public awareness while providing a reproducible methodology that can be updated as new climate projections and local datasets become available.

Overall, Phase 3 represents the transition from climate risk assessment to climate risk management, providing the Municipality of Târgu Secuiesc with a practical roadmap for increasing resilience to agricultural drought and river flooding under present and future climate conditions.

1.2 Project team

The project team is composed of internal staff from the Municipality, ensuring strong institutional ownership and cross-departmental coordination. The team leader has extensive professional experience in environmental engineering, academia, and consultancy, with expertise in environmental protection and climate change demonstrated through scientific publications and practical projects. In his role as Deputy Mayor, he initiated the SECAP process and the Municipality’s enrolment in the MIP4Adapt Charter, confirming climate adaptation and resilience as strategic priorities. During all the three phases of the project, team members from the Civil Protection, Urban Planning, Project Management, and Communication departments contributed

their technical expertise, operational knowledge, and stakeholder engagement capacities. Their combined competencies enabled the successful achievement of project milestones and deliverables, supporting an integrated approach to climate risk assessment and adaptation planning.

Table 1-1. CLIMAAX KÉZDI_Adapt team

Bokor Tiberiu	City Mayor	Legal representant
Szilveszter Szabolcs (PhD)	Project leader, Head of the team Deputy Mayor	Agricultural drought, river flood workflow, dissemination of results, workshop presentations, local tv, radio and newspaper.
Paizs Gabor	Financial management	Maintaining and analyzing financial records
Bartha Zsuzsa, Rettegi Csenge	Project management	Monitoring spending, preparing reports
Miklos Arpad	Civil protection department	River flood workflow, dissemination of results
Olah Judit	Urban planning department	Data management, dissemination of results
Bartos Ménessy Kinga, Gajdó Szende	Communication department Dissemination of results, communication	Writing press releases, manage social media and coordinate with media outlets, workshop organization, contracting

1.3 Outline of the document's structure

The Deliverable 3 document is organized in a logical, comprehensive, and structured format to clearly present the outcomes of Phase 3 of the CLIMAAX KÉZDI_adapt project. The Executive Summary provides an overview of the objectives, methodology, and the main results achieved during the final phase of the project. The Introduction presents the background, objectives, and the overall framework of the CLIMAAX initiative, while outlining the activities undertaken by the project team during Phase 3.

The following chapters describe the implementation of the Climate Risk Assessment adaptation planning process, including the identification and prioritization of adaptation options, stakeholder engagement activities, evaluation of proposed measures, and the development of the Local Climate Adaptation Action Plan based on the results of Phase 1 and Phase 2. The document also presents the methodology used for identifying adaptation measures, implementation considerations, and recommendations for strengthening local climate resilience.

The Conclusion summarizes the main achievements of Phase 3, highlighting the final adaptation strategy and the expected contribution of the proposed actions to reduce climate risks within the KÉZDI_adapt pilot region. The Progress Evaluation chapter presents the key performance indicators and assesses the successful completion of the project's objectives. The Supporting Documentation and References sections compile the relevant outputs, annexes, and cited documents produced throughout Phase 3 of the CLIMAAX project.

2 Local profile

2.1 Summary of Key Risk Assessment results

Based on the results of Phase 2 of the KÉZDI_Adapt project, carried out under the CLIMAAX Climate Risk Assessment framework, two climate risks have been identified as High priority for the region:

- Agricultural drought
- River flooding

These priorities were determined through the Key Risk Assessment Evaluation Dashboard (Table 1-2.), where each risk was scored according to three dimensions — Severity (current and future), Urgency, and Capacity - and combined them into an overall risk priority. The scoring was first determined by quantitative hazard and risk workflow outputs (climate projections, yield-loss estimates, flood-extent mapping, economic damage calculations, etc.) and then validated and refined through stakeholder engagement with local authorities, farmers and agricultural cooperatives (Biofarm SRL, Agrico M SRL, Regina Cartofului Cooperative and local farmers), the Covasna County Agriculture Directorate (Direcția pentru Agricultură a Județului Covasna), the Agricultural Payments and Intervention Agency (Agenția de Plăți și Intervenție pentru Agricultură - APIA), the Covasna Water Management Institution , the Olt River Basin Water Administration (Sistemul de Gospodărire a Apelor - SGA Covasna), the County Council, the County-level Inspectorate for Emergency Situations (ISU Covasna), Sapientia University, and Könczei Csaba, Member of Parliament and Vice-President of the Committee on Agriculture, Forestry, Food Industry and Specific Services.

Table 2-1 Matrix of Key Risk Assessment Evaluation Dashboard

Risk Workflow	Severity		Urgency	Capacity	Risk Priority
	C	F		Resilience/ CRM	
River flooding	2	2	3	1	High
Drought	3	3	3	2	High

Legend:

- Severity: 1 = Limited · 2 = Moderate · 3 = Substantial · 4 = Critical
- Urgency: 1 = No action needed · 2 = Watching brief · 3 = More action needed · 4 = Immediate action needed
- Capacity (Resilience/CRM): 1 = Low · 2 = Medium · 3 = Substantial · 4 = High

Agricultural Drought (High Priority)

Severity was rated Substantial (3) for both the current period (2026-2030) and near-future (2046-2050). Drought evolved from an occasional anomaly into a frequent and persistent stressor across Covasna County farmlands. Rising temperatures, longer dry spells and declining soil

moisture during critical growing seasons have already caused repeated yield losses (particularly for potatoes and maize), higher production costs and reduced land productivity. Impacts are cumulative and increasingly undermine soil quality and the long-term economic viability of farming.

Urgency is rated More action needed (3). The combination of limited irrigation infrastructure, progressive soil degradation and the economic importance of agriculture means that delays in adaptation will amplify financial losses, farm abandonment and inequality between large and small producers.

Capacity is rated Medium (2). While national/EU subsidies, crop-insurance schemes, farmer cooperatives, advisory services and some irrigation and soil-conservation measures exist, coverage remains uneven and access is often insufficient for small and medium-sized farms.

The combination of substantial severity, the need for more action and only medium adaptive capacity places agricultural drought firmly in the High-priority category and makes it a primary focus for adaptation planning in the region.

River Flooding (High Priority)

Severity was rated Moderate (2) for both RCP scenarios. Flood events linked to the Caşin and Râul Negru rivers (and associated pluvial flooding) occur intermittently and produce localised rather than systemic impacts. Damages affect residential buildings, local transport, small commercial activities and agricultural land in flood-prone zones, but have so far remained temporary and have not caused high human losses or long-term paralysis of essential services.

Urgency is rated More action needed (3). Intense rainfall events can generate short-notice disruption and challenging recovery, especially if they recur. Effective reduction of residual risk depends on timely investment in structural protection, drainage, early-warning systems and spatial planning.

Capacity is rated Low (1). Although basic drainage maintenance, river-channel works, emergency-response systems and access to national/EU funding exist, overall capacity is constrained by limited municipal budgets, stretched institutional resources and competing priorities. Implementation of larger-scale measures is often phased and incomplete.

Despite only moderate severity scores, the combination of the need for more action and low adaptive capacity elevates river flooding to High priority. This classification reflects both the potential for increasing damages under climate change and the current gaps in local resilience.

The Key Risk Assessment Evaluation Dashboard based on KÉZDI_Adapt Phase two results identifies agricultural drought and river flooding as priority climate risks for Târgu Secuiesc and Covasna County. Both require focused, implementation-ready adaptation measures with particular attention to strengthening irrigation and soil management for drought, and to closing capacity and funding gaps for flood protection and preparedness.

Table 2-2 Key risk assessment

Priority climate risk	*Resilience capacity (low, medium, substantial, high)*	*Description of the resilience capacity (such as existing knowledge, planned measures, gaps)*	*Stakeholders, experts and priority groups involved in the key risk assessment & modality of engagement*
Agricultural drought	MEDIUM	The region has a medium resilience capacity to agricultural drought. Existing capacities include the municipal SECAP, Integrated Urban Development Strategy, participation in the EU Mission on Adaptation, cooperation with the Covasna County Agriculture Directorate (DAJ), and access to climate and agricultural datasets generated through the CLIMAAX workflows. Stakeholders possess growing technical knowledge on drought impacts, crop vulnerability, and revenue losses. Planned measures include investment in irrigation infrastructure, early warning systems, water-efficient farming practices, crop rotation, climate-resilient crop selection, and integration of drought risk into local adaptation planning. Major gaps remain in irrigation coverage, real-time soil moisture monitoring, farm-level preparedness, access to finance and insurance for smallholders, and the limited capacity of vulnerable farmers to rapidly implement adaptation measures. The dashboard classified this risk as High Priority because severity is substantial and urgency indicates that more action is needed despite the presence of some adaptive capacity.	Stakeholders and experts: • Municipality of Târgu Secuiesc (project coordination) • Covasna County Agriculture Directorate (DAJ) • APIA • Energy Cities Association (OER) • AGROSIC Intercommunity Development Association • Sapientia University researchers • Member of Parliament / Agriculture Committee representatives Priority groups: • Farmers • Smallholder farmers • Rural households dependent on climate-sensitive agriculture Modality of engagement: workshops, stakeholder meetings, technical consultations, farmer interviews, data-sharing agreements, round-table discussions, dissemination events and continuous collaboration during the CLIMAAX assessment.
River flooding	Medium	Existing emergency response procedures, cooperation with the Romanian National Administration “Apele Române”, previous flood	Municipality of Târgu Secuiesc, Romanian National Administration “Apele Române”, ISU Covasna, Covasna County

		management experience and institutional capacity provide a good foundation for flood risk management. Further improvements are needed in hydraulic data availability, monitoring systems, early warning, adaptation planning and investment.	Council, local communities, technical experts

2.2 Key implementation mechanisms and policy context for CRM

The implementation of Climate Risk Management (CRM) in Târgu Secuiesc Municipality and Covasna County is supported by a combination of European, national, regional and local policy frameworks that address climate adaptation, disaster risk reduction, agriculture, water management, spatial planning and environmental protection. The Phase 2 Climate Hazard and Risk Assessment identified agricultural drought and river flooding as the priority climate risks, requiring coordinated implementation across multiple governance levels and sectors. The CLIMAAX methodology also highlights the importance of integrating climate hazard and risk assessment results into planning, investment and policy-making processes through stakeholder participation and evidence-based decision-making.

