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Down to Earth

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Environmental risks related with depopulation and ageing population
in rural areas

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Abbreviation list

Term	Description
CAMARO-D	Cooperating towards Advanced Management Routines for land use impacts on the water regime in the Danube river basin
CAP	Common Agricultural Policy
CLIMHYDEX	Changes in climate extremes developments and associated impacts to hydrological events
CVDD	Green Path towards Sustainable Development
DriDanube	Drought Risk in the Danube Region
EAFRD	European Agricultural Fund for Rural Development
EC/DG	European Commission / Directorate-General
EU	European Union
EUSDR	European Union Strategy for the Danube Region
GDP	Gross domestic product
INTERREG	European Territorial Cooperation
IT	Information technology
MIDMURES	Mitigation Drought in Vulnerable Area of the Mureş Basin
NGO	Non-Governmental Organization
NMA	National Meteorological Administration
NRDP	National Rural Development Programme
RA-VI	World Meteorological Organization
ROP	Regional Operational Programme
SWOT	Strengths / Weaknesses / Opportunities / Threads
Water CoRe	Water scarcity and droughts; coordinated actions in European regions
WMO	World Meteorological Organization

Executive Summary

Environmental risks related to depopulation and an aging population in rural areas in Romania are significant challenges that require attention and action. The Sustainable Development Strategy for Romania recognizes these risks and aims to address them through various objectives and focus areas.

Emphasizing the need for improvement can lead to more comprehensive, targeted, and impactful actions to ensure the long-term sustainability and resilience of the country.

Depopulation and an aging population in rural areas bring about multifaceted environmental risks. The Sustainable Development Strategy needs to recognize the interconnections between demographic changes, land management, biodiversity conservation, resource use, and energy consumption. An improved strategy can adopt a holistic approach to address these complex challenges effectively.

Community engagement is vital for the success of sustainable development initiatives. The improved strategy should emphasize involving local communities, stakeholders, and NGOs in the decision-making process. Engaging rural residents in the planning and implementation of environmental projects can foster ownership, increase support, and lead to more successful outcomes.

Environmental education and awareness are crucial components of sustainable development. The improved strategy should prioritize initiatives that raise awareness about the importance of environmental conservation, sustainable practices, and the link between environmental health and community well-being.

Adequate funding and resource allocation are essential to support the implementation of the Sustainable Development Strategy. By ensuring sufficient financial support, the strategy can effectively carry out its objectives and projects, leading to tangible environmental improvements in rural areas.

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The improved strategy should foster collaboration among various stakeholders, including government agencies, local authorities, civil society, and the private sector. An inclusive and well-coordinated governance framework can enhance the strategy's impact and promote effective resource management.

Improving Romania's Sustainable Development Strategy is essential to effectively address the environmental risks associated with depopulation and an aging population in rural areas. This action could lead to ensuring long-term resilience, fostering inclusive and equitable development, promoting economic opportunities, aligning with international commitments, supporting green innovation and technology, strengthening multi-stakeholder collaboration, addressing urban-rural divide, building a sustainable future.

In conclusion, enhancing Romania's Sustainable Development Strategy is essential to effectively tackle environmental risks related to depopulation and an aging population in rural areas. A comprehensive and forward-looking approach that integrates climate change measures, community engagement, innovation, and proper governance will pave the way for a sustainable and thriving future for Romania's rural regions.

1 Introduction of the local context

Romania is a country located in southeastern Europe, bordering the Black Sea to the southeast. It is surrounded by Bulgaria to the south, Serbia to the southwest, Hungary to the west, Ukraine to the north, and Moldova to the northeast. The country's landscape is diverse, with the Carpathian Mountains running through the centre, offering beautiful scenery and opportunities for outdoor activities. Romania also has fertile plains and rolling hills in the south and east, as well as numerous rivers, including the Danube, which forms part of its southern border.

According to the National Institute of Statistics, the total surface of Romania is 238,397 km², in which there are 319 cities and municipalities, 2,862 communes and 12,958 villages. (National Institute of Statistics, 2023)

Rural areas occupy 87% of the national territory. In 2019, the rural population totalled 8,959,096.8 people or 46.14% of Romania's population, and the population density in rural areas was 43.15 inhabitants/km². (Ministry of Development, Public Works and Administration, 2020)

The Romanian rural environment is characterized by a strong social and economic heterogeneity between the different areas of the country, which is also reflected in the level of demographic evolution. Rural localities located in peri-urban or tourist areas register positive demographic developments, determined in particular by the urban-rural migratory movement. On the other hand, in isolated localities, but also in those located at distances of more than 30 km from urban centres, negative demographic developments are registered. From this point of view, we can consider that, broadly speaking, the evolution of the rural population follows the socioeconomic evolution of rural communities. (Ministry of Development, Public Works and Administration, 2020)

Aspects such as the level of development reached by localities, infrastructure and public services, the distance to larger urban centres and, ultimately, the living conditions that a rural locality entails decisively influence the migratory movement.

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The decline of the rural population, which began as a consequence of the modernization of society, became permanent through the combination of several demographic, economic and social factors.

The demographic decline is also associated with the continuous degradation of the age structure, caused by the aging process of the population, much more pronounced in rural areas than in urban areas. In rural areas, the resident population recorded large decreases for the young population segment and for the working-age population segment, except for the 15-19, 45-49 and 50-54 age groups. The biggest decreases were found in the 30-34, 35-39 and 55-59 age groups. The segment of the elderly resident population, aged 65 and over, grew in 2018 by approximately 40.4 thousand people. (Ministry of Development, Public Works and Administration, 2020)

From the point of view of the urban-rural typology applied in Romania, predominantly rural regions occupy almost 60% of the territory, while urban regions represent only 0,8% of the territory, the difference being found in the intermediate regions. The changes recorded at the level of the rural population in the last two decades, highlighted by the negative evolution of the main demographic indicators, have generated a pronounced demographic imbalance that manifests itself through the aging of the population, the decrease in the birth rate and fertility, through the increase in mortality, but also through the explosion of external migration, having as the main negative effect the depopulation of rural areas. (Ministry of Development, Public Works and Administration, 2020)

Romania has been experiencing a significant decrease in population over the years due to several factors. One of the primary contributors to depopulation is emigration, as many Romanians have sought better economic opportunities abroad, particularly in other European Union countries. The outflow of young and skilled workers has resulted in a declining birth rate and an increasingly aging population.

The aging population poses challenges for the country's social welfare systems, healthcare, and labour force. As the proportion of elderly citizens increases, there is a growing need for healthcare services and pensions, putting pressure on the state budget.

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Additionally, with fewer young people entering the workforce, there is a potential decline in economic productivity and innovation.

Romania has a mixed economy with several key sectors contributing to its GDP (National Institute of Statistics, 2023). Some of the major economic sectors include:

- *agriculture*: Romania has fertile agricultural land, and it remains an essential sector for producing cereals, vegetables, fruits, and livestock;
- *industry*: the country has a significant industrial base, with sectors such as manufacturing, automotive, machinery, electronics, and textiles playing a crucial role in the economy;
- *services*: the services sector, including IT, finance, tourism, and retail, has been growing steadily and is an essential contributor to Romania's GDP.

Depopulation in rural areas has led to the abandonment of agricultural land and traditional farming practices. This abandonment can result in environmental risks, including increased wildfire hazards, loss of biodiversity, and soil degradation.

Additionally, an aging population may lead to challenges in implementing and adhering to sustainable environmental practices. As older generations might be less inclined or able to adapt to new, eco-friendly practices, it could hinder efforts to mitigate environmental issues and transition towards more sustainable development.

In conclusion, Romania is a country with diverse geographical features and economic sectors. However, it faces significant challenges related to depopulation and an aging population, which can have implications for its economy and environment. Addressing these challenges will require a comprehensive approach from the government and stakeholders to ensure sustainable development and a better quality of life for its citizens.

2 SWOT analysis

For the Down to Earth project, year 1 thematic “environmental risks related with depopulation and aging population in rural areas” a SWOT questionnaire was prepared by the National Meteorological Administration and distributed at the 1st Stakeholders Meeting hosted in Romania.

The first part segregates the respondents into specific clusters (institution type, spatial extend, company size and environmental issues). Other two sections address Strengths/Weaknesses and Opportunities/Threads that the stakeholders may experience during their daily activities.

The aim was to collect responses during the 1st Stakeholders Meeting hosted in Romania. Overall evaluation was done based on the prevailing answers to each question. Every question addresses Strengths/Weaknesses and Opportunities/Threads.

2.1 Responding group description

The total number of respondents to this questionnaire was 32 of which 9 were representatives of state institutions and 15 of the respondents were representatives from the private sector (especially private companies in agriculture field), figure 1.

In terms of the space expansion of the company is concerned, it is classified according to local, regional, and national extent. Out of the 32 respondents, 15 were at a general (state level) and 10 representatives were at a local level, figure 2.