Local authorities and institutions should treat agricultural drought and flood risks as a combined climate-risk portfolio and prioritize:

1. scaled, equitable irrigation and soil-water retention measures;
2. flood-safe spatial planning and drainage upgrades;
3. stronger early warning and preparedness systems for drought and flood;
4. targeted support for vulnerable farmers/households;
5. multi-year financing and coordination mechanisms to move from analysis to delivery.

Table 2-3 European policies and regulations

Instrument	Relevant Sector(s)	Key Provisions for CRM
EU Strategy on Adaptation to Climate Change (2021)	All	Sets the overarching goal of climate-resilient society by 2050; promotes smarter, faster and more systemic adaptation.
European Climate Law (Regulation 2021/1119)	All	Legally binding objective of climate neutrality by 2050 and progressive adaptation. *EUR-Lex: Regulation (EU) 2021/1119*

Common Agricultural Policy (CAP) 2023–2027 & Romania's CAP Strategic Plan	Agriculture, Water, Biodiversity	Eco-schemes, agri-environment-climate commitments, support for irrigation modernisation, soil conservation, risk-management tools (insurance), payments for areas with natural constraints (including drought). *Regulation (EU) 2021/2115 (EUR-Lex)*
Water Framework Directive (2000/60/EC)	Water	River Basin Management Plans; good ecological and quantitative status of water bodies. *Water Framework Directive (Directive 2000/60/EC)*
Floods Directive (2007/60/EC)	Water, Spatial planning	Flood Hazard and Risk Maps; Flood Risk Management Plans (including Olt River Basin). *Floods Directive (2007/60/EC)* *(European Union, 2007)*
Nature Restoration Law (2024)	Biodiversity, Agriculture, Water	Binding targets for restoring ecosystems that also deliver drought and flood regulation. *Nature Restoration Law (Regulation (EU) 2024/1991)*
European Green Deal & related strategies	All	Provides the EU's overarching framework for achieving climate neutrality and climate resilience by 2050. Promotes sustainable land and water management, ecosystem restoration, biodiversity conservation, climate adaptation, and investment in resilient infrastructure through integrated policies such as the EU Adaptation Strategy, Biodiversity Strategy, and Farm to Fork Strategy. *European Green Deal and related strategies*

Table 2-4 National policies and regulations:

Instrument	Relevant Sector(s)	Key Provisions for CRM
National Strategy on Adaptation to Climate Change (SNASC) 2022/2024–2030 with perspective to 2050 + National Action Plan (*Strategia Națională privind Adaptarea la Schimbările Climatice*)	All	Main national framework for adaptation; prioritises agriculture, water resources, biodiversity and spatial planning. *SNASC*
Romania's CAP Strategic Plan 2023–2027	Agriculture	Concrete support for drought-resilient practices, modern irrigation, soil cover, crop diversification and risk-management tools (insurance and mutual funds). *CAP Strategic Plan*

National Recovery and Resilience Plan (PNRR) *(Planul Național de Redresare și Reziliență)*	Water, Infrastructure, Green transition	Investments in water infrastructure, climate adaptation measures and green transition (≈44% of the plan supports climate objectives). *PNRR*
Water Law and related secondary legislation	Water	Legal basis for water allocation, irrigation permitting and protection of water resources. https://rowater.ro/information-of-public-interest/legislation-on-the-organization-and-functioning-of-the-institution/specific-legislation/?lang=en https://legislatie.just.ro/Public/DetaliiDocument/8565
Flood Risk Management Plans (including Olt River Basin)	Water, Civil protection, Spatial planning	Specific measures for the Cașin and Râul Negru catchments. https://inundatii.ro/en/
Law on Spatial Planning and Urbanism (and related norms)	Spatial planning	Zoning rules, building restrictions in flood-prone areas, integration of climate risks into urban plans. *Law No. 350/2001 on Spatial Planning and Urbanism*
Emergency Ordinance No. 195/2005	Environmental Protection	This ordinance serves as the cornerstone of Romania's environmental legislation, outlining principles such as sustainable development, the "polluter pays" principle, and public participation in environmental decision-making. It addresses various aspects, including the management of hazardous substances, waste, biodiversity conservation, water and air quality, and soil protection. *Emergency Ordinance No. 195/2005*
Fire Protection Law No. 307/2006	Fire protection, Emergency preparedness	Regulates fire prevention and extinguishing measures, relevant in the context of climate risks, such as drought and high temperatures. *Law No. 307/200*

Law No. 481/2004 on Civil Protection	Civil protection, Emergency management	Establishes the general framework for the prevention and management of emergency situations, including those generated by extreme climatic phenomena. *Law No. 481/2004*
Law No. 101/2011	Prevention and Sanctioning of Environmental Degradation	This law establishes criminal measures to ensure effective environmental protection. It penalizes activities such as the improper collection, transport, recovery, or disposal of waste that may cause significant harm to individuals or the environment, with penalties ranging from fines to imprisonment. *Law No. 101/2011*
Law No. 104/2011 on Ambient Air Quality	Air Quality	This law aims to protect human health and the environment by regulating measures to maintain and improve air quality. It sets out objectives for ambient air quality, methods for assessment, and provisions for public information and cooperation with other European Union member states to reduce air pollution. *Law No. 104/2011*

Table 2-5 Regional (County) and local level policies:

Instrument / Mechanism	Main Relevance to CRM	Key Policy Goals
Covasna County Development Strategy / Planul Poșta – *Strategia Integrată de Dezvoltare a Județului Covasna 2021–2030*	Cross-sectoral	Integrate climate resilience into county development priorities. *Covasna County Development Strategy / Planul Poșta*
County Spatial Plan/ *Planul de Amenajare a Teritoriului Județean Covasna*	Spatial planning	Zoning of flood-prone and drought-vulnerable agricultural areas. *County Spatial Plan*
Olt River Basin Water Administration plans and programmes	Water & flooding	Local implementation of basin-level flood and drought measures. *Updated Olt River Basin Management Plan 2022–2027*
County Emergency Inspectorate plans	Preparedness	Operational flood response and public warning. *Emergency Evacuation Plan*

Sustainable Energy and Climate Action Plan - *Planul de acţiune pentru climă și energie durabilă*	Climate adaptation	PACED 2023–2030 is a key municipal strategic document that integrates climate adaptation, energy transition, and urban resilience into local governance. *PACED*
Integrated Urban Development Strategy for the Târgu Secuiesc Urban Area 2021–2030 (IUSD)- *Strategia Integrată de Dezvoltare Urbană a Zonei Urbane Târgu Secuiesc 2021 - 2030 (SIDU)*	Territorial planning and urban governance	Provides the strategic framework for integrating climate adaptation and disaster risk reduction into local development planning. *IUSD*

Cross-Cutting Policy Goals that Influence Successful CRM Implementation

Several cross-cutting policy goals could significantly shape the implementation for effective climate risk management in Târgu Secuiesc and Covasna County. The central objective is the systematic integration of climate risk into spatial and land-use planning, which aims to prevent new exposure in flood-prone zones while safeguarding high-value agricultural land from drought-related degradation. Closely linked to this is the broader strategic shift, promoted by both the EU Adaptation Strategy and Romania's national plans, from reactive crisis response toward preventive and proactive risk management.

The promotion of nature-based solutions (sponge measures, GBI) constitutes another key goal, as these approaches can simultaneously reduce drought and flood risks while delivering co-benefits for biodiversity, soil health and landscape resilience. Equally important is the principle of just and equitable adaptation, which seeks to ensure that small and medium-sized farm, particularly vulnerable in Covasna County, have fair access to financial, technical and advisory support.

Successful implementation further depends on robust multi-level governance and coordination that effectively links EU funding instruments, national programmes, county-level administration, local municipalities and farmers' organisations. A water-energy-food-ecosystem nexus perspective is also essential, recognising the interdependencies between irrigation development, flood control, biodiversity conservation and rural livelihoods. Finally, continuous improvement of monitoring systems, early-warning mechanisms and knowledge transfer is required to support evidence-based decision-making at the local level.

Taken together, these policy goals and the associated instruments create both important opportunities, through funding streams, regulatory frameworks and technical guidance, and persistent constraints, notably limited administrative capacity, co-financing requirements and competing sectoral priorities. Navigating these opportunities and constraints will be decisive in translating the CRM measures identified in the KÉZDI_Adapt project into concrete, lasting resilience on the ground.

2.3 Key actors and systems for CRM

The implementation of Climate Risk Management (CRM) in Târgu Secuiesc Municipality and Covasna County need to be supported by a multi-level governance framework comprising European, national, regional and local policies addressing climate adaptation, disaster risk reduction, agriculture, water management, spatial planning and environmental protection. The Kezdi_Adapt Climaax Phase 2 CRA identified agricultural drought and river flooding as the priority climate risks, highlighting the need for coordinated implementation across sectors and administrative levels.