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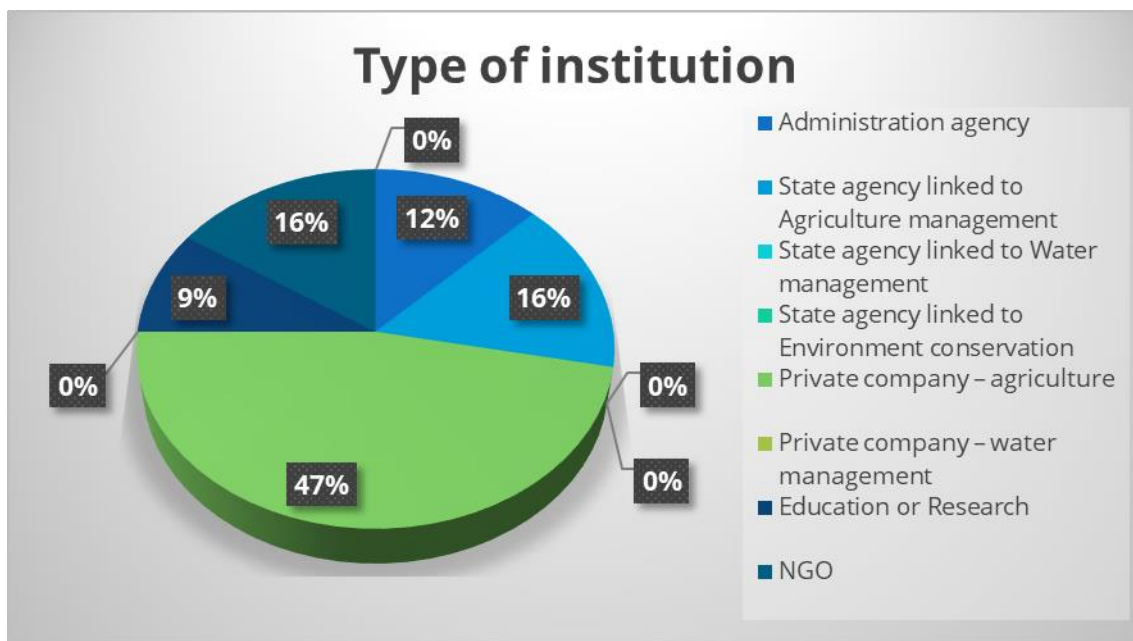


Figure 1 Questionnaire respondents by institution type

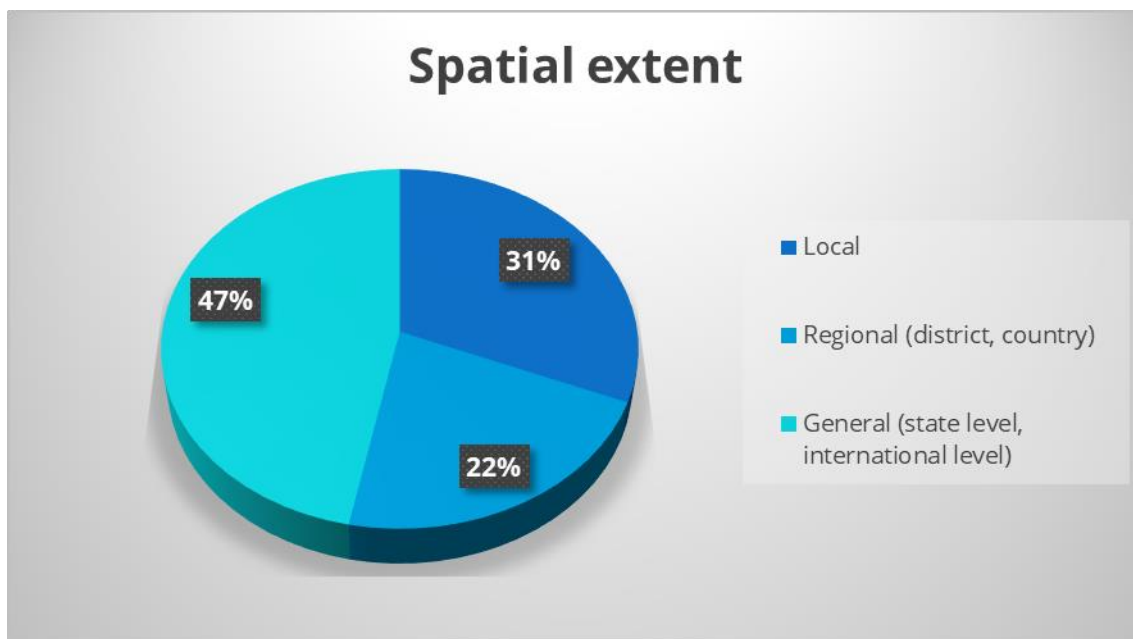


Figure 2 Questionnaire respondents by spatial extent

Analysing the answers from the point of view of company size, it is observed that 12 respondents come from large companies, 9 representing small companies and 8 representatives of micro companies, figure 3.

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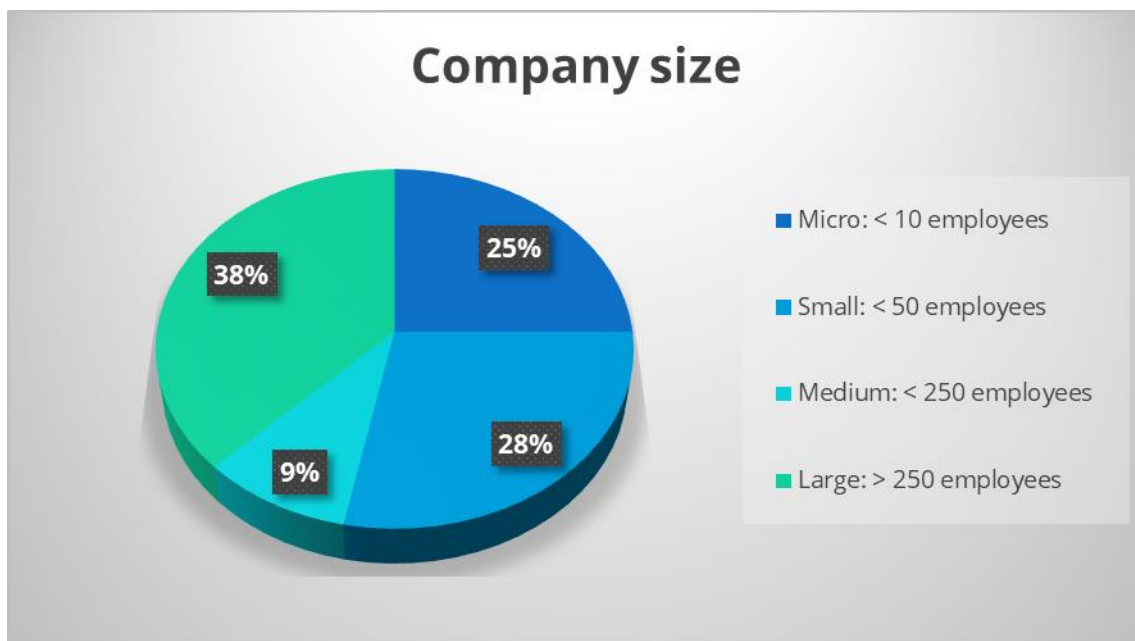


Figure 3 Questionnaire respondents by company size

All the respondents (32) have environmental issues in the filed of agriculture, figure 4.

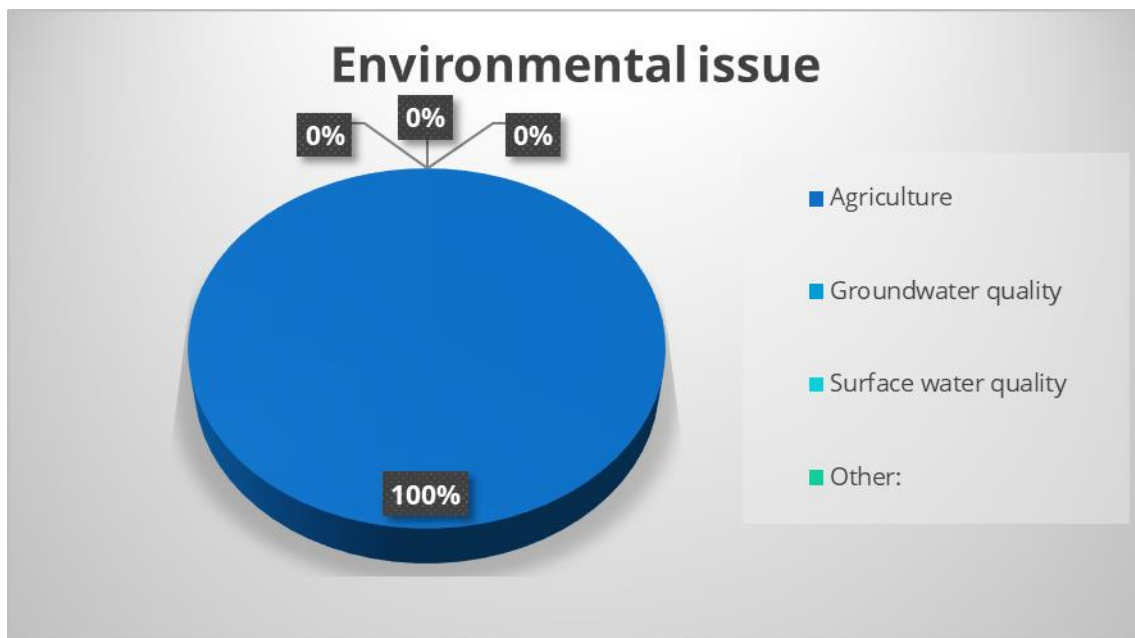


Figure 4 Questionnaire respondents by environmental issue

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2.2 SWOT evaluation

In completing this questionnaire, some questions have been given to several respondents by choosing the first three of them. As for the number of respondents who answered equally to more questions, they are placed on the same place because they have equal numbers of answers and give them the same place. During the interpretation of the results, figure 5, we will describe each situation and explain how to choose and differentiate, since each response with equal frequency is important and takes precedence over the others.