Regional implementation of CRM needs to be managed/developed through the Covasna County Risk Assessment and Management Plan, the Romanian Waters Administration (SGA Covasna), the County Agricultural Directorate (DAJ) and county spatial planning instruments, which support flood management, hydrological monitoring, agricultural risk management and the implementation of adaptation measures. At the local level, the Integrated Urban Development Strategy (IUDS), the Sustainable Energy and Climate Action Plan (SECAP), the Local Urban Plan (PUG), municipal investment planning and the CLIMAAX Climate Risk Assessment provide the basis for integrating climate risks into land-use planning, infrastructure development, emergency preparedness and local adaptation actions. Additional support is provided by farmers' associations, agricultural cooperatives, research institutions, NGOs such as the AGROSIC Intercommunity Development Association, Energy Cities Association (OER), utility providers and the private sector through knowledge transfer, innovation, awareness-raising and investment in resilience measures.

The implementation of CRM requires coordinated action across several sectors. In agriculture, priority measures include the modernisation of irrigation infrastructure using irrigation requirements , yield loss datasets, promotion of climate-resilient crop varieties, improved soil and water conservation practices, drought monitoring and early warning systems, crop insurance schemes and greater access to national and European funding. Water management should focus on integrated river basin management, improved flood protection infrastructure, restoration of floodplains, enhanced hydrological monitoring and coordinated drought and flood management. Spatial planning should incorporate climate risk assessments into land-use planning, restrict development in flood-prone areas and promote green and blue infrastructure and nature-based solutions. Biodiversity policies should support ecosystem restoration, sustainable land management and the protection of ecosystem services that contribute to drought and flood resilience. Emergency management should continue to strengthen early warning systems, emergency response procedures, institutional coordination and public preparedness.

Successful implementation of CRM depends on effective cooperation between the Municipality of Târgu Secuiesc, Covasna County Council, the County Inspectorate for Emergency Situations (ISU Covasna), the Romanian Waters Administration (SGA Covasna), the County Agricultural Directorate (DAJ), the Agricultural Payments and Intervention Agency (APIA), Sapientia University, AGROSIC Intercommunity Development Association, Energy Cities Association (OER), local farmers and civil society organisations. This cooperation is supported through stakeholder consultations, technical workshops, data-sharing agreements, GIS-based planning tools and continuous monitoring, ensuring that climate risk assessment results are effectively integrated into future adaptation planning and investment decisions.

Overall, the existing policy framework provides a solid foundation for Climate Risk Management in the region. Nevertheless, successful implementation will require continued institutional cooperation, increased investment in resilient infrastructure, improved local technical capacity, enhanced climate monitoring systems and sustained stakeholder engagement to strengthen the resilience of communities, agriculture, water resources and ecosystems to future climate change.

Table 2- 6. Stakeholder Engagement Matrix

Key actors	*Role and responsibility*	*Motivation and needs*	*Opportunities related to their active involvement in CRM*	*Barriers related to their active involvement in CRM*	*Type of engagement*
Municipality of Târgu Secuiesc	Leads local climate risk management, urban planning, implementation of adaptation measures, coordination of the CLIMAAX project.	Increase climate resilience, protect citizens, support sustainable development, reduce flood and drought risks.	Integrate CRM results into SECAP, Integrated Urban Development Strategy (IUDS), spatial planning and investment decisions.	Limited financial resources, limited technical capacity, administrative procedures	Project coordination, workshops, stakeholder meetings and decision-making. Engaged throughout the project, particularly during Scoping, Risk Evaluation, and preparation of adaptation priorities.
Romanian National Administration "Apele Române"	Hydrological data, flood hazard mapping, river basin management, water management authorizations	Improve national flood risk management	Provision of official hydraulic datasets and technical expertise	Availability of detailed local hydraulic information (ex. water levels measured daily)	Technical consultations, data sharing, authorizations
ISU Covasna	Emergency preparedness and response	Protect population and critical infrastructure	Improved emergency planning and early warning (RO-ALERT and SMS warnings, DSU app for mobile phones)	Limited personal and technical resources during extreme events	Technical consultation
Covasna County Council	Regional planning and infrastructure coordination	Support resilient regional development	Integration into county development strategies	Budget and administrative constraints	Institutional cooperation

Infrastructure operators like Electrica, Gas distribution, Hydrokov SA	Maintenance of critical infrastructure	Minimize service disruption	Improved resilience of transport and utility networks	Ageing infrastructure	Technical consultation
Local communities and NGOs (AGROSIC Intercommunity Development Association, Energy Cities Association (OER))	Public participation and awareness	Reduce vulnerability and improve preparedness	Community engagement and local knowledge	Limited awareness and participation	Public consultation and stakeholder meetings
Covasna County Agriculture Directorate (DAJ Covasna)	Monitors agricultural conditions, crop damage and drought impacts; provides agricultural statistics.	Improve agricultural resilience and support farmers.	Provide crop statistics, land-use data, and support calibration of agricultural drought models.	Limited detailed local datasets and dependence on farmer reporting.	Formal cooperation agreement, data sharing and technical consultations. Strongly involved during Scoping, Risk Exploration, and Regionalized Risk Analysis, particularly for agricultural drought modelling.
Farmers and agricultural cooperatives (Biofarm SRL, Agrico M SRL, Regina Cartofului	*Provide practical knowledge of drought impacts and farming practices; end-users of*	*Reduce crop losses, improve water security, maintain farm income.*	*Validate model results, provide local knowledge, identify practical adaptation options.*	*Limited awareness, financial constraints, lack of irrigation infrastructure, limited time to participate*	*Interviews, workshops and stakeholder consultations. Engaged during Risk Exploration, Regionalized Risk Analysis, and validation*

Cooperative, local farmers)	*adaptation measures.*				*of Key Risk Assessment Findings.*
APIA (Agricultural Payments and Intervention Agency)	*Manages agricultural subsidy information and land-use databases.*	*Support sustainable agricultural production and compensation mechanisms.*	*Supply agricultural datasets and support implementation of adaptation measures.*	*Administrative complexity and limited integration with climate risk information.*	*Data sharing and technical consultation during Regionalized Risk Analysis.*
Sapientia University and scientific community	*Scientific research, climate modelling, GIS analysis and methodological support.*	*Produce reliable scientific evidence and improve local climate risk knowledge.*	*Support hazard modelling, vulnerability assessment, interpretation of results and capacity building.*	*Limited availability of local high-resolution datasets.*	*Scientific collaboration and technical consultation during Scoping, Regionalized Risk Analysis, and interpretation of Key Risk Assessment Findings.*
AGROSIC Intercommunity Development Association, Energy Cities Association (OER) and NGOs	Promote climate adaptation, stakeholder engagement and sustainable local development.	Increase climate resilience and support municipalities in adaptation planning.	Capacity building, dissemination of results, awareness raising and policy support.	Limited financial resources and project-based involvement.	Workshops, awareness campaigns and advisory support. Engaged during Scoping, Stakeholder Engagement, and dissemination of assessment results.
Local communities and citizens	Participate in public consultations and provide local knowledge of climate impacts.	Reduce vulnerability, protect livelihoods and improve community resilience.	Contribute local observations and support implementation of adaptation measures.	Limited awareness of climate risks and relatively low participation.	Public consultation, awareness campaigns and stakeholder meetings. Engaged during Scoping, Risk Evaluation, and dissemination of project results.

2.4 Lessons learned from past events

The Climate Risk Assessment conducted within the CLIMAAX framework demonstrates that both agricultural droughts and river floods are increasingly significant hazards in Târgu Secuiesc and Covasna County, highlighting the need to shift from reactive emergency response towards proactive climate adaptation. The assessment confirms that agricultural drought is a long-term, cumulative risk driven by increasing temperatures, higher evapotranspiration, and persistent water deficits, resulting in substantial crop yield and economic losses, particularly for maize and potato. These findings emphasize the importance of strengthening drought early warning systems, improving irrigation infrastructure, promoting climate-resilient agricultural practices, and integrating climate information into agricultural planning.

Previous flood events have demonstrated that river flooding remains one of the most significant natural hazards affecting the Municipality of Târgu Secuiesc. Historical events, particularly the floods of 2018 and the near-flood situation experienced in 2025, confirmed the municipality's vulnerability to prolonged rainfall occurring simultaneously within the Cașin and Râul Negru catchments. The local hydrological setting, where the two river systems interact and temporary backwater effects may occur during periods of high discharge, further increases flood risk. The 2018 flood highlighted that rapid emergency response, efficient mobilization of personnel, and coordinated interventions are indispensable for minimizing flood impacts and reducing damages.

An important lesson learned is the value of combining European-scale climate information with high-quality local datasets. While the CLIMAAX workflows provide a robust framework for hazard assessment, the integration of official hydraulic and flood-depth datasets supplied by the Romanian National Administration “Apele Române” substantially improved the representation of local flood conditions and enhanced the reliability of the Climate Risk Assessment. (Dottori et al., 2022) Likewise, the use of locally refined agricultural datasets, crop-specific parameters, and stakeholder knowledge significantly increased the accuracy and relevance of the agricultural drought analysis, providing a stronger evidence base for adaptation planning.