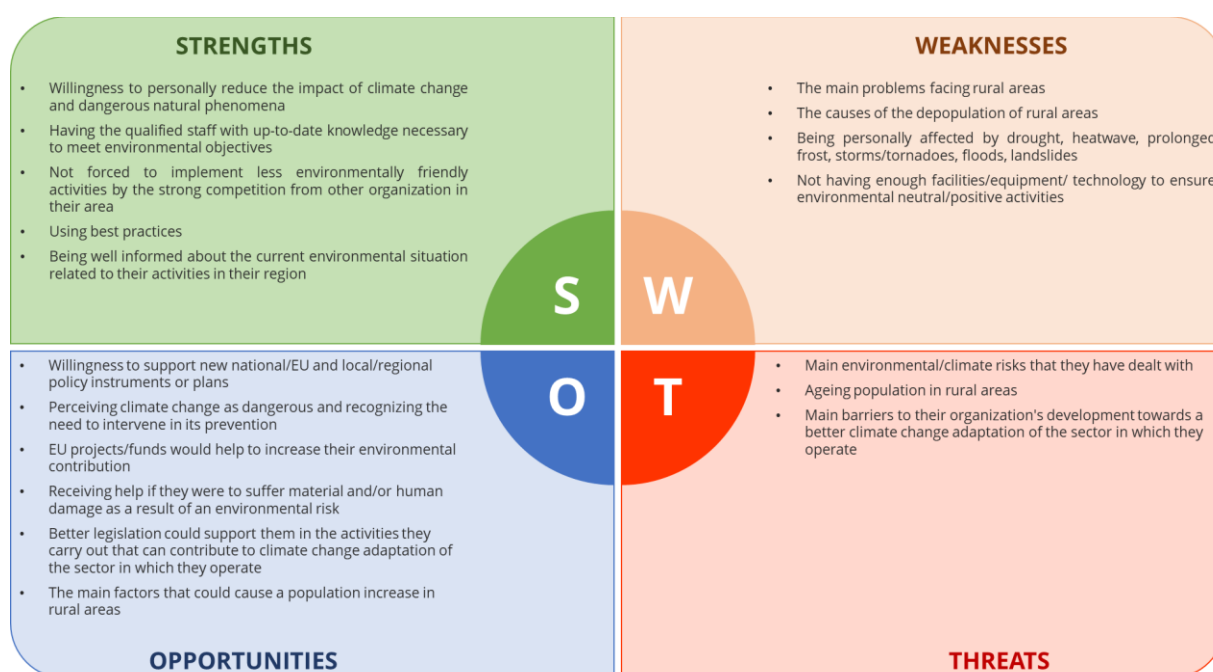


Figure 5 SWOT evaluation

2.2.1 Strengths

The most important strengths given by the answers provided by the institutions / companies are represented by:

- Willingness to personally reduce the impact of climate change and dangerous natural phenomena by participating in afforestation/damming/greening actions

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(28) or purchasing eco-friendly means of transport (bicycles, scooters, hybrid/electric personal cars) (15);

- Having the qualified staff with up-to-date knowledge necessary to meet environmental objectives (23);
- Not forced to implement less environmentally friendly activities by the strong competition from other organization in their area (19);
- Partially (17) and fully (11) using best practices;
- Being well informed about the current environmental situation related to their activities in their region (12).

2.2.2 Weaknesses

Regarding the weaknesses, the answers provided by the representatives of the institutions / companies were the following:

- The main problems facing rural areas:
 - labour migration to big cities and/or other countries (28);
 - population aging and depopulation (28);
 - few and/or poorly paid jobs (24);
 - poor quality of educational, medical, social services (24);
 - climate change and natural disasters (14);
- The causes of the depopulation of rural areas:
 - labour migration to big cities and/or other countries (27);
 - few and/or poorly paid jobs (25);
 - population aging and depopulation (23);
 - poor quality of educational, medical, social services (22);
 - deficient transport infrastructure and public utilities (17);
- Being personally affected to a great (16) or large (11) extent by drought, heatwave, prolonged frost, storms/tornadoes, floods, landslides (16);
- Not having enough facilities/equipment/ technology to ensure environmental neutral/positive activities (15).

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2.2.3 Opportunities

Among the main opportunities are the following:

- Willingness to support new national/EU (31) and local/regional (31) policy instruments or plans;
- Perceiving climate change as dangerous and recognizing the need to intervene in its prevention (29);
- EU projects/funds would help to increase their environmental contribution (28);
- Receiving help if they were to suffer material and/or human damage as a result of an environmental risk from:
 - regional/national authorities (28);
 - local authorities (22);
- Better legislation could support them in the activities they carry out that can contribute to climate change adaptation of the sector in which they operate (22);
- The main factors that could cause a population increase in rural areas:
 - urban agglomeration (22);
 - increase in utility costs (22).

2.2.4 Threats

Regarding the threats, the answers provided by the respondents were the following:

- Main environmental/climate risks that they have dealt with:
 - droughts (32);
 - groundwater depletion (21);
 - soil degradation, erosion (19);
- Ageing population in rural areas (27);
- Main barriers to their organization's development towards a better climate change adaptation of the sector in which they operate:
 - Lower financial income (23);
 - Increased administration (20);
 - Necessity of hiring new staff (12).

3 Legal and strategic framework

There are several legal and regulatory frameworks at the regional, national, and EU levels in Romania that address environmental risks and demographic changes in rural areas. These frameworks aim to promote sustainable development, environmental protection, and social cohesion in rural regions.

3.1 Regional framework

Romania has a decentralized system of governance with administrative divisions, including development regions and counties. At the regional level, there are several legal and regulatory frameworks that address environmental risks and demographic changes in rural areas. These frameworks are designed to support sustainable development, environmental protection, and social cohesion in specific regions.

Regional Operational Programmes (ROPs): As part of the European Cohesion Policy, Romania develops Regional Operational Programmes for each development region. These programmes allocate European Structural and Investment Funds to finance projects that contribute to regional development objectives, including environmental sustainability and demographic management in rural areas. (Ministry of European Investments and Projects, 2023)

Local Development Plans and Programs: Within each county, municipalities and rural communities may develop Local Development Plans and Programs. These plans outline local priorities and projects aimed at improving living conditions, infrastructure, and environmental sustainability in rural areas. (Ministry of Development, Public Works and Administration, 2023)

It's important to note that the legal and regulatory frameworks at the regional level are interconnected with national-level policies and strategies, as well as EU-level directives and guidelines. The regional-level frameworks work in harmony with higher-level

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strategies to ensure a cohesive and coordinated approach to addressing environmental risks and demographic changes in Romania's rural areas.

3.2 National framework

Romania has several legal and regulatory frameworks at the national level that address environmental risks and demographic changes in rural areas. These frameworks aim to promote sustainable development, protect the environment, and address challenges associated with depopulation and an aging population.

Romania's Sustainable Development Strategy 2030: This strategy outlines the country's long-term vision for sustainable development and covers various aspects, including environmental protection, demographic changes, and rural development. It provides a roadmap for integrating economic, social, and environmental objectives to achieve sustainable growth in rural areas. (Romanian Government, 2018)

National Strategy Regarding Climate Change Adaptation: The Romanian legislation on climate change addresses the specific challenges faced by rural areas. Focusing on sustainable agricultural practices, renewable energy adoption, and eco-friendly development can empower rural communities to mitigate climate risks and enhance resilience. (Romanian Government, 2022)

National Strategy for the Development of the Agri-food Sector: The Strategy aims at the intelligent and sustainable exploitation of the agri-food potential and the development of the rural area. (Ministry of Agriculture and Rural Development, 2015)

National Rural Development Programme (NRDP): The NRDP is a strategic document at the national level, developed under the Common Agricultural Policy of the European Union. It outlines the priorities and measures to support rural development in Romania, including initiatives related to sustainable agriculture, rural infrastructure, and rural diversification. (Ministry of Agriculture and Rural Development, 2023)

National Territorial Development Strategy: The Strategy aims to reduce territorial disparities and promote balanced regional development, including in rural areas. It addresses the

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challenges posed by depopulation and demographic changes by fostering sustainable urban-rural linkages and integrated regional planning. (Ministry of Development, Public Works and Administration, 2019)

These national-level legal and regulatory frameworks provide a comprehensive approach to addressing environmental risks and demographic changes in Romania's rural areas. By integrating economic, social, and environmental considerations, these policies aim to foster sustainable development, protect the environment, and promote the well-being of rural communities in the face of demographic shifts and environmental challenges.

3.3 EU framework

At the European Union level, there are several legal and regulatory frameworks that address environmental risks and demographic changes in rural areas. These frameworks aim to promote sustainable development, environmental protection, and social cohesion across EU member states, including Romania.

Common Agricultural Policy (CAP): The CAP is one of the EU's core policies, which provides support for the agricultural sector and rural development. It includes measures to promote sustainable farming practices, support rural diversification, and enhance the socio-economic well-being of rural communities. (European Commission, 2023)

Cohesion Policy: Cohesion Policy aims to reduce disparities between EU regions by promoting economic, social, and territorial cohesion. It supports sustainable development projects in rural areas and addresses demographic challenges through targeted investments and initiatives. (European Commission, 2023)

European Agricultural Fund for Rural Development (EAFRD): As part of the CAP, the EAFRD provides financial support for rural development projects in EU member states. It funds initiatives that focus on enhancing competitiveness, environmental sustainability, and quality of life in rural areas, aligning with EU's sustainable development goals. (European Commission, 2023)

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European Green Deal: The EU has a comprehensive climate policy framework, which includes targets for reducing greenhouse gas emissions and transitioning to a low-carbon economy. This policy aims to mitigate the impacts of climate change and promote sustainability in rural regions. (European Commission, 2023)

These EU-level legal and regulatory frameworks provide a comprehensive approach to addressing environmental risks and demographic changes in rural areas across the European Union, including Romania. By promoting sustainable development, environmental protection, and regional cooperation, these policies contribute to the well-being and resilience of rural communities and natural ecosystems throughout the EU.

4 Good practises & other experiences

The aging of the population and the depopulation of the Romanian village are two real and obvious aspects of the rural environment today. It is important to have national meetings that allow the political decision-maker to take measures, political strategies that address the rural environment as a whole.

Currently Romanian villages are deserted and isolated, many areas being absent from the agri-food market. "He who does not work the land does not maintain nature", Mr. Vlad Gheorghe – representative of Interprofessional Organization for Vegetable and Fruit Agrifood Products.

4.1 Stakeholders' feedback

During the 1st National Stakeholders Meeting "Environmental risks related to depopulation and population aging in rural areas" and the 2nd National Stakeholders Meeting "Environmental risks related to depopulation and population aging in rural areas – Lessons learned" hosted by NMA in Bucharest on 18 July 2023, and 17 October 2023 respectively, we received the following feedback from the participants:

- the need for local forecasts to benefit farmers in their daily activities;
- careful selection of the technologies used; if there is an area with few resources, do not use technologies that consume a lot of those resources;
- updating the database of hybrids/varieties to redo the crop zoning to the new current weather conditions;
- use of catchment basins and improvement of legislation to facilitate this good practice;
- the fishing sector is affected by climate change, and is faced with the departure of young people to cities and more developed areas;
- in Romania, farmers find it very difficult to find qualified, but also unqualified personnel, to carry out their activity. Although wages have started to rise in this field, there is this exodus of young people to other economies;

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- training programs for farmers are welcome, but they must include also small farmers, not only large farmers;
- climate change negatively influences production, water reserves are minimal, and farmers must be taught how to adapt to these climate changes.

The responding state or private companies in Romania are interested in environmental conservation, especially in agriculture. The improvements in current practices are needed by monitoring / coordinating data on environmental impact, training of qualified staff, and involvement in European and national projects.

Regarding the transboundary cooperation, this is not very widespread among institutions / companies. Also, most respondents consider it important to apply national and EU policy tools and plans, but also to inform the public about the environmental impact on activities through educational seminars and workshops.

The main achievements towards better state of the environment in the last five years are mainly the improvement of water supply systems, management of biodiversity conservation and improvement soil organic matter content.

More specific achievements of the stakeholders towards better state of the environment were:

- the companies ensure the implementation of environmentally friendly solutions;
- increasing the surfaces with green spaces;
- optimization of agricultural practices;
- working the land throughout the entire agricultural year;
- crop rotation;
- water management;
- use of irrigation;
- rational use of water in irrigation systems;
- conserving water in the soil through minimal work (ploughing);
- use of resistant varieties/hybrids;

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- weed control;
- the localized and rational application of complex fertilizers in crops;
- reducing the use of chemical fertilizers (use of high-performance seeding with row fertilization);
- composting household waste;
- afforestation;
- prevention of environmental pollution;
- selective collection.

4.2 Successful initiatives

DriDanube – “Drought Risk in the Danube Region” (2017-2019), financed by the INTERREG Danube Transnational Programme. The main objective of DriDanube project is to increase the capacity of the Danube region to manage drought related risks. The project aims at helping all stakeholders involved in drought management become more efficient during drought emergency response and prepare better for the next drought. (DRIDANUBE Drought Risk in the Danube Region, 2017)

CAMARO-D – “Cooperating towards Advanced Management Routines for land use impacts on the water regime in the Danube river basin” (2017-2019), financed by the INTERREG Danube Transnational Programme. The project aimed at developing comprehensive recommendations towards a strategic policy for the implementation of an innovative transnational catchment-based “Land Use Development Plan” for the Danube River Basin. It will also provide important inputs for the further development of the EU Strategy for the Danube Region (EUSDR) and other relevant EU-policies. (CAMARO-D Cooperating towards Advanced MAnagement ROutines for land use impacts on the water regime in the Danube river basin, 2017)

CVDD – “Green Path towards Sustainable Development” (2014-2017), part of RO07 Programme – Adaptation to climate change, financed by funds provided by Iceland, Liechtenstein and Norway via the Financial Mechanism of the European Economic Area (EEA), EEA Grants 2009 – 2014. The general objective of the programme is obtaining a

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reduced human and ecosystem vulnerability to climate change, aiming at a possibility to share and promote best practices on adaptation to these changes. (Green Path towards Sustainable Development, 2015)

CLIMHYDEX – “Changes in climate extremes developments and associated impacts to hydrological events” (2012 – 2015), quantifying and assessing the impact of extreme climate events to hydrological regime and drought conditions.

MIDMURES – “Mitigation Drought in Vulnerable Area of the Mureş Basin” (2011-2012), financed by the EC/DG under the development of prevention activities to halt desertification in Europe. The main goal of the MIDMURES project was to contribute to improving agricultural water saving and drought forecasting in the Mureş pilot area through the combination of various technical approaches. The expected results refers to: modelling long-term agro-climatic data in order to establish the risk factors, to spot the areas with high vulnerability and provide timely drought forecasts; assessing the impact of climate changes on soil water availability for crops cultivated in the most vulnerable area of the Mureş River basin to drought and water scarcity, rainwater conservation in soil for optimizing water availability according to the plant needs throughout the growing season and in the period with high deficit. (MIDMURES, 2010)

Water CoRe – “Water scarcity and droughts; coordinated actions in European regions” (2010-2013), financed by the INTERREG IV-C Programme. intends to provide an exchange platform for water scarcity and drought issues on regional and local level for all European regions. It will function as a kind of marketplace for participating regions where good practice examples can be ‘bought or sold’ from one region in order to adapt these to the local/regional situation in another region. Special attention will be given to regions in central and eastern Europe by establishing a focal point on water scarcity and droughts in Hungary. Policies and practical experiences related to management of water scarcity and droughts do already exist in Europe. Water CoRe will compile this knowledge and make it accessible for all regional and local actors in the EU in order to create their own tailor-made approaches. Topics covered in thematic working groups concern water demand-side management, handling drought periods, climate change effects and public

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awareness and participation. Each working group will follow the following project phases: collecting existing experiences, exchange experiences and match partners for transfer, transfer of best practices via e-learning and training sessions, evaluate 'lessons learnt' and formulate policy recommendations. (Water scarcity and droughts; coordinated actions in European regions, 2016)

INTERREG III-B: "Agriculture and Climate Change: How to alleviate effects and threats" delivering as particular outcome the "Attitude Code towards mitigating the climate change impact in agriculture".