Past events also demonstrated that effective climate risk management depends on strong institutional cooperation. Timely information exchange, early warning systems, and clearly defined responsibilities among the Municipality, Romanian National Administration “Apele Române”, emergency management authorities, agricultural agencies, researchers, and local stakeholders proved essential for reducing disaster impacts and improving emergency preparedness. Furthermore, experience has shown that structural protection measures alone are insufficient to address future climate risks. Long-term resilience requires an integrated approach combining engineering solutions, nature-based measures, continuous monitoring, land-use planning, public awareness, and stakeholder engagement. Embedding these elements into municipal planning will strengthen the adaptive capacity of Târgu Secuiesc and support more effective emergency management under changing climate conditions.

3 Climate risk management – phase 3

3.1 CRM objectives

The primary CRM objectives focus on reducing the impacts of agricultural drought (through water management, soil resilience and farm-level adaptive capacity) and reducing the impacts of river flooding (through structural protection, early warning and preparedness). Additional objectives address the compound nature of the two risks, governance gaps, spatial planning and knowledge systems.

Justice and equity considerations are mainstreamed, with particular attention to small and medium-sized farms, critical agricultural livelihoods, and the most flood-exposed communities. The indicators listed above provide a practical basis for monitoring progress and evaluating the extent to which each objective is being met.

Table 3-1. Primary CRM objectives and assessment indicator

Primary objectives	*Examples of assessment indicators*
Reduce flood exposure	*Population exposed to significant flood risk,* *Average annual damage,* *Flooded area* *Baseline 2026:* *From the total of 18,356 inhabitants, 161 households are at risk in the Ruseni area* *Target 2035:* *≥50% reduction*
Decrease risk to droughts	*Yearly two capacity-building trainings conducted* *Decrease Risk to droughts – average damage / yield loss (EUR/year or %)* *Reduction in the number of vulnerable people and farms exposed to floods and drought* *Area (ha) under modern irrigation* *Implemented sponge measures/water retention measures (ha)* *Length (km) of upgraded drainage and small-scale flood defences*
Improve emergency preparedness	*Flood early warning coverage* *Baseline 2026: Partial coverage, < 6 hours* *Target 2035: 100% of the municipal population, ≥ 12 hours*
Strengthen flood and drought monitoring	*Hydrological and hydraulic datasets available for flood management* *Baseline 2026: JRC, Aqueduct and official Apele Române datasets and Covasna County Agriculture Directorate (DAJ)* *Target 2035: Continuous updating and integration of local datasets*
Protect the environment	*Protected or restored watershed / water-retention area (km² or ha)* *Average class of water quality in rivers (Cașin, Râul Negru)* *Area (ha) of riparian buffers, wetlands, permanent grasslands and nature-based retention measuresShare of agricultural land under conservation agriculture / soil-water retention practices (%)*
Protect critical infrastructure	*Critical infrastructure included in flood emergency planning and irrigation infrastructure* *Baseline 2026: Existing inventory* *Target 2035: 100% of critical infrastructure inventory updated with local datasets*
Increase sustainable agriculture practices	*Irrigation area (ha)* *Preserve income levels of local farmers (especially small and medium-sized farms)*

	Average yield of key crops (maize, potato) in drought years *Share of farms adopting drought-tolerant varieties or precision water management* *Uptake rate of crop insurance / risk-management tools (%)*
Improve institutional cooperation	*Multi-institutional coordination meetings and emergency exercises* *Baseline 2026: Existing cooperation* *Target 2035: Minimum two joint meetings per year*

Table 3-2 Additional CRM objectives

Additional objectives	*Examples of assessment indicators*
Improve public awareness	*Citizens participating in flood and drought awareness campaigns* *Target ≥300 participants*
Public health	*Number of people affected by flood-related health incidents (injuries, water-borne diseases)* *Number of heat/drought-related health alerts issued and population reached* *Access to clean water during extreme events (% of population)* *Reduction in emergency medical interventions linked to climate extreme*
Social well-being	*Number of households and farms with improved climate resilience (access to early warning, insurance, or support schemes)* *Level of community preparedness (participation in trainings and exercises)* *Preservation of local employment in agriculture* *Reduction in temporary displacement or livelihood disruption after flood/drought events*
Environmental quality	*Protected or restored watershed / water-retention area (km² or ha)* *Average class of water quality in rivers (Cașin, Râul Negru)* *Area (ha) under nature-based solutions (riparian buffers, wetlands, grasslands)* *Soil organic matter / water-holding capacity trends on agricultural land*
Justice and equity	*Share of small and medium-sized farms benefiting from irrigation, insurance or adaptation support (%)* *Reduction in the number of vulnerable people and farms exposed to floods and drought* *Equitable access to early-warning information and capacity-building programmes* *Inclusion of vulnerable groups (small farmers, elderly, low-income households) in local CRM planning and decision-making*
Increase community preparedness	*Flood preparedness campaigns and emergency drills* *Target At least one campaign and one exercise annually*
Strengthen environmental resilience	*Floodplain or green infrastructure restored* *Target ≥10 ha*
Integrate CRM into municipal planning	*Municipal strategies and planning documents updated* *Target 100% of relevant documents*
Promote justice and equity	*Vulnerable groups covered by emergency planning and warning systems* *Target 100% coverage*

The primary CRM objectives focus on reducing the impacts of agricultural drought (through water management, soil resilience and farm-level adaptive capacity) and reducing the impacts of river flooding (through structural protection, early warning and preparedness). Additional objectives

address the compound nature of the two risks, governance gaps, spatial planning and knowledge systems.

Justice and equity considerations are mainstreamed, with particular attention to small and medium-sized farms, critical agricultural livelihoods, and the most flood-exposed communities. The indicators listed above provide a practical basis for monitoring progress and evaluating the extent to which each objective is being met.

3.2 Supportive elements for effective CRM

Table 3-3 Supportive elements for effective CRM

Supportive elements for effective CRM	*Description*
Knowledge and data	The region benefits from a growing evidence base for climate risk assessment, combining CLIMAAX workflows, CORDEX climate projections, GIS-based analyses, flood hazard maps, (Dottori et al., 2022); (Schiavina et al., 2023 and agricultural statistics. The KÉZDI_Adapt project further improved local relevance through downscaling to farmland level and integration of stakeholder-validated datasets. Official hydrological and agricultural data are provided by the National Institute of Hydrology and Water Management (INHGA), the Romanian Waters Administration (SGA), Agricultural Payments and Intervention Agency (APIA), and the Covasna County Agricultural Directorate (DAJ). These datasets support quantitative assessment of drought, flood exposure, and economic losses.
Tech and infrastructure	Technology and infrastructure are essential for strengthening Climate Risk Management (CRM) in Târgu Secuiesc, particularly for agricultural drought and river flooding. A priority is the implementation of nature-based sponge measures, such as ponds, wetlands, riparian buffers, grasslands, and small water retention structures, which increase soil moisture, improve groundwater recharge, reduce flood peaks, and provide additional water resources for irrigation. The adoption of IoT-based soil moisture sensors, smart irrigation systems, precision agriculture technologies, drones, and satellite monitoring (e.g., Copernicus) can improve water-use efficiency, support early drought detection, and optimize agricultural management. For flood risk management, real-time hydrometric monitoring, GIS-based flood modelling, and integration with national early warning systems (INHGA, inundatii.ro and RO-ALERT) will strengthen forecasting and emergency response.
Social-behavioral aspects	Repeated consultations with farmers, agricultural cooperatives, and local producers revealed high awareness of increasing drought frequency, heat stress, and flood impacts on crop productivity and livelihoods. This experiential knowledge complements quantitative modelling by identifying cumulative impacts such as soil degradation, reduced investment capacity,

	and farm abandonment. The participatory approach strengthens risk perception and adaptive learning within the local community.
Citizen & stakeholder engagement	The Municipality of Târgu Secuiesc established a structured and participatory stakeholder engagement process that combined institutional consultation, technical dialogue, and community outreach. In addition to round-table discussions, personal meetings with farmers, workshops, educational videos, social media communication, and the continuously updated Kézdi_Adapt web platform, a major multi-stakeholder workshop was organized on 20 July 2026. The workshop brought together decision-makers, technical specialists, researchers, agricultural stakeholders, and representatives of key sectoral institutions involved in climate risk management and adaptation planning. Participants included Könczei Csaba, Member of Parliament and Vice-President of the Committee on Agriculture, Forestry, Food Industry and Specific Services; László Sándor, Director of the Covasna Water Management System (SGA Covasna); Kozma Béla, Director of the Covasna County Agricultural Directorate (DAJ Covasna); representatives of the Agricultural Payments and Intervention Agency (APIA); Ivácson Endre, geological engineer and manager of Geoda SRL; Miklós Ervin, Client Success Manager of AgroMonitoring; local farmers; and municipal technical staff. During the workshop, participants shared practical experiences, operational challenges, and professional recommendations related to agricultural drought, river flooding, water management, soil and geological constraints, remote sensing applications, precision agriculture, and the use of climate and satellite data for decision-making. The discussion facilitated the exchange of knowledge between public authorities, the scientific community, private-sector experts, and end users of climate information. To enhance accessibility of the project results and support long-term stakeholder engagement, the CLIMAAX Kézdi_Adapt team prepared dedicated informational flyers summarizing the project objectives, key climate risks, preliminary assessment results, and the available online tools. In addition, all workshop participants received a project-branded USB stick containing the theoretical presentations delivered during the event, technical background materials, and a step-by-step video tutorial explaining how to navigate the Kézdi_CLIMAAX web platform and search for hazard and risk maps under different climate scenarios. This digital package was designed to enable participants to revisit the workshop content, independently explore the GIS-based flood and drought layers, and apply the information in their institutional, professional, or farming activities. These outreach measures significantly strengthened knowledge transfer, stakeholder ownership of the Climate Risk Assessment,