The Climate Change Adaptation Guide was elaborated and endorsed by the Minister of Environment through the Ministerial Order 1170/2008. The objective of the Guide is to increase Romania's capacity to adapt to the current and potential effects of climate change. The purpose of the Guide is to identify, depending on the existing economic resources, the necessary measures to limit the negative effects predicted by the climate scenarios, estimated over a medium and long-time horizon (decades). The identified measures being implemented by collaborating with local authorities and by providing the appropriate technical assistance. (Order no. 1,170 of September 29, 2008 for the approval of the Guide on adapting to the effects of climate change - GASC, 2008)

Within the profile universities are undertaken courses on meteorology, climate change and water management. Also, through the country there are training courses within the institutions for good resource management and a good adaptation of processes to climate change. It also exchanges experience and best practices with other countries through projects to implement measures that yield returns in our country (i.e. national and international projects).

Under PhD programs, we are studying more thoroughly the different environmental themes that are topical and are testing increasingly evolved methods:

- University of Bucharest - Faculty of Geography, study module - Climatology, Meteorology, Agrometeorology, Meteorology and Measurements;

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- University of Agronomic Sciences and Veterinary Medicine, specialty Engineering and Environmental Protection (at the Master's program is a special course of Climate Change – Causes and effects);
- University of Agronomic Sciences and Veterinary Medicine - study module of Agrometeorology in the Faculty of Agriculture.

4.3 Challenges encountered in initiatives

Approaches, community engagement efforts, and stakeholder collaborations that have not proven as effective in addressing these challenges include:

Top-down decision-making: In some cases, top-down decision-making by local authorities or external organizations without meaningful community engagement has led to projects that do not align with the needs and priorities of the rural population. This lack of community ownership and involvement can result in resistance and limited support, hindering the success of environmental initiatives.

Lack of funding and resources: In rural areas facing depopulation, limited funding and resources have sometimes impeded the implementation of environmental projects. Without sufficient financial support, it can be challenging to invest in sustainable infrastructure, conservation efforts, or community-driven initiatives.

Fragmented collaboration: Collaboration among stakeholders is vital for addressing complex environmental challenges, but sometimes efforts remain fragmented. Lack of coordination and communication among different organizations, agencies, and community groups can lead to duplication of efforts, inefficient resource allocation, and missed opportunities for synergy.

Short-term focus: Some initiatives may prioritize short-term gains over long-term sustainability. This approach could lead to projects that are not ecologically sound or do not account for the long-term impacts of their activities on the environment and the community.

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Resistance to change: In some rural communities, there might be resistance to adopting new practices or technologies, especially among older generations. This resistance can hinder the implementation of innovative approaches and limit the potential benefits they can bring.

Limited public awareness and education: The success of environmental initiatives often relies on public awareness and education. Inadequate communication and outreach efforts can result in limited understanding of the importance of environmental conservation and sustainable practices, hampering participation and support from the local community.

4.4 Agrometeorological resources

In Romania, agriculture has a particularly important status, although it is going through the most profound restructuring process of ownership and exploitation system. It has remained one of the priority branches of material production, all the more so since the economic and social progress of the contemporary world is in close correlation with the level of achievements in agriculture and cannot be conceived without the strong development of this branch of production.

Over time, it has been scientifically proven that agricultural production is directly related to the sequence of atmospheric states.

Climatic factors intervene either directly, on the growth and development of vegetation and animals, or indirectly through their action on the harmfulness or dissemination of specific pests and diseases, as well as on the condition of the soil.

At the level of agricultural production, climatic events can sometimes have a negative impact (loss of part or even the entire harvest) in unfavourable years, or a positive impact (increase in agricultural production) in favourable years.

Agrometeorology is the science that deals with the research of meteorological conditions under the aspect of their influence on agricultural production. According to the WMO - No. 134 guide, agrometeorology studies both the meteorological, hydrological,

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pedological and biological factors that affect agricultural production, as well as the interactions between the environment and agriculture. The main role of this science is to determine all these effects, so that it can come to the aid of farmers by applying in agricultural practice the new knowledge acquired in the research process. Also, in the WMO - No. 134 guide, attention is drawn to the important role that this scientific branch has, in the current context of climate change, regarding the ability to prepare and adapt to the impact produced by it on human society. (Mateescu, Alexandru, Oprea, & Manea, 2016)

The National Meteorological Administration will monitor the impacts of climate change, including the associated socio-economic vulnerabilities, identify and propose new transnational special measures for the adaption in agricultural sector, based on the latest evolution of agrometeorological drought indicators in Romanian agriculture within 2018-2022. To come in the aid of the Down to Earth stakeholders, throughout the project lifetime the following agrometeorological parameters will be analysed:

- soil moisture;
- scorching heat;
- precipitation.

The *soil moisture reserve* is determined by the soil water balance method using meteorological data recorded at meteorological stations with agrometeorological program, the humidity values being validated by direct measurements made with humidity sensors in 68 points/agrometeorological platforms. (Mateescu, Alexandru, Oprea, & Manea, 2016)

Soil moisture (mc/ha) is measured directly in winter wheat and maize crops, respectively the depths of 0-20 cm, 0-50 cm, 0-100 cm depending on the stage of plant growth and development throughout the period vegetation assets. (Mateescu, Alexandru, Oprea, & Manea, 2016)

The "*scorching heat*" phenomenon is one of the most important agrometeorological risk factors that can have negative effects on the growth and development processes of

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plants. The limit of 32°C represents the critical biological threshold regarding the maximum air temperature from which the optimal physiological growth and development of wheat and maize plants is affected, especially in the critical period, with maximum requirements regarding the temperature factor, respectively the June- August. (Mateescu, Alexandru, Oprea, & Manea, 2016)

Precipitation represents the main source of water for the growth and development of agricultural plants, and the most significant elements of this meteorological parameter are its quantitative variability and the distribution in space and time. (Mateescu, Alexandru, Oprea, & Manea, 2016)

5 Proposals for improvement

The improvement of knowledge is an essential base for effective policy- and decision-making. This is not only regarding knowledge about climate and agriculture but also about the effects of financial instruments and awareness rising measures. Data must be collected in order to evaluate weaknesses and progress.

The challenge for decision- and policy-makers is to understand the projected climate change impacts and to develop and implement policies to ensure an optimal level of adaptation.

All relevant rural areas sectors must contribute to adapting to climate change. This relates to participation on all levels, whether administrative, institutional, private or from the civil society. Only an integrated approach will provide successful win-win solutions and avoid negative cross-sectoral feedbacks of measures.

The development and implementation of successful adaptation and mitigation strategies is a complex cross-cutting issue and is often hampered by different kinds of obstacles and barriers, such as costs, uncertainties and resulting lack of commitment. Adapting to climate change requires policy shifts, institutional reforms as well as significant investments.

5.1 Stakeholders' recommendations

During the 1st National Stakeholders Meeting "Environmental risks related to depopulation and population aging in rural areas" and the 2nd National Stakeholders Meeting "Environmental risks related to depopulation and population aging in rural areas – Lessons learned" hosted by NMA in Bucharest on 18 July 2023, and 17 October 2023 respectively, we received the following feedback from the participants:

- the need for investment in research, innovation and biotechnology;
- investment in forest curtains and afforestation;

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- updated report together with the authorities generating objective laws so that farmers can afford to irrigate their crops;
- programs for better water management;
- investments in improving and expanding the irrigation system;
- knowledge transfer between generations (from seniors to young people);
- establishing "mentoring" programs; young graduates to make a commitment to stay for a period of 5 years with an experienced farmer to benefit from his knowledge; this method has a double advantage: increasing population and production;
- the need for the general cadastre of agricultural land;
- to combat the problem of uncultivated agricultural land, it was proposed to establish forests or grow vegetables on 10% of these lands that are in areas strongly affected by drought, thus changing the microclimate of the area.

In the SWOT questionnaire, distributed at the 1st Stakeholders Meeting hosted in Romania, the participants were asked to recommend 1-2 solutions that could be transposed into laws and lead to increased environmental resilience to climate change.

The main solutions towards better an increased environmental resilience to climate change are mainly improvement of the current legislation regarding agriculture, rural areas and climate change, financial aids for farmers and rural citizens, assure intergenerational knowledge transfer and information campaigns related to climate change. Their responses were as follows:

- the adoption of appropriate legislation at the regional/national level;
- European projects on the digitization of farms;
- forestry programs;
- traditional rural economies specific to the area;
- laws for pedological drought;
- mutual fund for non-fertile land;
- agro-environmental packages in agricultural exploitation;

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- adequate financial support granted to farmers in order to reduce the effects of climate change;
- increased financial support for farmers;
- development of sustainable communities;
- protecting ecosystems and stopping land deforestation;
- use of degraded land;
- use of solar energy;
- using water efficiently;
- improvement and expansion of the irrigation system;
- creating forest curtains;
- reduction of greenhouse gas emissions;
- dual education between agricultural and farm high schools;
- information campaigns related to climate change.