	and the practical uptake of CLIMAAX results. The workshop also provided an important platform for validating preliminary findings, identifying local priorities, and integrating technical and community perspectives into the development of the forthcoming adaptation strategy and risk management plans. The Kézdi_Adapt website is continuously updated with new scientific results, maps, datasets, reports, and project outcomes as the project progresses, ensuring transparent public access to the evolving Climate Risk Assessment. In parallel, the project team implemented a dedicated awareness and dissemination campaign through social media platforms, including TikTok, and Facebook, where regular updates, explanatory materials, workshop highlights, and climate adaptation insights are published in an accessible format for both professional and non-specialist audiences. The dissemination strategy was further reinforced through collaboration with the local and regional media, which played an important role in communicating project objectives and findings to the wider community. Coverage included interviews and reports broadcast by Sepsi Rádió, analytical articles published by Maszol, and regional reporting by Covasna45 on the participation of agricultural and technical specialists in the Kézdi_Adapt initiative. This combination of digital outreach, stakeholder engagement, and traditional media communication substantially increased the visibility of the project, broadened public understanding of climate risks in Târgu Secuiesc and Covasna County, and supported the co-production of knowledge between authorities, experts, and local communities in line with the principles of the CLIMAAX framework
Finances & resources	A central enabling factor is the municipality's participation in the CLIMAAX programme funded under Horizon Europe, which provides technical assistance, methodological support, capacity building, and access to advanced climate risk assessment tools. This participation strengthens the municipality's institutional readiness for future adaptation investments and improves the quality of evidence used for funding applications. At the national level, additional investment opportunities are available through Romania's National Recovery and Resilience Plan, which allocates substantial resources to climate resilience, water infrastructure modernization, green transition measures, and disaster preparedness. An important component of the municipality's financial and investment ecosystem is its active involvement in the SpongeMeasures network under the URBACT IV - Interreg programme. This initiative focuses on the co-development and

	implementation of small-scale nature-based solutions aimed at improving urban water retention and climate resilience. Despite these positive developments, stakeholder consultations conducted within the KÉZDI_Adapt project identified several persistent financial constraints, including limited local co-financing capacity, competition among municipal investment priorities, and the need for stronger project preparation capabilities for large-scale adaptation infrastructure. Consequently, future resilience implementation will depend not only on the availability of external funding, but also on the municipality's capacity to combine European grants, national programmes, water-sector investments, and community-based nature-based solutions into a coherent long-term climate finance strategy.
Governance arrangements & political leadership	Climate risk ownership follows a distributed governance model involving the Municipality of Târgu Secuiesc, ISU Covasna, the Prefect Institution, SGA Covasna, DAJ Covasna, APIA, Energy Cities Association, and Sapientia University. This arrangement enables integration of emergency management, water governance, agricultural monitoring, scientific research, and municipal planning. The institutional mapping developed in the project provides a clear allocation of responsibilities across operational, strategic, and sectoral levels. National governance framework: Civil Protection Law 481/2004, Law 307/2006 on emergency management.
Political leadership and strategic commitment	Strong political leadership constitutes one of the most important enabling conditions for CRM in the region. The Municipality has already adopted the Sustainable Energy and Climate Action Plan (SECAP), participated in the MIP4Adapt Charter, and integrated climate resilience objectives into the Integrated Urban Development Strategy developed with World Bank support. The direct involvement of Deputy Mayor dr. ing. Szilveszter Szabolcs in climate adaptation initiatives demonstrates institutional commitment beyond project-based activities and facilitates the mainstreaming of climate considerations into urban planning and investment decisions.

3.3 Potential CRM measures

In the CLimaax KÉZDI_Adapt project we implemented a structured, step-by-step workflow for the identification of potential climate risk measures (illustrated in Figure 3-1), integrating stakeholder engagement, dissemination activities, eventually reaching CRM possibilities as core components of the process. It begins with the involvement of farmers, institutions, NGOs, and private-sector actors, supported by workshops, interinstitutional meetings, and media-based dissemination, and culminates in the generation of climate-risk outputs.

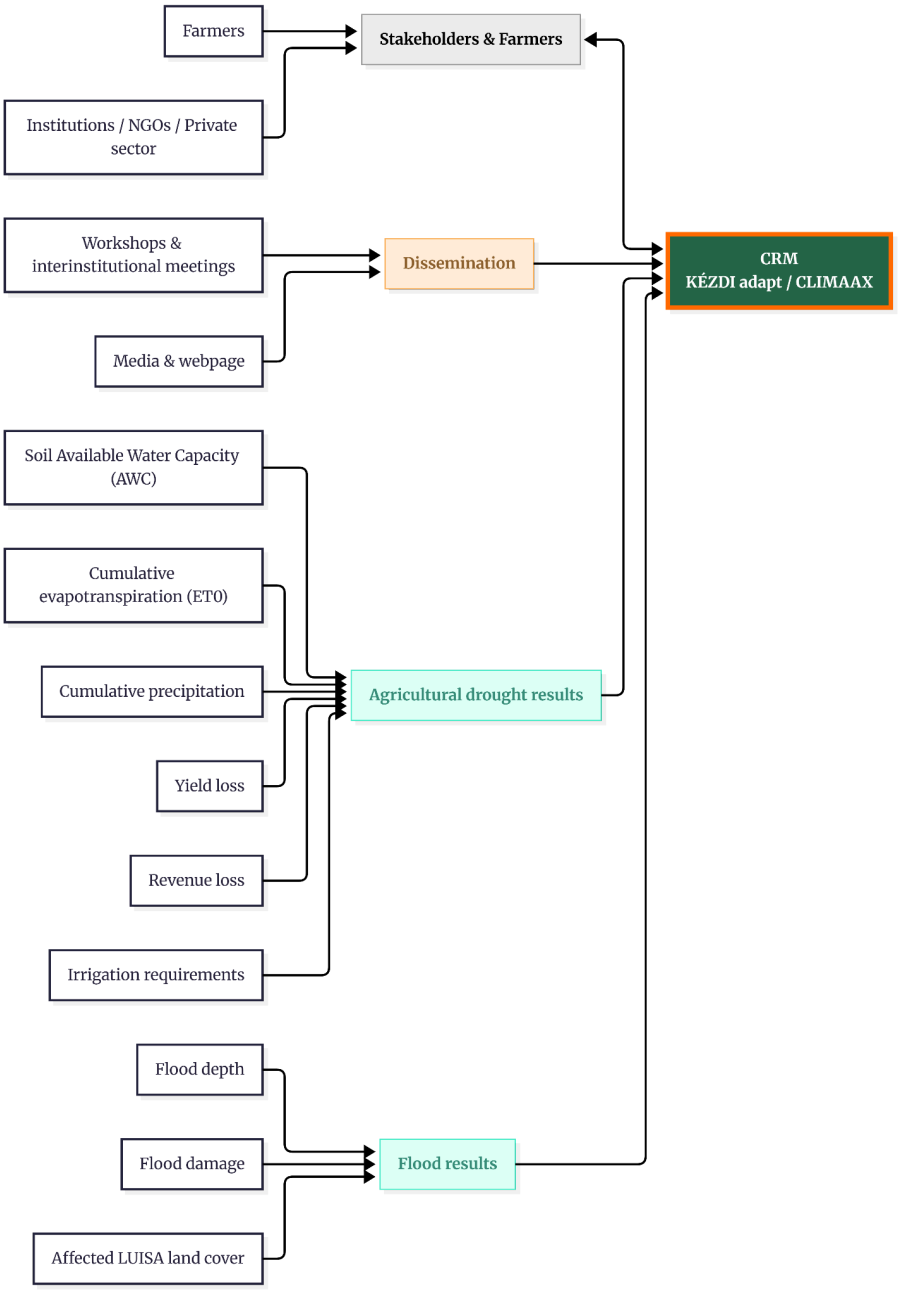


Figure 3-1 Process diagram for potential CRM measures identification

These CRM outputs are based on KÉZDI_Adapt results agricultural drought indicators - such as soil available water capacity, cumulative evapotranspiration, precipitation, yield loss, revenue loss, and irrigation requirements - as well as flood-related results, including flood depth, flood damage, and affected land cover. Overall, the diagram emphasizes the linkage between participatory processes,

data-driven analysis, and risk-informed decision-making for the development of targeted potential climate adaptation CRM measures.