6 Conclusions

The urgency of addressing environmental risks associated with depopulation and an aging population in rural areas in Romania arises from several factors:

- *abandoned land and infrastructure*: depopulation in rural areas leads to abandoned agricultural land, buildings, and infrastructure. this abandonment can result in land degradation, increased susceptibility to natural disasters, and difficulties in repurposing the abandoned areas;
- *environmental vulnerability*: rural areas often have unique ecosystems and natural resources that need protection. a declining population can lead to reduced capacity for environmental stewardship, potentially resulting in unchecked exploitation of resources and increased pollution;
- *energy and water consumption*: an aging population requires increased energy and water consumption for healthcare facilities and services, which may put pressure on resources and lead to increased carbon emissions.

To address the challenges of depopulation and an aging population, Romania needs to focus on several areas:

- *economic development*: creating more job opportunities and improving the overall economic conditions in rural areas can help stem the tide of migration;
- *infrastructure and services*: investing in rural infrastructure, healthcare facilities, and social services can make these areas more appealing for young families and retirees;
- *education and skills training*: enhancing educational opportunities and vocational training in rural regions can empower the local workforce and attract businesses to these areas;
- *environmental conservation*: implementing sustainable land use practices and promoting environmental awareness can mitigate the risks associated with depopulation and an aging population;

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- *social support*: providing adequate social support and elderly care services can ensure the well-being of the aging population.

It's essential to address these challenges holistically to ensure Romania's sustainable development and a prosperous future for all its citizens.

The Romanian stakeholders believe that the Down to Earth project approach is very interesting, because it creates a broader vision, and depending how the situation in other regions is managed, good practices and methods can be identified. These can be examples of success, from which positive conclusions can be drawn, from which solutions that Romania needs can be generated that can be implemented in our policies.

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8 Minute annex 1

National Stakeholders Meeting "**Environmental risks related to depopulation and population aging in rural areas**", Bucharest - 18 July 2023

1. Participants

Representatives of the organizations as follows:

- National Meteorological Administration
- Chancellery of the Prime Minister – Agricultural Department
- Ministry of Agriculture and Rural Development
- University of Agronomic Sciences and Veterinary Medicine of Bucharest
- Pro Agro National Federation
- Romanian Maize Producers Association Forum
- Romanian Farmers Club
- Farmer's Strength Association
- Interprofessional Organization for Vegetable and Fruit Agrifood Products
- Agroiinteligența - agricultural mass-media
- ITC Seeds
- Farmers

Start at 09.30

End at 13.00

2. Discussions

2.1 Mr. Daniel Alexandru (NMA)

Opened the seminar and briefly presented the purpose of the meeting, the importance, and the need to carry out discussions at the national level with decision-makers and

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stakeholders regarding depopulation, the aging of the population in rural areas, the migration of the population from villages to the city, shortcomings in terms of the workforce, technological equipment in the rural area. He emphasized the fact that such problems are present not only in Romania, but also internationally and presented the essential characteristics of the Down to Earth project. The Down to Earth project will provide a database of good practices, measures from the legislation of the participating countries to create and improve the current legislation of the partner countries within the project.

2.2 Mr. Iulian Bucur – State Secretary of Ministry of Agriculture and Rural Development

Took the floor and stated that the Ministry he represents is considering expanding the irrigation system, as well as supporting farmers in the countryside. He emphasized the idea that by the disappearance of the animals from the households, the Romanian village will also disappear. That is why the phenomenon of rural depopulation is a phenomenon that must be treated seriously.

2.3 Mr. Dumitru Daniel Botănoiu – Chancellery of the Prime Minister – Agricultural Department

Mentioned the fact that the aging of the population and the depopulation of the Romanian village are two real and obvious aspects of the rural environment today. He emphasized the importance of the existence of such national meetings that allow the political decision-maker to take measures, political strategies that address the rural environment as a whole. The pandemic has shown us that life in the countryside is an alternative and it is necessary to keep it alive and to have a fusion of the two environments. He also mentioned the fact that in the period 2014-2020, a series of programs were carried out by the Ministry, which had as their objective the installation of young farmers in the rural environment, with 100% grants. As a result of these programs, more than 10,000 young people (according to the Ministry's data) settled in rural areas. However, the percentage is quite small (approximately 3 young people/municipality), but

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it is important to encourage young people to settle in the countryside. He emphasized the importance of explaining and understanding terms such as: "resilience", "durability", "vulnerability", "sustainability", "climate changes", to the rural people through political decision-makers, professional organizations, national conferences, local administrations. The Ministry of Agriculture and Rural Development offers support to the rural environment. It is important to preserve what we have in the countryside today and to develop this environment, just as it is equally important to have purposeful public policies.

2.4 Mr. Radu Timofte – Ministry of Agriculture and Rural Development, COSU coordinator

Took the floor by describing the function and the complex activity he carries out within the Ministry of Agriculture and Rural Development, the processing of information/data from the field, especially on issues related to the pedological drought phenomenon. Thus, he questioned the frequency of pedological drought episodes in the country in recent years. According to the statistical data held at the level of the Ministry, if 10 years ago pedological drought was discussed every 3-4 years, in recent years the phenomenon of pedological drought is present almost every year. He also pointed out the problems and difficulties that small and medium-sized producers in rural areas, mostly elderly people, face when it comes to organization. The commissions that go to the field to ascertain the phenomenon of pedological drought encounter problems regarding the way and ease of carrying out the evaluation of the agricultural areas affected by this phenomenon, in the case of these producers. Small and medium-sized rural producers are generally represented by elderly people, very few young people are left to take care of agriculture, most of them migrating to cities or having left the country.

2.5 Mr. Vlad Macovei – representative of Farmer's Strength Association and mass-media (Agrointeligenta)

He began by presenting an event of the Farmer's Strength Association that took place last year, which was attended by farmers and many public figures. This event consisted in the organization of an agricultural fair - Farmer's Strength Expo in which, for the first time in

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Romania, solutions for small and medium-sized farmers were offered and which had as its purpose the printing of an edition of the Agroiinteligența Magazine. During this event, the participants were asked to express their opinion about the future of the Romanian village. He presented the main ideas, visions of those who participated in this event regarding the aspects related to the future of the Romanian village:

- Finding a solution both at an economic and social level to encourage the return to rural areas of young people who work abroad, most of these people coming from rural areas in the first place;
- Depopulation of villages is also an obvious phenomenon if we make a simple ratio between birth and mortality in the rural areas;
- The creation of a modern social infrastructure (schools, roads, sewerage, doctors, playgrounds for children, etc.) in order to attract young people who have gone abroad, young people who, despite the launch of some programs by the Romanian state (for example, the Tomato Program), will not come to invest and settle in the rural areas without the creation of optimal infrastructure conditions;
- Identifying and offering solutions to farmers regarding the fight against the effects of climate change: drought, floods, heat, etc. The question arises whether irrigation is always the effective solution. Possible solutions to the effects of climate change could be: changing the type and structure of crops, the work schedule of crops, planting forest curtains. He gave the example of an experiment carried out last year on commercial land (several tens of hectares) by a research institute that proved the effectiveness of planting forest curtains. Thus, under the conditions of applying the same technology, a production of 5000 kg was obtained on a soil with forest curtains, while on a soil without the forest curtains only 500 kg was obtained as production. In conclusion, the farmer must be encouraged to use forest curtains, they must become a solution in the fight against the effects of climate change. Proof of the area of Dobrogea located on Bulgarian territory, where the system of forest curtains exists and works very well compared to the Romanian territory located in the Dobrogea region.

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2.6 Mr. Vlad Gheorghe – representative of Interprofessional Organization for Vegetable and Fruit Agrifood Products

Stated that currently Romanian villages are deserted and isolated, many areas being absent from the agri-food market. He is of the opinion that: "He who does not work the land does not maintain nature". He raised the issue of managing the water reserve we have and the drinking water that is used uncontrolled in public spaces to irrigate green spaces.

2.7 Mr. Gheorghe Nedelcu – ITC Seeds general manager

Took the floor and emphasized the importance and actuality of the topic addressed in this meeting, the depopulation of villages representing a real phenomenon. He pointed out some of the reasons for recording this phenomenon:

- the poor development of the Romanian economy, which also involves low incomes in the rural areas, a fact that determines the exodus of the population;
- the lack of a policy for the gradual development of villages;
- destruction of the irrigation system, a system that requires reconstruction.

As solutions, he believes that rainwater must be accumulated, it is necessary to create reservoirs so that it can be harnessed and used.

He considers the collection of products from producers through the Unirea House of Commerce a very good idea that supports the Romanian farmer, but it should be used strictly in this sense. He emphasized the importance of taking measures such as afforestation, the use of water from reservoirs (for example Lake Mihăilești) for irrigation, the rehabilitation of the irrigation system, such measures can be used to reduce the effects of climate change in the agricultural sector.

2.8 Mr. Fănel Pețanca – farmer from Giurgiu area

Emphasized the importance of managing crop fertilizer application and expenditure by farmers during drought. He also brought up the issue of poor infrastructure and utilities offered by the rural areas, something that generates the exodus of young people abroad. An efficient distribution of public money by local public institutions and their close monitoring by ministries is necessary. On the environmental side, there are problems

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regarding the storage of garbage on the outskirts of villages, this also affects the owners of agricultural land, in addition to the environmental problems it generates.