Key climate risk	*CRM measure*	*Effectiveness / Risk reduction (high, medium, low)*	*Contribution to CRM objectives*	*Possible co-benefits*	*Timeline (short, medium, long term)*	*Responsible organisation*	*Possible adaptation limits*
Agricultural Drought	Additional modern irrigation (drip & micro-sprinkler systems, Smart & AI-Driven Irrigation)	High	Significant improvement of irrigation stability and yield protection	Water conservation; reduced evaporation losses; possible use of solar-powered pumps	Short–Medium	Farmer's associations + Direcția pentru Agricultură Județeană Covasna	Extreme future droughts may exceed the capacity of even modern irrigation systems
Agricultural Drought	Conservation agriculture & soil-water retention practices (reduced tillage, cover crops, mulching)	High	Increased soil water-holding capacity and long-term farm resilience	Improved soil health, reduced erosion, lower input costs, biodiversity gains	Short–Medium	Farmers + agricultural advisory services	Requires sustained farmer training and initial investment; benefits take time to fully materialise
Agricultural Drought	Introduction of drought-tolerant / early-maturing crop varieties (esp. maize & potato)	Medium–High	Reduced crop sensitivity to water stress and stabilisation of production	Greater crop diversity, lower production risk, potential market advantages	Medium	Direcția pentru Agricultură Județeană Covasna + research institutes	Limited availability of locally adapted varieties; farmers may be reluctant to change traditional crops

Floods	Awareness campaign & community preparedness training	High	Enhanced community resilience and preparedness	Empowerment of local stakeholders; improved participatory decision-making	Short	Local municipality	None identified in the short term
Floods	Upgrading of drainage networks and small-scale flood defences	High	Reduction of flood exposure and damage to buildings & infrastructure	Protection of agricultural land adjacent to settlements; improved urban liveability	Medium	Local municipality + Olt River Basin Water Administration	High investment costs; possible land-acquisition or spatial constraints
Floods	Strengthening of early-warning systems and last-mile communication	High	Faster response and reduced residual risk	Better coordination with national systems (inundatii.ro); increased public trust	Short–Medium	Local municipality + County emergency services	Effectiveness depends on continuous maintenance and public uptake
Agricultural Drought & Floods	Nature-based small water retention measures (ponds, wetlands, riparian buffers, grasslands)	High	Simultaneous reduction of drought and flood risk through landscape water retention measures	Biodiversity enhancement, carbon sequestration, recreational value, soil protection	Medium–Long	Local municipality + County Council + farmer associations	Requires multi-stakeholder coordination and longer implementation periods; land-use conflicts possible

To achieve the climate risk management results in the table, the responsible organisations must actively implement and sustain the measures, drawing also on APIA for agricultural funding, Sapientia University for research support, and URBACT Sponge Measures funding available to Târgu Secuiesc for urban sponge measures.

For modern irrigation, farmer associations and the County Agricultural Directorate should map priority areas, organise group purchasing, and provide training on drip, micro-sprinkler and smart systems. APIA can channel subsidies and rural-development funds so more farmers can invest, while monitoring of water savings and yields will encourage wider uptake.

Conservation agriculture needs continuous training from advisory services, better access to machinery, and clear links to financial incentives. APIA can reinforce this through eco-scheme payments, and Academia Sapientia University can support soil monitoring, applied research and advisor training to strengthen local capacity.

Introducing drought-tolerant crop varieties requires on-farm trials, demonstration plots and reliable seed supply, led by the County Agricultural Directorate and research institutes. Academia Sapientia can help test varieties under local conditions and communicate results to farmers, while APIA support schemes can reduce the risk for those who adopt them.

On the flood side, the local municipality must run regular awareness campaigns and practical preparedness training. In Târgu Secuiesc, URBACT Sponge Measures funding can strengthen these efforts and embed climate preparedness into wider urban development activities.

Upgrading drainage networks and small-scale flood defences calls for technical cooperation between the municipality and the Olt River Basin Water Administration. Where works concern Târgu Secuiesc, URBACT resources can support integrated solutions that combine conventional drainage with greener approaches.

Strengthening early-warning systems requires the municipality and County emergency services to upgrade detection, dissemination and links to the national platform. URBACT Sponge Measures - supported initiatives in Târgu Secuiesc can improve the local reach and visibility of warnings.

Nature-based sponge measures — ponds, wetlands, buffers and grasslands — need joint action by the municipality, County Council and farmer associations to identify sites, secure funding and agree land use. Târgu Secuiesc can use URBACT funding to pilot these measures in and around the town, while Academia Sapientia provides design and monitoring expertise and APIA agri-environment payments help integrate them into surrounding farmland.

Across all measures, the organisations should set clear timelines and indicators, create coordination platforms that include APIA, Sapientia University and URBACT teams, and combine different funding sources. Continuous monitoring and adaptive management will be essential to turn the planned measures into lasting reductions in drought and flood risk.

3.4 Integration into planning and decision making

The results of the Climaax KÉZDI_Adapt climate risk assessment provide an important added value with locally downscaled evidence base that can be systematically integrated into local, county and sectoral planning instruments.

Examples for KÉZDI_Adapt results for integration:

- High-resolution, locally downscaled climate data (precipitation, ET_0, Available water capacity, Climatic Water Balance) and crop-specific yield-loss, irrigation requirements and revenue-loss estimates (wheat, rapeseed, maize and potato) offer a far more precise foundation for decision-making than generic national or international datasets.
- Spatially explicit flood-hazard maps, damage curves and affected LUISA landscape areas for the Cașin and Râul Negru rivers, combined with drought-risk layers, enable accurate local zoning and risk-informed land-use decisions.
- The Key Risk Assessment Evaluation Dashboard (with clear High-priority classification for both agricultural drought and river flooding) provides an authoritative, stakeholder-validated prioritisation that strengthens the justification for policy and investment choices.

Integration pathways that can directly apply Climaax KÉZDI_Adapt results:

- Revision of the General Urban Plan (PUG) of Târgu Secuiesc and Covasna counties and relevant Zonal Urban Plans (PUZ) - the KÉZDI_Adapt flood-hazard and drought-risk maps can be formally adopted as background documents and translated into zoning restrictions and climate-resilient land-use rules;
- Update of the Municipal Development Strategy and Covasna County Development Strategy - the quantified economic losses and High-priority ranking supply robust evidence for prioritising adaptation actions;
- Screening of public investments (municipal, county level ex. CAP/PNRR/AFIR) against the KÉZDI_Adapt generated hazard and risk results and CRM objectives, ensuring that future projects demonstrably reduce the identified High-priority risks;
- Strengthening of local emergency and civil-protection plans with the project's flood-extent and exposure data;
- Integration into the planning and advisory work of the Direcția pentru Agricultură Județeană Covasna, using the crop-specific loss estimates to target support for irrigation, drought-tolerant varieties and soil measures.

By taking into account the Climaax KÉZDI_Adapt results into these instruments, the region could move from a one-off risk study to an operational, decision-relevant knowledge base.

The Climaax KÉZDI_Adapt project has clearly shown the significant co-benefits that arise when drought and flood risks are addressed together, especially through nature-based water retention measures. This evidence provides a solid shared basis for adopting integrated landscape approaches instead of managing the two hazards separately.

In addition, the participatory work carried out during the project has already built practical working relationships between the municipality, the County Council, the agricultural directorate, Agro Sic NGO, the water administration and local farmers. These relationships now offer a ready-made platform for ongoing coordination on climate risk management.

The project results also align closely with higher-level policy frameworks, including the National Strategy on Adaptation to Climate Change (SNASC), the CAP Strategic Plan 2023–2027, the Floods Directive and the National Recovery and Resilience Plan (PNRR). This alignment greatly facilitates access to funding and helps justify local adaptation actions within wider national and European priorities.

Despite the positive collaboration achieved under KÉZDI_Adapt, coordination among the various institutions involved in climate risk management remains fragmented. The assessment further revealed that small and medium-sized farms are especially vulnerable, yet these producers still face major barriers in accessing the measures identified as most necessary. Cross-scale mismatches add another difficulty: the urgency of local drought impacts does not always correspond to the timelines and administrative requirements of national and EU funding programmes. Finally, limited technical capacity at the local level can slow the conversion of the detailed datasets and risk products developed by KÉZDI_Adapt into routine planning and project design.

To overcome these challenges and build on the value already created, several concrete steps are recommended. First, a permanent local or county-level Climate Risk Coordination Group should be established, continuing to use the KÉZDI_Adapt maps, indicators and evaluation dashboard as its common reference framework. Second, collective and cooperative implementation models — such as shared irrigation systems and jointly managed nature-based solutions — should be deliberately designed to close the equity gaps identified by the project and ensure that small and medium-sized farms can benefit. Third, the KÉZDI_Adapt evidence base should be systematically used in all relevant funding applications in order to improve coherence across scales and raise the chances of successful project approval. Finally, targeted capacity-building is needed so that local actors can fully utilise the high-resolution data and risk products already generated by the project.

The KÉZDI_Adapt project has significantly strengthened the region's knowledge base by producing a range of high-value datasets and analyses. These include locally scaled climate projections for the near-future period 2026–2030 and the mid-century horizon 2046–2050, covering precipitation, reference and actual evapotranspiration (ET_0 and ETa), available water capacity and climatic water balance, irrigation requirements at agricultural-land scale. The project also delivered detailed, crop-specific assessments of yield and revenue losses for maize, potato, wheat and rapeseed, together with high-resolution spatial risk layers for both drought and river flooding (including flood-extent shapefiles). Economic damage estimates by land-use category and a transparent, participatory Key Risk Assessment that combines quantitative results with local stakeholder knowledge complete the package. Taken together, these products mark a substantial improvement on previously available information and already provide a robust foundation for planning and prioritisation.

Despite this progress, several important needs remain. Continuous local monitoring of soil moisture and key hydrological parameters is required to update and validate the KÉZDI_Adapt projections over time. Farm-level data on the actual uptake and performance of irrigation systems, insurance schemes and soil-management measures are still lacking. Dedicated human and financial resources at both municipal and county level are needed to maintain and actively apply the risk datasets. Further applied research is required on the effectiveness of nature-based solutions under local conditions and on the dynamics of compound drought–flood events. Finally, stronger local competencies in interpreting and using the project's advanced spatial and economic outputs are essential if these tools are to become part of everyday decision-making.

No dedicated operational Monitoring and Evaluation (M&E) system currently exists for tracking progress against the Climate Risk Management (CRM) objectives of Târgu Secuiesc and Covasna County. The KÉZDI_Adapt project directly addresses this gap by providing a complete, ready-to-use baseline and indicator framework that constitutes the core of a future operational M&E system.

Table 3-4 Proposed M&E System Architecture (anchored in KÉZDI_Adapt outputs)

Component	Role of KÉZDI_Adapt Results
Objectives & indicators	Primary and additional CRM objectives together with quantitative indicators generated by the project (yield losses, irrigated area, flood damage, people exposed, nature-based area, equity indicators for small farms) are adopted as the official indicator set.
Baseline	The 2026–2030 values produced by the KÉZDI_Adapt assessment are established as the official baseline.
Data collection	Ongoing updates of the project's climate and risk layers are combined with administrative data and targeted farm surveys.
Frequency	Key indicators are monitored annually; a comprehensive evaluation is conducted every 3–4 years.
Responsibility	The local/county Climate Risk Coordination Group is designated as the responsible body, using the KÉZDI_Adapt dashboard and maps as the common reference framework.
Equity tracking	Explicit monitoring of benefits accruing to small and medium-sized farms is included, addressing the vulnerability identified by the project.
Learning & reporting	Annual progress notes are produced and systematically fed into the revision of the PUG, municipal and county strategies, and funding applications.

By embedding the KÉZDI_Adapt outputs at the centre of both planning integration and future monitoring, the project ensures that the analytical investment already made continues to deliver long-term value for effective, equitable and evidence-based climate risk management in the region.

4 Project Evaluation

4.1 Usability of the results

The KEZDI_ADAPT project has generated new scientific knowledge, spatial datasets and practical decision-support tools for the Municipality of Târgu Secuiesc and Covasna County, supporting evidence-based climate adaptation planning for both river flooding and agricultural drought

hazards. The project provides the municipality with its first comprehensive climate risk assessment developed using the CLIMAAX methodology and harmonised European datasets.

Flood risk management

The project produced detailed flood hazard and flood risk maps for the Municipality of Târgu Secuiesc, integrating European JRC flood datasets, (Dottori et al., 2022) future climate scenarios and local flood hazard information for the Râul Negru and Cașin river systems. The generated maps identify areas exposed to inundation under different return periods and future climate scenarios and can be directly integrated into the municipality's GIS platform. They provide valuable support for emergency planning, civil protection, flood defence investments, infrastructure management and land-use planning.

The flood assessment also enables the municipality to identify vulnerable infrastructure, residential areas, agricultural land and critical public assets exposed to future flooding. These results can support future revisions of spatial planning regulations, building permit procedures, flood protection strategies and investment prioritisation for resilient infrastructure.

Agricultural drought adaptation

For agricultural drought, the project generated detailed maps of annual precipitation, reference evapotranspiration (ET_o) and actual one (ETa), soil available water capacity (AWC), climatic water balance (CWB), irrigation requirements, crop yield losses and economic losses for the major agricultural crops cultivated in Covasna County, including potato, maize, wheat and rapeseed. These products provide the first harmonised drought-risk assessment available for the KEZDI_ADAPT project area.

The assessment quantified future climate conditions under different climate scenarios. Under the RCP4.5 scenario, average annual precipitation is projected to increase from approximately 574 mm (2026–2030) to 685 mm (2046–2050), while reference evapotranspiration remains high (833 mm and 822 mm, respectively), maintaining a negative climatic water balance. These results demonstrate that increasing temperatures and atmospheric water demand will continue to place significant pressure on agricultural production despite moderate increases in precipitation.

Support for water management and irrigation planning

The project calculated crop-specific irrigation requirements using the FAO-56 soil water balance methodology and produced irrigation requirement maps for the most important crops cultivated in Covasna County. The assessment also highlighted the current limitations of irrigation infrastructure, showing that although 4,282 ha are officially suitable for irrigation, only 2,303 ha are currently irrigated. These results provide an objective basis for future investments in irrigation systems and sustainable water management.

Evidence for regional policy and spatial planning

The project provides local authorities with scientific evidence for updating the Municipal Climate Adaptation Strategy, Sustainable Urban Development Strategy, Local Emergency Management

Plans and future spatial planning documents. Flood hazard maps identify areas where development should be restricted or where additional flood protection measures are required, while drought assessment results support agricultural adaptation policies, irrigation planning and sustainable water resource management.

Considering that Covasna County cultivates approximately 19,500 ha of wheat, 13,000 ha of maize, 12,500 ha of potatoes and 2,200–2,500 ha of rapeseed, the generated drought-risk products represent an important decision-support tool for agricultural policy and future investment planning.

Capacity building and reproducible methodology

The KEZDI_ADAPT project strengthened the municipality's technical capacity by implementing the complete CLIMAAX Climate Risk Assessment framework for two priority hazards. Municipal experts gained practical experience in processing climate datasets, developing GIS-based hazard maps, analysing future climate scenarios and interpreting climate risk indicators.

Because the workflows are based on open European datasets, including JRC flood products, Euro-CORDEX climate projections, MapSPAM, GAEZ and FAO-56 methodologies, the entire assessment can be reproduced and updated as new climate scenarios and local datasets become available. This enables the Municipality of Târgu Secuiesc to continuously monitor climate risks and improve adaptation planning over time.

4.2 Lessons learned

The third phase of the KEZDI_ADAPT project confirmed that developing effective Climate Risk Management (CRM) measures requires continuous cooperation between scientific experts, local authorities and regional stakeholders. The active involvement of the Municipality of Târgu Secuiesc, Sapientia Hungarian University of Transylvania, the Covasna County Directorate for Agriculture and regional water management experts ensured that the proposed adaptation measures reflect local priorities and can realistically be incorporated into future planning documents. Earlier involvement of additional infrastructure operators and public utility providers could further improve future assessments.

One of the main challenges was the integration and harmonisation of datasets originating from different European and local sources. The flood assessment required combining JRC flood hazard datasets with local information for the Râul Negru and Cașin rivers, while the agricultural drought assessment integrated Euro-CORDEX climate projections, FAO-56 crop water balance modelling, MapSPAM and GAEZ datasets together with local agricultural information. Differences in spatial resolution, coordinate reference systems and data availability required extensive processing and validation. In addition, limited historical impact records and detailed socio-economic datasets introduced uncertainties that were explicitly documented throughout the assessment.

Stakeholder consultations confirmed that the most valuable outputs of the project are the spatially explicit hazard and risk maps together with the prioritised adaptation measures. Particular emphasis was placed on strengthening flood protection, expanding irrigation infrastructure, improving soil water retention through Nature-based Solutions (Sponge Measures), protecting critical infrastructure and supporting evidence-based municipal planning. The feedback received

during the project demonstrated that the proposed CRM measures are practical, locally relevant and suitable for incorporation into future climate adaptation strategies and investment programmes.

The project was implemented efficiently using the available financial and human resources. The use of the CLIMAAX Toolbox, open European datasets and open-source GIS software (QGIS) significantly reduced implementation costs while ensuring scientifically robust and reproducible results. Collaboration between the municipality, academic partners and regional institutions allowed the project objectives to be completed within the planned timeframe despite the technical complexity of the analyses.

At the moment the distribution of expenditure in Phase 1 and Phase 2 reflects the project's strong emphasis on human resources and technical implementation. Salaries constitute the largest share of the budget. This is consistent with the intensive analytical work, stakeholder engagement and coordination required for a comprehensive local-scale climate risk assessment. Subcontracting forms the second-largest category. These costs cover the specialised technical services needed to generate high-resolution climate projections, risk maps and economic analyses that form the core of the project outputs. Workshops represent a significant allocation that supported the participatory processes integrating local knowledge into the risk assessment and the prioritisation of Climate Risk Management measures. Dissemination of results covers the communication activities required to share findings with local authorities, stakeholders and the wider public, including the project website (https://climaax.kezdi.ro/). Travel remains the smallest category, reflecting efficient and targeted mobility for meetings, fieldwork and coordination.

Overall, the budget structure prioritises the generation of robust scientific evidence and meaningful stakeholder involvement while keeping operational and dissemination costs proportionate. This balanced approach supports both the technical quality of the Phase 1–2 results and their practical uptake by local decision-makers.

The project has significantly improved the institutional understanding of climate risks within the Municipality of Târgu Secuiesc. For the first time, local authorities have access to harmonised, spatially explicit assessments of both river flood and agricultural drought risks under present and future climate scenarios. The project has strengthened local capacity to interpret climate projections, prioritise adaptation measures and prepare evidence-based investment and funding proposals. Furthermore, the complete set of hazard maps, risk maps and project outputs has been published through the KEZDI_ADAPT portal (https://climaax.kezdi.ro), providing permanent public access to the results for decision-makers, researchers, stakeholders and citizens. This open dissemination of project outputs ensures that the knowledge generated during KEZDI_ADAPT will continue to support climate adaptation planning, awareness raising and future updates of the municipal climate risk assessment beyond the lifetime of the project.

5 Conclusions Phase 3

Phase 3 of the KÉZDI_Adapt project successfully transformed the Climate Risk Assessment developed in Phase 2 into a practical Climate Risk Management (CRM) framework for the Municipality of Târgu Secuiesc and Covasna County. The project confirmed that agricultural

drought and river flooding remain the region's highest-priority climate risks and identified a set of realistic adaptation measures to reduce future impacts.

The project developed a portfolio of CRM measures including improved irrigation systems, sustainable soil and water management, flood protection, nature-based solutions, enhanced early-warning systems, and the integration of climate risk into spatial planning and municipal decision-making. Stakeholder engagement played a key role in validating the proposed measures and ensuring that they reflect local needs and priorities.