2.9 Mr. Daniel Alexandru (NMA)

Intervened by specifying the fact that the problems reported by Mr. Petanca are also found in other countries, even if perhaps on a different scale. In recent years, things have improved, even with regard to irrigation systems, which Mr. Petanca confirmed it for his area.

2.10 DI. Gheorghe Nedelcu – Manager general al ITC

Replied that it is very important to make investments in factories, including in villages, by which to attract the labour force. He brought up the influence of war, toxic substances on agriculture, in addition to the influence of climate.

3. Presentations

3.1 Ms. Florinela Georgescu (Director of Meteorological Forecast - NMA)

Appreciated the discussions from the beginning of the session and mentioned the benefits of forest curtains and afforestation for agriculture in terms of climate influence on crops. The presentation included:

- the history and attributions of the National Meteorological Administration
- the Romanian meteorological stations network
- the national network of meteorological radars
- NMA products (satellite meteorology products, numerical modeling, warnings)
- the impact of extreme weather conditions and climate change in Romania.

3.2 Mr. Daniel Alexandru (Head of the Agrometeorological Department - NMA) - Operative products and services developed within the Agrometeorological Department

The presentation included:

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- description of the Agrometeorological Department within the National Meteorological Administration
- National Agrometeorological Monitoring Network from Romania
- the national AGROMETEO data platform
- data types utilised
- products that are made available to the public
- how the products can be accessed
- drought risk assessment in Romania
- collaboration at national, European and global level
- Regional Agrometeorology Center for the WMO Europe Region RA-VI.

3.3 Ms. Andreea Popescu (Agro Engineer - NMA) - INTERREG Europe / Down to Earth - Tackling depopulation challenges to improve environmental resilience in rural areas

The presentation included:

- Interreg Europe Programme description
- Down to Earth project description (general objective, partnership, expected results, addressed policy instruments, timeline)
- information regarding the digital workshop with experts
- Down to Earth kick-off conference
- details regarding the Interreg Europe Policy Learning Platform.

3.4 Mr. Daniel Alexandru (Head of the Agrometeorological Department - NMA) - The national policy instrument addressed by NMA in the Down to Earth project

The presentation included:

- details regarding Romania's Sustainable Development Strategy 2018
- objectives and chapters of the Strategy
- how NMA will contribute to updating the Strategy, respectively chapters 2 Zero Hunger – Agriculture and 13 Climate Action
- statistical data on rural areas and agricultural holdings in Romania

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- brief analysis of agrometeorological products (soil moisture reserve for the maize crop, scorching heat, reference evapotranspiration) from the last most droughty years
- the impact of extreme weather in Romanian agriculture
- Down to Earth project stakeholders.

4. Filling out the questionnaires

Mr. Daniel Alexandru (NMA) asked the participants to fill in the questionnaires, which were made available to everyone in the materials received upon registration.

He stated that these questionnaires contain general but relevant information for determining the presence and intensity of environmental risks in rural areas, data collected regarding the current situation in the field.

5. General conclusions

- Climate change is visible
- The need for local forecasts to benefit farmers in their daily activities
- The need for investment in research, innovation and biotechnology
- Careful selection of the technologies used; if there is an area with few resources, do not use technologies that consume a lot of those resources
- Investment in forest curtains
- Updating the database of hybrids/varieties to redo the crop zoning to the new current weather conditions
- Updated report together with the authorities generating objective laws so that farmers can afford to irrigate their crops
- Programs for better water management
- Use of catchment basins and improvement of legislation to facilitate this good practice

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- Knowledge transfer between generations (from seniors to young people)
- Establishing "mentoring" programs; young graduates to make a commitment to stay for a period of 5 years with an experienced farmer to benefit from his knowledge; this method has a double advantage: increasing population and production
- The need for young personnel in the field of agriculture and agricultural research
- The importance of continuous communication and interaction between all stakeholders participating in this project was highlighted
- Emphasis was placed on the need to disseminate knowledge in an appropriate, concise, and clear manner.

It was emphasized the need to fill the project questionnaires in the most faithful way, which would reproduce relevant information, critical to the development of the project's activities.

The importance of the involvement of the beneficiaries in the activities of the Down to Earth project and the need to improve the Romania's Strategy for Sustainable Development through the good practices identified by the stakeholders of the project and undertaken by them at the level of farms and in rural areas were highlighted.

NMA committed to send the materials relevant to the meeting and Down to Earth project activities information to the participants, to the e-mail addresses provided by them upon registration.

6. Mr. Daniel Alexandru (NMA) closed the meeting.

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9 Minute annex 2

National Stakeholders Meeting "**Environmental risks related to depopulation and population aging in rural areas - Lessons learned**", Bucharest -
17 October 2023

1. Participants

Representatives of the organizations as follows:

- National Meteorological Administration
- Ministry of Agriculture and Rural Development
- Ministry for Development, Public Works and Administration
- National Agency for Land Reclamation
- Pro Agro National Federation
- Forum of Professional Farmers and Processors from Romania
- Romanian Farmers' Club
- Interprofessional Organization for Vegetable and Fruit Agrifood Products
- ITC Seeds
- Farmers
- AGRO TV

Start at 10.00

End at 13.00

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2. Discussions

2.1 Mr. Daniel Alexandru (NMA)

Opened the seminar and briefly presented the purpose of the meeting, the importance, and the need to carry out discussions at the national level with decision-makers and stakeholders regarding depopulation, the aging of the population in rural areas, the migration of the population from villages to the city, shortcomings in terms of the workforce, technological equipment in the rural area. He emphasized the fact that such problems are present not only in Romania, but also internationally and presented the essential characteristics of the Down to Earth project. The Down to Earth project will provide a database of good practices, measures from the legislation of the participating countries to create and improve the current legislation of the partner countries within the project.

2.2 Ms. Florinela Georgescu (Director of Meteorological Forecast – NMA)

Presented the National Meteorological Administration and the departments within this institution. Being also present at the first national meeting organized on July 17, 2023, she appreciates the activity of the Agrometeorology Department within the Down to Earth project, but also the activity of this department in the operative system, which will benefit shortly, on the one hand through the increased number of stations with agrometeorological program, on the other hand, by the establishment of the Regional Agrometeorology Centre for the Europe Region RA-VI within the World Meteorological Organization. There is a special collaboration between all the NMA departments to provide the beneficiaries with the information they need. The current climate context requires the development of research activity in the field of agrometeorology.

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2.3 Mr. Mihael Leonov – State Undersecretary, Ministry of Agriculture and Rural Development

He coordinates the activity of the fishing sector in Romania, a sector that is directly influenced by climate change, through the lack of precipitation that leads to a decrease in the volume of water during the summer-autumn seasons. At the moment there are problems with fishing because the level of the Danube has dropped below 100 cm, leading to the closure of some lakes that are directly connected to the Danube, but not only. Taking into account the meteorological forecasts that announce a deficit of precipitation, causing a difficult return of the flow, the prohibition will be lifted very late in the year 2024. Also, the human resource is indirectly affected for these reasons: there is no more water, there is insufficient fish resource, the food resource is decreasing, which leads to the import of fish in Romania, although there is a large enough area to ensure the amount of fish for domestic consumption. This sector is faced with the departure of young people to cities and more developed areas, therefore, through the Fisheries and Maritime Affairs Program, through the National Strategic Program, measures are being taken to motivate young people to stay in the area, for example creating advantages of to develop businesses in the fishing sector, but also tourism.

2.4 Mr. Bogdan Dumitrescu – Deputy General Director, Ministry of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development deals with environmental issues and depopulation of rural areas. From the perspective of MARD, through

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the Strategic Plan 2023-2027, through which European funding is granted in the agricultural area, there are objectives and measures that stand out by trying to prevent and meet these risks, for example support for young people who want to come work in agriculture, the installation of young farmers, interventions aimed at the development of infrastructure in the rural area. One third of the allocation under the Strategic Plan 2023-2027 is reserved for environmental interventions, such as the application of environmentally friendly agriculture.

2.5 Mr. Emil Ionașcu – Senior Counsellor at the Operational Centre for Emergency Situations, Ministry of Agriculture and Rural Development

The Operational Centre for Emergency Situations benefits from the products made within the National Meteorological Administration, the Agrometeorology Department, and appreciates the good collaboration with this department. The Operational Centre for Emergency Situations has a complex activity, working with a large volume of data, being directly interested in the theme of the meeting and the Down to Earth project. He believes that the challenges of climate change are increasing, thus he appreciates the way in which NMA invests in research and innovation in this field, which supports farmers, who need real-time data, forecasts, informational and warning bulletins.

2.6 Mr. Adrian Constantin Bîrzoï – General Director, National Agency for Land Reclamation

The National Agency for Land Reclamation benefits from the informational bulletins issued by the NMA, but also those issued by the Operational Centre for

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Emergency Situations within the Ministry of Agriculture and Rural Development, which are then distributed to the beneficiaries of the National Agency for Land Reclamation. NALR beneficiaries request water for irrigation, because the water deficit is high, so the irrigation activity is in full swing on this date as well. In recent years we have been dealing with climatic situations that have led to repeated droughts. The National Program for the Rehabilitation of the Main Irrigation Infrastructure has been started, which will lead at the end of 2027 to the possibility of providing water through this main infrastructure (basic pumping stations, re-pumping, main channels, water distribution channels for irrigation) for 2.600.000 hectares. Currently, part of the objectives that ensure 540.000 hectares are completed. Next, through programs within the National Strategic Plan, funds are allocated for beneficiaries (mainly organizations of water users for irrigation).

2.7 Ms. Diana Gheorghe – Public Manager, National Authorities Service for European Programs - Directorate General for European Territorial Cooperation, Ministry for Development, Public Works and Administration

The Ministry of Development, Public Works and Administration within the National Authority represents several programs. The Management Authority of the Interreg Europe program is in France, but MDPWA, as a representative of the National Contact Point, supports all Romanian partners who want to improve their ability to develop public policies as efficiently as possible by accessing this program. The National Meteorological Administration is a partner in a project from the first call that closed at the end of 2022. In the first call, 72 projects were selected from all over Europe, 42 projects having Romanian partners. Through the exchange of experience, the development of tools, public policies, good practices, guidelines happen, so that each partner can improve a policy tool. The program enables

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institutional partners to do their work more efficiently. The program is very attractive because projects are financed in all fields: rural development, climate, transport, environment, social, because the goal is to improve these policy instruments.

2.8 Mr. Cristian Gavrilă – representative of Pro Agro National Federation

The Pro Agro National Federation has representativeness at a national level, consisting of 20 members (professional associations), being the main dialogue partner that participates in the legislative process. The village population is closely related to the personnel working in agriculture. In Romania, farmers find it very difficult to find qualified, but also unqualified personnel, to carry out their activity. Although wages have started to rise in this field, there is this exodus of young people to other economies.

2.9 Ms. Alexandra Cloșcă – representative of Romanian Farmers' Club

The Romanian Farmers' Club carries out informational, representational, and counselling activities, at the national level, but also at the European level. During this period, registrations were held for the two managerial training programs within the club. The Young Leaders for Agriculture program aims to train young people passionate about this sector, with 100 young farmers enrolled. The Entrepreneur in Agriculture 4.0 program, which will start at the end of November, aims to improve the management (financial, management, marketing) of seniors to carry out their activities more easily.

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2.10 Ms. Sorinela Ghiță – representative of Forum of Professional Farmers and Processors from Romania

She specified the fact that the Romanian Maize Producers Association Forum has become the Forum of Professional Farmers and Processors from Romania, having within the association a research department that analyses 7 crops. During this period, the association tries to perfect the young people, to help them apply the knowledge gained during the faculty. The association is a partner in a European project related to climate change, in which farmers are taught how to manage water in a responsible and efficient way. Currently, Romanian farmers are desperate for the lack of precipitation. During this period, the harvesting of the maize crop is finished, or is still harvested in the irrigated system, and the autumn crops are sown. Climate change negatively influences production, water reserves are minimal, and farmers must be taught how to adapt to these climate changes.

2.11 Mr. Fănel Petanca – farmer from Giurgiu area

The agricultural year that began in the fall of 2023 is the most difficult agricultural year, in the 26 years since you have been farming. We have ended a good year, and we are starting a catastrophic one. The last rain over 10 l/sqm in the Giurgiu area was on July 7, 2023. At the current time, only 70% of the rapeseed has been sown, the winter wheat has not been sown, the land is not fully prepared. Programs to support farmers exist, but the reality forces young farmers to give up after one or two years. Environmental regulations are not followed by all farmers, and they are covered by local authorities. The reality of the Romanian village is cruel.

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2.12 Mr. Gheorghe Nedelcu – General manager, ITC Seeds

The interest of the Romanian farmer is to cultivate the land with the best performing varieties to have the best results. Training programs for farmers are welcome, but they must include also small farmers, not only large farmers. International projects in which Romanian specialists and from other countries participate are welcome because the exchange of experience generates multiple benefits. Every passing year is getting worse in terms of agricultural drought, record positive temperatures, record low rainfall. Concrete measures/actions should be taken to try to reduce the effect of climate change, but this requires political will. There is also a problem with uncultivated agricultural land because it is a source of diseases and pests. A proposal can be made to establish forests or grow vegetables on 10% of the uncultivated agricultural land that is in areas strongly affected by drought, thus changing the microclimate of the area. Land should be considered a national asset, not a personal one, because in extreme situations national security is at risk. Use of water collection basins for irrigation and consumption, but also as fishponds.

2.13 Mr. Bogdan Dumitrescu – Deputy General Director, Ministry of Agriculture and Rural Development

The approach of the Down to Earth project is very interesting, because it creates a broader vision, and depending how the situation in other regions is managed, good practices and methods can be identified. Surely this approach will have positive results at the end of the project. Regarding the study visit in Campobasso, we believe that the measures taken by the authorities involved are successful for the realities faced by the communities they administer. These measures seem

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efficient and advantageous from a financial point of view, they try to make the situations they face more efficient, but also to minimize the consumption of resources and the level of involvement of the human factor. They can be examples of success, from which positive conclusions can be drawn, from which solutions that Romania needs can be generated that can be implemented in our policies.

2.14 DI. Fănel Pețanca – farmer from Giurgiu area

It is necessary to carry out the general cadastre of agricultural land.

2.15 Ms. Sorinela Ghiță – representative of Forum of Professional Farmers and Processors from Romania and Mr. Bogdan Dumitrescu – Deputy General Director, Ministry of Agriculture and Rural Development

Expressed their interest in the SIBaTer project, for the identification and valorisation of abandoned and uncultivated land, requesting additional information on how the "Land Bank" was established.

3. Presentations

3.1 Mr. Daniel Alexandru (Head of the Agrometeorological Department - NMA) - Operative and research activity within the Agrometeorology Department

The presentation included:

- description of the Agrometeorological Department within the National Meteorological Administration

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- National Agrometeorological Monitoring Network from Romania
- the national AGROMETEO data platform
- data types utilised
- products that are made available to the public
- 2022-2023 agricultural year
- drought risk assessment in Romania
- how to access the products
- collaboration at national, European and global level
- Regional Agrometeorology Center for the WMO Europe Region RA-VI.

3.2 Ms. Andreea Popescu (Agro Engineer - NMA) - INTERREG Europe / Down to Earth - Tackling depopulation challenges to improve environmental resilience in rural areas

The presentation included:

- Down to Earth project description (general objective, partnership, addressed policy instruments)
- details regarding Romania's Sustainable Development Strategy 2018
- objectives and chapters of the Strategy
- how NMA will contribute to updating the Strategy, respectively chapters 2 Zero Hunger – Agriculture and 13 Climate Action.

3.3 Mr. Daniel Alexandru (Head of the Agrometeorological Department - NMA) - Lessons learned during the first year of the Down to Earth project

The presentation included:

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- Down to Earth core phase
- Down to Earth Romanian stakeholders
- Romanian thematic report on environment risks, depopulations and rural areas (local context, SWOT analysis, legal and strategic framework, good practices and other experiences, proposals for improvement, conclusions)
- Italy, Campobasso study visit

4. General conclusions

The approach of the Down to Earth project is very interesting, because it creates a broader vision, and depending how the situation in other regions is managed, good practices and methods can be identified. They can be examples of success, from which positive conclusions can be drawn, from which solutions that Romania needs can be generated that can be implemented in our policies.

Stakeholders expressed their interest in the SIBaTer project, for the identification and valorisation of abandoned and uncultivated land, requesting additional information on how the "Land Bank" was established.

The challenges of climate change are increasing in Romania, stakeholders appreciate the way in which NMA invests in research and innovation in this field, which supports farmers, who need real-time data, forecasts, informational and warning bulletins.

Training programs for farmers are welcome, but they must include also small farmers, not only large farmers.

In Romania, every passing year is getting worse in terms of drought in agriculture, records of positive temperatures, records of quantitatively reduced precipitation.

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To combat the problem of uncultivated agricultural land, it was proposed to establish forests or grow vegetables on 10% of these lands that are in areas strongly affected by drought, thus changing the microclimate of the area.

The importance of the involvement of the beneficiaries in the activities of the Down to Earth project and the need to improve the Romania's Strategy for Sustainable Development through the good practices identified by the stakeholders of the project and undertaken by them at the level of farms and in rural areas were highlighted.

NMA committed to send to the participants, to the e-mail addresses provided by them upon registration, the materials relevant to the meeting, the Romanian thematic report on environment risks, depopulations and rural areas, as well as other information related to the activities of the Down project to Earth.

5. Mr. Daniel Alexandru (NMA) closed the meeting.