A major achievement of Phase 3 was the creation of an evidence-based decision-support framework combining CLIMAAX methodologies with local datasets, official hydrological information and stakeholder knowledge. The resulting hazard maps, drought indicators, economic impact assessments and monitoring indicators provide a solid basis for future planning, investment and climate adaptation.

Several implementation challenges remain. Limited financial resources, insufficient irrigation infrastructure, fragmented institutional coordination and the need for continuous monitoring may slow the implementation of adaptation measures. In addition, small and medium-sized farms require greater technical and financial support to increase their resilience to climate change.

Overall, Phase 3 provides Târgu Secuiesc with a practical roadmap for climate risk management and establishes a strong foundation for integrating climate adaptation into future municipal planning, investment programmes and emergency management. The methodology and results developed within KÉZDI_Adapt can be regularly updated and further applied to strengthen long-term regional climate resilience.

Main key findings

- Agricultural drought and river flooding remain the highest-priority climate risks for Târgu Secuiesc and Covasna County.
- Phase 3 successfully translated the Climate Risk Assessment into practical Climate Risk Management measures.
- The proposed adaptation measures combine engineering solutions, nature-based approaches, improved early-warning systems and climate-informed spatial planning.
- Stakeholder engagement and the integration of local datasets significantly improved the quality and applicability of the project results.
- The KÉZDI_Adapt outputs provide a reliable evidence base for future planning, investment decisions and long-term climate adaptation in the region.

6 Progress evaluation

6.1 Project outputs

Table 6-1 Overview key performance indicators

Key performance indicators	*Progress*
Local workshops for stakeholders' involvement during project activities for each Deliverable (1,2,3);	Completed
2 of workflows successfully applied on Deliverable 1;	Completed Agricultural Drought and River Flood Workflows used.
2 of workflows successfully applied with refined local data on Deliverable 2;	Completed
3 local workshops for stakeholders' involvement during project activities for each Deliverable (1,2,3);	Completed
1 scientific publication or conference attendance on Deliverable 3;	Completed: We presented our results at two conferences, 1. Agri4future Romania 2035 - Agriculture Conference, Codlea (Brasov), 05.03.2026, 2. Szeklerland Business Organizations Coordination Forum (Székelyföldi Gazda Szervezetek Egyeztető Fóruma), 20.03.2026, Odorheiu Secuiesc
1 technical document for support of local risk management elaboration on Deliverable 3;	Completed based on stakeholders engagement process (Deliverable 3)
1 draft document of improved local risk management plan project closer on Deliverable 3.	Completed based on stakeholders engagement process (Deliverable 3)
3 local workshops for stakeholders' involvement during project activities for each Deliverable (1,2,3);	Completed

Table 6-2 Overview milestones

Milestones	*Progress*
M1. Competences for using CLIMAAX framework and CRA toolbox;	Completed 31.01.2025
M2. Stakeholders meeting, local workshop;	Completed 25.03.2025
M3. Test of workflow Droughts using common information already available;	Completed 31.01.2025
M4. Test of workflow River flooding using common information already available completed	Completed 31.01.2025
M5. Test of workflow Heatwaves using common information already available;	In best case scenario was introduced as milestone the 3rd workflow package, if there will be enough capacity we would like to investigate, in the KPIs was indicated: "2 of workflows successfully applied on Deliverable 1"
M6. Attend Climaax workshop held in Barcelona;	Completed https://climaax.kezdi.ro/press/workshop-in-barcelona-presenting-the-results-of-the-first-phase/

Milestones	*Progress*
M7. Updating raster orthophoto map with additional data's collected;	Completed
M8. Test of workflow Droughts using refined local data;	Completed
M9. Test of workflow Precipitation using refined local data;	Completed
M10. Test of workflow Heatwaves using refined local data;	In best case scenario was introduced as milestone the 3rd workflow package, if there will be enough capacity we would like to investigate, in the KPIs was indiated: "2 of workflows successfully applied on Deliverable 1"
M11. Stakeholder workshops presentation of downscaled results;	Completed
M12. Definition of feasible adaptation strategy on local level;	Completed based on stakeholders engagement process (Deliverable 3) Comprehensive HAzard and Risk maps online: https://climaax.kezdi.ro/
M13. Scientific publication or conference attendance;	Completed: We presented our results at two conferences, 1. Agri4future Romania 2035 - Agriculture Conference, Codlea (Brasov), 05.03.2026, 2. Szeklerland Business Organizations Coordination Forum (Székelyföldi Gazda Szervezetek Egyeztető Fóruma), 20.03.2026, Odorheiu Secuiesc
M14. Technical document to support local risk management elaboration;	Completed based on stakeholders engagement process (Deliverable 3)
M15. Draft document of improved local risk management plan project closer;	Completed based on stakeholders engagement process (Deliverable 3) Comprehensive HAzard and Risk maps online: https://climaax.kezdi.ro/
M16. Workshop for result dissemination;	Completed on 20.07.2026
M17. Attend Climaax workshop held in Brussels.	Planned.

7 Supporting documentation

1. Deliverable 3. Generated nlc files with irrigation req
2. Deliverable 3. River flooding files
3. Deliverable 3. Agricultural drought GIS web site
4. Deliverable 3. River Flooding GIS web site
5. Deliverable 3. Communication output
6. Deliverable 3. CLIMAAX M22 Deliverable FSTP_KÉZDI_Adapt

Communication output KÉZDI_adapt

After completing Phase 2 of the Climaax programme and moving into Phase 3, the main objective was to maintain media and public attention on the project results. On this basis, videos were produced for the Facebook page and the TikTok channel operated by the Kézdi_adapt group in order to promote the outcomes of the Climaax project. At the same time, the results of the phases were reported in the local media.

Our official page with Hazard & Risk results visualized on maps: https://climaax.kezdi.ro/
Our Facebook page: https://www.facebook.com/climaax.kezdi/
Our TikTok channel: https://www.tiktok.com/@climaax.kezdi?_r=1&_t=ZN-930jpgHBuQo
Linkedin page: https://www.linkedin.com/in/szabolcs-szilveszter-1704a840/

List of Conferences attended and workshops:

1. Agri4future Romania 2035 - Agriculture Conference, Codlea (Brasov), 05.03.2026, https://web.facebook.com/story.php?story_fbid=1839670213533746&id=100024723559081&rdid=6zERWGDftAmPF03k#
2. Szeklerland Business Organizations Coordination Forum (Székelyföldi Gazda Szervezetek Egyeztető Fóruma), 20.03.2026, Odorheiu Secuiesc
3. Meeting with local farmers Agricultural Forum, stakeholder engagement, 19.02.2026 Sanzieni, Covasna County;
4. KÉZDI_adapt workshop, stakeholder engagement 25.03.2025, Targu Secuiesc, Covasna County;
5. KÉZDI_adapt presentation for visitors from BIO-VET project: Cultivating the future of West African Agriculture, a transcontinental EU funded project for biodynamic innovation and climate-smart learning, 17.07.2026, Targu Secuiesc, Covasna County, https://projectbiovet.org/#;
6. Final KÉZDI_adapt workshop, stakeholder engagement 20.07.2025, Targu Secuiesc, Covasna County.

Links to media coverage:

https://maszol.ro/belfold/Kezdi-Adapt-a-klimavaltozas-kihivasaira-keresik-a-valaszt#google_vignette

- release date: 21 July, 2026

https://covasna45.ro/index.php/lumea-noastra/proiectul-kezdi-adapt-o-noua-intalnire-a-specialistilor-din-agricultura/

- release date: 21 July, 2026

https://covasna45.ro/index.php/lumea-noastra/un-nou-studiu-kezdi_adapt-cum-va-influenta-seceta-agricultura-din-judetul-covasna/
- release date: 16 July, 2026

https://www.facebook.com/reel/4251328758513241
- release date: 21 July, 2026

https://www.facebook.com/reel/1024267160340549
- release date: 23 July, 2026

https://youtu.be/qvwsWaw7_FY
- release date: 23 July, 2026

https://covasna45.ro/index.php/lumea-noastra/proiectul-kezdi-adapt-prezentat-la-conferinta-agri4future-2035/
- release date: 23 July, 2026

https://youtu.be/qvwsWaw7_FY
- release date: 27 July, 2026

https://bioeconomia.ro/politici-publice/conferinta-agri4future-2035-prezentare-climaax-kezdi-adapt-proiect-dedicat-riscurilor-climatice/
- release date: 27 July, 2026

SOCIAL MEDIA PLATFORMS

Following the research completed in the second phase, we continued our social media campaign on Facebook and TikTok. The campaigns feature relevant experts and agricultural stakeholders for whom our research provides important insights.

Our Facebook page runs with content on the following dates: 1st reel / release date: 24.07. 2nd reel / release date: 27.07. 3rd reel / release date: 29.07. 4th reel / release date: 31.07. 5th reel / release date: 03.08. 6th reel / release date: 06.08. 7th reel / release date: 10.08 8th reel / release date: 13.08. Total 8 posts. Link to all content: https://www.facebook.com/climaax.kezdi/	Our TikTok account runs with content on the following dates: 1st reel / release date: 24.07. 2nd reel / release date: 27.07. 3rd reel / release date: 29.07. 4th reel / release date: 31.07. 5th reel / release date: 03.08. 6th reel / release date: 06.08. 7th reel / release date: 10.08 8th reel / release date: 13.08. Total 8 video posts. Link to all videos: https://www.tiktok.com/@climaax.kezdi?_r=1&_t=ZN-930jpgHBuQo

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